CHAPTER 1

U.S.-CHINA ECONOMIC AND TRADE RELATIONS

SECTION 1: YEAR IN REVIEW: ECONOMICS AND TRADE

Introduction

Although China boasted stronger-than-expected growth in 2015, the year was marked by often record-setting downturns and government intervention in the workings of its economy. China has acknowledged that its growth has been driven by high levels of investment in manufacturing capacity and infrastructure, which is not sustainable; therefore, the Chinese government announced in policy statements that the economy needs to shift to a consumption-driven growth model. To address these structural imbalances, Chinese President and General Secretary of the Chinese Communist Party (CCP) Xi Jinping laid out a sweeping economic reform agenda in the 2013 Third Plenary Session of the 18th CCP Central Committee (hereafter "Third Plenum").* However, responding to signs of economic weakness in 2015, in particular falling global exports and slowing gross domestic product (GDP) growth, the government resorted to stimulus measures to chase growth targets, rolling back some reforms, intervening to support the faltering stock market, and devaluing its currency, the renminbi (RMB).

On the external side, China is failing to deliver on its rebalancing pledge as well. Despite Chinese leaders' stated intent to reduce reliance on exports as a source of growth, China continues to run massive global trade surpluses—an uninterrupted trend since 1995. In 2014, China's global trade surplus in goods and services reached $382 billion. China's trade relationship with the United States is its most unbalanced: In 2014, the U.S. goods trade deficit with China increased by 7.5 percent year-on-year to $342.6 billion, a record. And in the first eight months of 2015, the U.S. trade deficit in goods with China totaled $237.3 billion, a 9.7 percent increase year-on-year, raising troubling questions for the bilateral relationship.

This section explores China's external and internal rebalancing and the evolution of U.S.-China bilateral engagement since the

* For more on President Xi's economic reform priorities and pledges (the Third Plenum reforms), see Nargiza Salidjanova and Iacob Koch-Weser, "Third Plenum Economic Reform Proposals: A Scorecard," *U.S.-China Economic and Security Review Commission*, November 19, 2013.

Commission's 2014 Annual Report. It also serves as an introduction to a comprehensive assessment of China's changing economy and U.S.-China economic interaction that appears in subsequent sections. For an in-depth examination of the regulatory environment, competition policy, and other factors related to treatment of foreign firms, see Chapter 1, Section 2, "Foreign Investment Climate in China." For a full treatment of China's economic rebalancing and reform priorities, see Chapter 1, Section 3, "China's State-Led Market Reform and Competitiveness Agenda." And see Chapter 1, Section 4, "Commercial Cyber Espionage and Barriers to Digital Trade," for analysis of the Chinese government's efforts to boost its domestic companies by state-sponsored cyber theft of U.S. trade secrets.

China's Domestic Rebalancing

The Chinese government proclaimed a major realignment of the Chinese economy from one driven by fixed investment and exports to one driven more by domestic consumption. The leadership under President Xi has acknowledged that a managed slowdown is a necessary component of this rebalancing—the official GDP target has been reset to "approximately 7 percent" for 2015.[1] The government has said, however, that weakness in key indicators calls for additional measures to prevent growth from falling below the target.

As China registered its slowest economic growth in 24 years, the senior leadership in 2014 began to promote the "new normal" principle,[2] the core tenets of which are to:

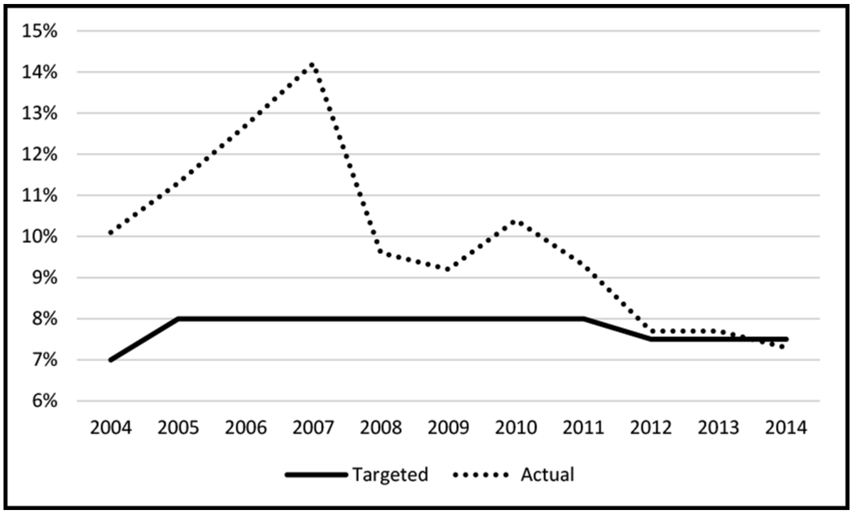
- Transition from high-speed growth to medium-high-speed growth;
- Optimize and upgrade the economic structure; and
- Transition from a factor- and investment-driven economy to an innovation-driven economy.[3]

The "new normal" principle reinforces China's long-held objectives—stated repeatedly since the 11th Five-Year Plan (2006–2010)—to focus on the quality of growth and rebalance the economy toward consumption, services, and high-tech manufacturing. According to Chinese policymakers, this would also mean abandoning the low-margin and low-value-added assembly of imported parts, certain energy-intensive manufacturing, and highly polluting mining operations.

In 2014, China appeared to make progress in its rebalancing agenda: GDP growth slipped to 7.3 percent, its lowest annual rate since 1990.[4] It was also 0.2 percentage points short of the official government target, the first time this happened in over a decade (see Figure 1). In allowing the GDP to miss its official target of 7.5 percent, the Chinese government appeared to cross an important psychological threshold, signaling it would indeed accept slower, more balanced growth. However, the Chinese government's commitment to reform began to falter as growth in 2015 fell to the slowest rate since early 2009—7 percent in each of the first two quarters and 6.9 percent in the third quarter according to official estimates. The Chinese government started introducing measures to boost growth, and by the time the mainland stock exchange fell into turmoil in June 2015, the government was in full rescue mode.

The People's Bank of China (PBOC) has attempted to stimulate the economy by lowering interest rates six times since November 2014 to encourage borrowers; it has also reduced banks' reserve requirement ratios (RRR) four times in 2015 to loosen lending.[5]

Figure 1: China's Actual and Targeted Real GDP Growth
(year-on-year)



Source: World Bank; International Monetary Fund (IMF); China's National Bureau of Statistics.

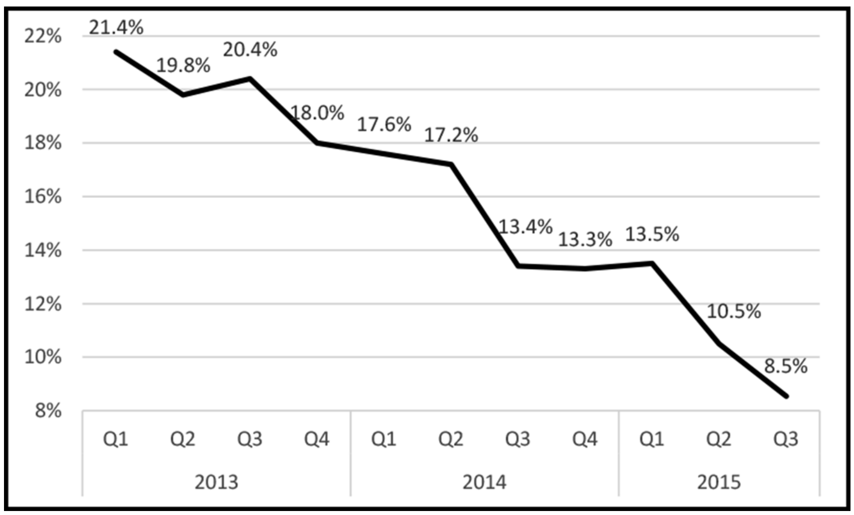
Defying Forecasts: The Reliability of China's GDP Data

China's official statistics showed better-than-expected GDP growth in the first half of 2015—7 percent—giving rise to speculation that the data were flawed and exaggerated. China's National Bureau of Statistics stepped in to dispel the rumors, saying the data were accurate,[6] but analysis of private estimates and synthetic measures of growth shows something is indeed amiss in China's reporting, especially the politically sensitive GDP growth rate.

Unofficial estimates of China's growth in the first half of 2015 vary, but all agree the GDP was well below the reported 7 percent. For example, according to Lombard Street Research, a London-based consultancy, in the second quarter of 2015, China's GDP grew only 3.7 percent year-on-year, while Fathom Consulting, another research firm, estimates GDP growth in 2015 will reach only 2.8 percent.[7] Rail volume, an important economic indicator, was down 10.1 percent in the first half of the year.[8] Electricity production, meanwhile, grew by just 0.7 percent—which Gary Hufbauer, senior fellow at the Peterson Institute for International Economics, indicates is incompatible with 7 percent GDP growth, saying that "it's consistent with maybe 4 percent at best."[9]

Anemic factory utilization, a drop in fixed asset investment, and weaker consumption growth contributed to the slowdown in 2015. Expansion of fixed asset investment, a key pillar of China's traditional growth model, slowed to just 8.5 percent year-on-year in the third quarter (see Figure 2). In addition, China's disposable income per capita increased just 7.7 percent year-on-year in the third quarter, barely up from 7.6 percent in the second quarter.[10]

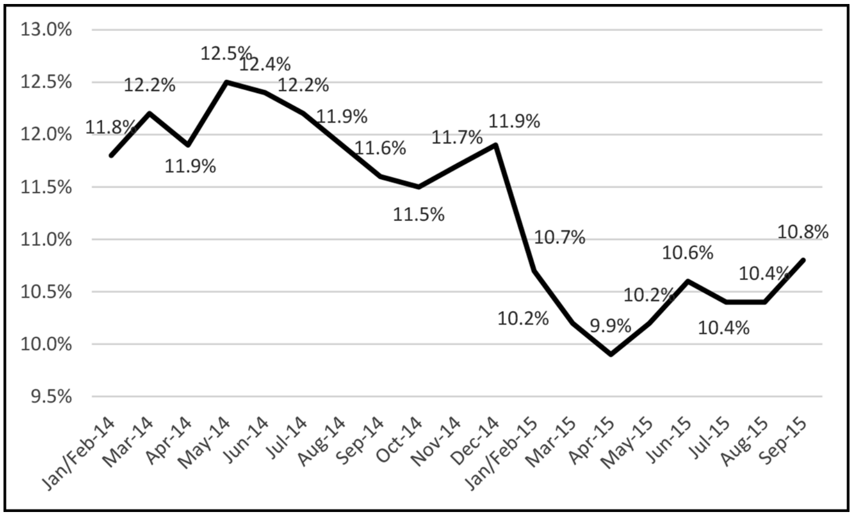
Figure 2: Growth in Fixed Asset Investment
(quarterly, year-on-year)



Source: China's National Bureau of Statistics via CEIC database.

The stronger-than-anticipated third quarter was supported in large part by a small recovery in consumption and a resilient service sector, which grew 8.6 percent, up from 8.5 percent in the second quarter.[11] Retail sales of domestic goods and services, a proxy figure for overall consumption, grew at 10.8 percent year-on-year in September 2015, up from just 9.9 percent in April 2015 and 10.4 percent in August 2015 (see Figure 3).

Figure 3: China Retail Sales of Consumer Goods
(monthly, year-on-year)

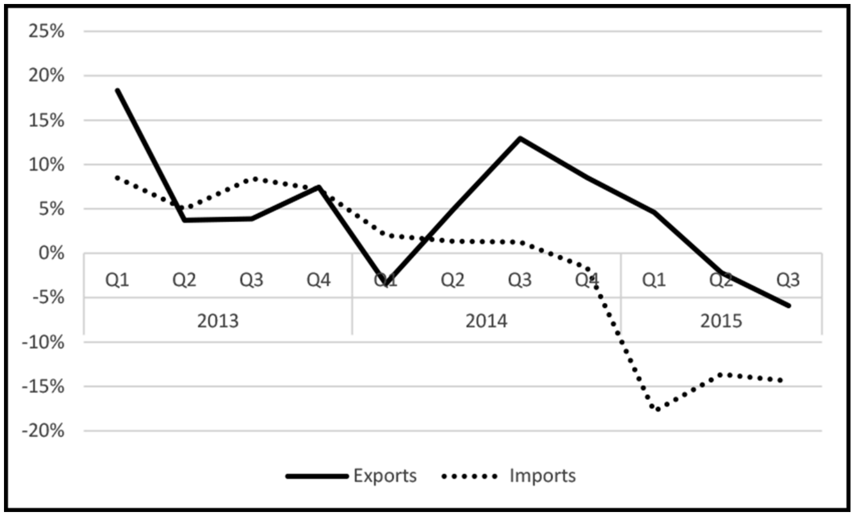


Source: China's National Bureau of Statistics via CEIC database.

Like investment, manufacturing activity has been sluggish. The Caixin/Markit unofficial estimate shows China's manufacturing Purchasing Managers' Index (PMI) at 47.2 in September 2015, down fractionally from 47.3 in August (a reading above 50 points distinguishes growth from contraction).[12] This is the lowest PMI reading since March 2009 and, together with ongoing fall in factory employment, raises fears that China's slowdown might be worsening.[13]

A stronger currency and low demand caused Chinese global exports to contract 5.9 percent year-on-year in the third quarter of 2015 (see Figure 4). Coupled with a contraction of nearly 14.5 percent for imports compared to the third quarter of last year, China's production rate is unlikely to increase in the short term; typically, declining import growth suggests a lack of demand from factories.

Figure 4: Growth in China's Exports and Imports
(quarterly, year-on-year)



Source: China's Administration of Customs via CEIC database.

Other traditional growth drivers are also showing signs of weakness. Profits at state-owned enterprises (SOEs) fell 8.2 percent year-on-year in the first three quarters of 2015, despite government's efforts to boost economic growth.[14] Though the state sector has declined in importance, SOEs still contribute about half of all profits generated by Chinese companies, and SOEs in strategic sectors (such as energy) enjoy monopoly privileges. The central government, long unhappy with poor performance by SOEs, has aggressive plans to increase their efficiency. State media reported in late April that Beijing plans to consolidate central state-owned conglomerates from 112 to 40.[15] By forcing major SOEs to merge, the central government wants to create industrial giants or "national champions" capable of competing globally.

Increasing SOE efficiency is a critical component of President Xi's agenda. In addition, President Xi has included SOE leadership in his stepped-up efforts to fight corruption. The Communist Party's top anticorruption agency, the Central Commission for Discipline Inspection, is in the midst of a two-year investigation of SOEs in strategic sectors.[16] At the time of publication of this Report, the latest target of the campaign is Wang Tianpu, the powerful head of state-owned oil company Sinopec Group.[17] Several executives at another state-owned energy major, China National Petroleum Corp., are also under investigation. In fact, according to Chinese media reports, 25 percent of the 124 senior SOE officials under investigation for corruption are from SOEs in the energy sector.[18] (For more on China's efforts to restructure its SOEs, see Chapter 1, Section 3, "China's State-Led Market Reform and Competitiveness Agenda.")

China's Stock Market Collapse

Following a rapid climb in the first half of 2015, Chinese stocks began experiencing an extraordinary fall in mid-June.* On August 26, 2015, its lowest point, China's main exchange, the Shanghai Composite, was down 38 percent from its peak in June (see Figure 5), while Shenzhen, the smaller, tech-dominated exchange, was down 40 percent.[19] Since the two exchanges started their slide, investors have lost about $4 trillion, roughly equal to China's total market capitalization in 2012.[20]

Given the importance of the stock market in propping up sluggish economic growth, the Chinese government responded to the collapse with heavy interference: ordering brokerages to buy, forbidding large shareholders to sell, sending police to root out "malicious" sellers, and dedicating significant government resources to stabilize prices (see Table 1 for a timeline of government intervention). As the market sell-off continued unabated into August, the government also resorted to outright censorship of information: state-run media outlets stopped reporting about the crash except as prescribed by government guidelines to keep coverage "strictly in line with official rules intended to deter pessimism or panic";[21] at the same time, nearly 200 people were punished for "spreading rumors" online, including discussion of the stock market.[22]

Analysis by Reuters shows China has spent nearly $800 billion (RMB 5 trillion)† of public and private funds to stabilize the stock market.[23] This interference represents a dramatic reversal of President Xi's pledge at the 2013 Third Plenum that the market will play a "decisive" role in all aspects of the economy.[24]

Even as the government put forth new policies to intervene in the market and prevent further collapse, shares continued to tumble after a brief recovery in early July (see Figure 5). Despite the fall, as of September 30 the Shanghai and Shenzhen exchanges were up, respectively, 31 percent and 29 percent year-on-year.[25]

Policies pursued by the government in search of new sources of growth (beyond the traditional emphasis on fixed asset investment) are at least partly to blame for the creation of the bubble before stocks collapsed. Investment in the stock market was viewed as a way to generate capital for SOEs, boost funding for private companies, and provide households with means of realizing returns. State-run media outlets, including *People's Daily*, ran laudatory editorials describing the stock market growth as a sign of economic strength.[26] At the same time, regulators were reluctant or unable to step in because of interagency infighting and the political pressure to allow stock growth.[27]

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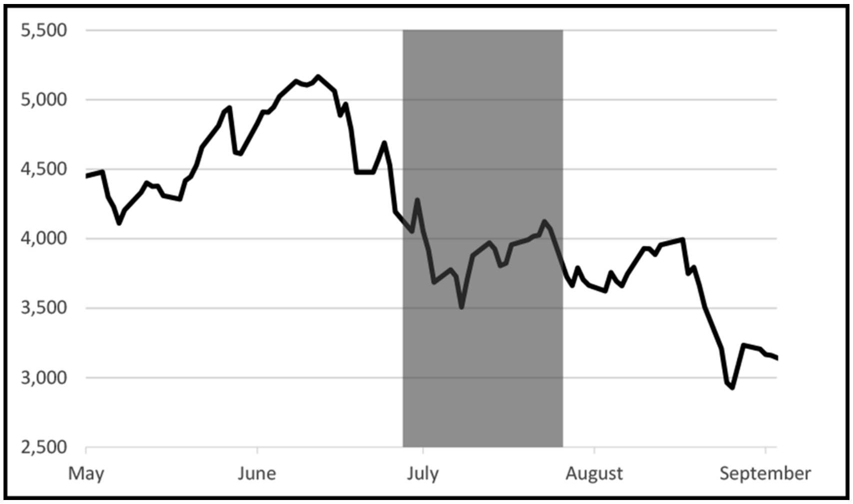
*For a brief analysis of China's stock market before the collapse, see Nargiza Salidjanova, "China's Stock Market Collapse and Government's Response," *U.S.-China Economic and Security Review Commission*, July 13, 2015.

†Unless otherwise specified, this Report uses the following exchange rate throughout: 1 RMB = 0.16 U.S. dollar.

Figure 5: Shanghai Composite Index, April–September 2015



Source: Bloomberg. *http://www.bloomberg.com/quote/SHCOMP:IND*.
Note: The shaded area represents the period of active government intervention highlighted in Table 1.

Table 1: Government Measures to Resuscitate the Stock Market, 2015

Date	Description
June 27	The PBOC stepped in to stop a selloff in Chinese stock markets, cutting benchmark interest and deposit rates by 25 basis points each (to 4.85 percent and 2 percent, respectively), and the RRR for some banks by 50 basis points. In a statement, the PBOC said the measures were aimed at reducing borrowing costs and "stabilizing growth," but did not provide implementation details.[28] This is the fourth time the PBOC has cut lending and deposit interest rates since November 2014; it is also the first time since October 2008 the central bank cut both interest rates and the RRR.[29]
June 29	The Ministry of Human Resources and Social Security and the Ministry of Finance published draft regulations allowing pension funds managed by local governments to invest in stocks, funds, private equities, and other stock-related products. The proportion of investment in stocks will be capped at 30 percent of the pension fund's net value.[30] The funds have combined assets worth more than $320 billion (RMB 2 trillion), of which up to $97 billion could flow into the stock market.[31]
July 1	The China Securities Regulatory Commission (CSRC) allowed investors to use homes and other real assets as collateral to borrow money to purchase stocks.[32]
July 4	21 brokerages set up a fund worth about $19 billion (RMB 120 billion) to buy shares.[33] The CSRC suspended all new initial public offerings to reduce volatility.[34]
July 5	The CSRC said the PBOC will "uphold market stability" by providing funds (about $42 billion, or RMB 260 billion) to a state-run margin trader, China Securities Finance Corporation (CSFC), to lend money to brokerage firms for purchases of shares.[35] The PBOC also announced the CSFC will receive liquidity to "hold the line" against systemic risks, in essence using PBOC money to directly buy shares—a radical departure from its traditional role as a lender to brokerages.[36]

Table 1: Government Measures to Resuscitate the Stock Market, 2015—*Continued*

Date	Description
July 8	The CSRC banned shareholders with stakes above 5 percent from selling shares for six months.[37]
July 17	The CSRC announced it will have access to up to $480 billion (RMB 3 trillion) from the PBOC and state-owned commercial banks to stabilize the market.[38]
July 27	The CSRC announced the CSFC will step up its buying of stocks, and launched an investigation into two major margin-lending platforms' involvement in a coordinated selloff.[39]

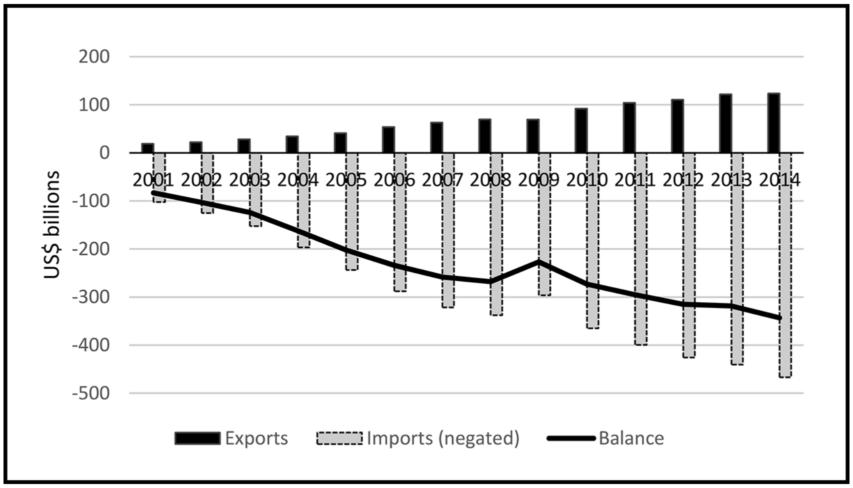
Concerns over China's slowing growth and falling stocks roiled global markets.[40] However, the isolation of Chinese stock markets, where foreign investors own only about 1.5 percent of Chinese shares, means global markets are unlikely to suffer long-term negative consequences.[41] The effect on China's domestic consumption will likewise be contained, since stocks account for less than 15 percent of household financial assets.[42] Nevertheless, this market rout is a major source of domestic concern in China. Beyond the stock markets, commodities and emerging market currencies fell on fears of China's instability.[43]

The Chinese government's heavy-handed response to the stock market collapse prompted the International Monetary Fund (IMF) in July to urge China to return to its economic reform agenda, arguing that it was "increasingly urgent" because the stimulus was "not sustainable and is raising vulnerabilities."[44] (For a full treatment of China's reform priorities and rebalancing progress, see Chapter 1, Section 3, "China's State-Led Market Reform and Competitiveness Agenda.")

U.S.-China Bilateral Trade and Investment Issues

Despite slowing economic growth, China's trade surplus with the United States continues to rise. And though U.S. exports to China continue to increase, imports from China have grown even faster, leading to a trade relationship that is progressively more unbalanced. In 2014, the U.S. goods trade deficit with China increased by 7.5 percent year-on-year to $342.6 billion, a record (see Figure 6). U.S. exports to China grew 1.9 percent year-on-year, while imports increased 6 percent. This stood in contrast to 2013, when U.S. exports to China rose by 10.2 percent, outpacing imports by 6.7 percentage points. In effect, after some progress in 2013, efforts to achieve a closer balance in bilateral trade are faltering. In the second half of 2014, U.S. exports to China actually declined by 2.1 percent year-on-year, compared to 15.9 percent growth during the same period a year earlier.

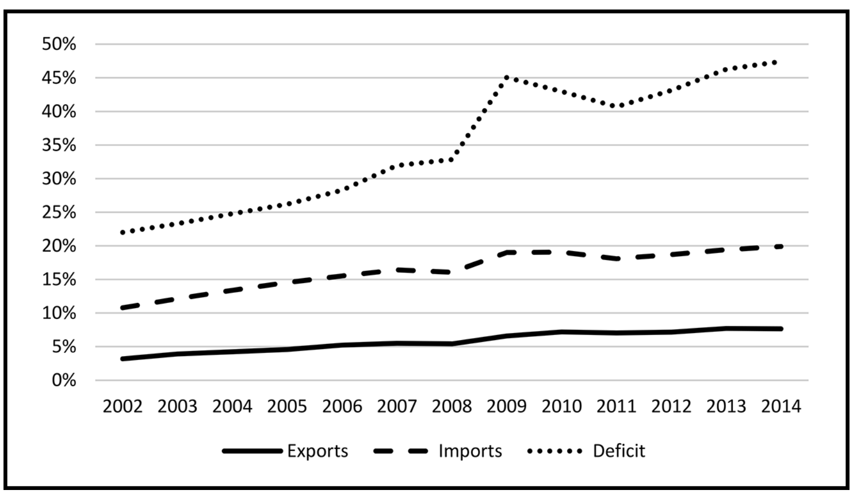
Figure 6: U.S.-China Goods Trade, 2006–2014



Source: U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division, North American Industry Classification System (NAICS) database, May 2015.

China's share of the U.S. goods deficit with the world also set a new record in 2014, reaching 47 percent (see Figure 7). The overall goods deficit for 2014 was $722.5 billion. U.S. exports to China also grew at a slower rate than U.S. exports to the rest of the world, counter to the prevailing trend of the past five years.

Figure 7: China's Share of U.S. Goods Exports, Imports, and Deficit



Source: U.S. Census Bureau.

In the first eight months of 2015, the U.S.-China trade deficit in goods was $237.3 billion, a $21 billion (or 9.7 percent) increase over the same period in 2014 (see Table 2). U.S. exports to China declined 3.9 percent in the first eight months of 2015, while imports rose 6.1 percent year-on-year.

Table 2: U.S. Goods Trade with China, January–August 2015

(US$ billions)

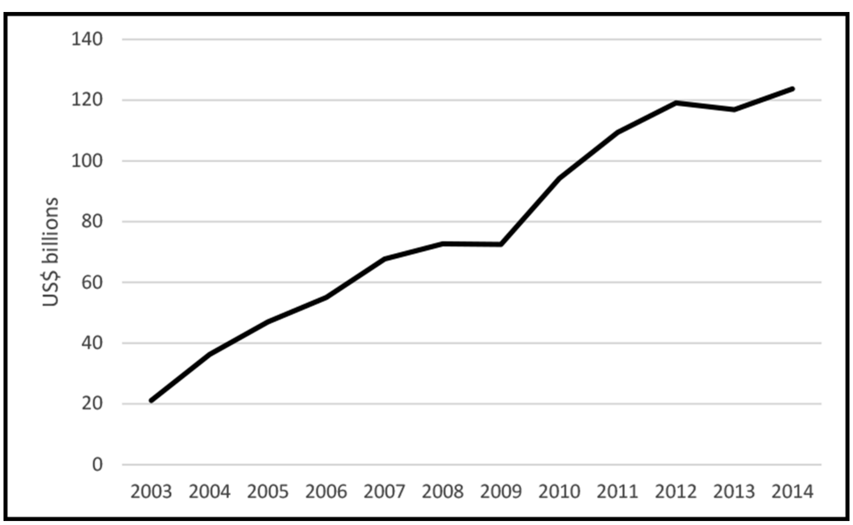
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Exports	9.6	8.7	9.9	9.3	8.8	9.7	9.5	9.2
Imports	38.2	31.2	41.1	35.8	39.2	41.1	41.1	44.1
Balance	(28.6)	(22.5)	(31.2)	(26.5)	(30.5)	(31.5)	(31.6)	(34.9)
Balance YTD								
2014	(27.8)	(48.7)	(69.1)	(96.4)	(125.2)	(155.2)	(186.1)	(216.3)
2015	(28.6)	(51.1)	(82.4)	(108.9)	(139.3)	(170.8)	(202.3)	(237.3)

Source: U.S. Census Bureau.

The United States continues to register a surplus in services with China; however, the amount is dwarfed by the U.S. deficit in goods. In 2014, the U.S. trade surplus in services with China totaled $26.8 billion, a 14.5 percent increase from 2013.[45] Total bilateral trade in services rose approximately 8 percent in 2014, with U.S. service exports growing 10 percent, the same rate as in 2013, and Chinese service imports growing 2.6 percent.[46] Travel (including for business and education) is the top U.S. service export to China, followed by charges for use of intellectual property.[47]

The United States continued to maintain a deficit in advanced technology products (ATP) trade with China in 2015, a long-standing trend (see Figure 8). In the eight months of 2015, the United States imported $95.3 billion of ATP from China, and exported $22.6 billion, for a deficit of $72.7 billion. China now accounts for 10 percent of total U.S. ATP exports and 34 percent of U.S. ATP imports.[48]

Figure 8: U.S. Deficit with China in ATP

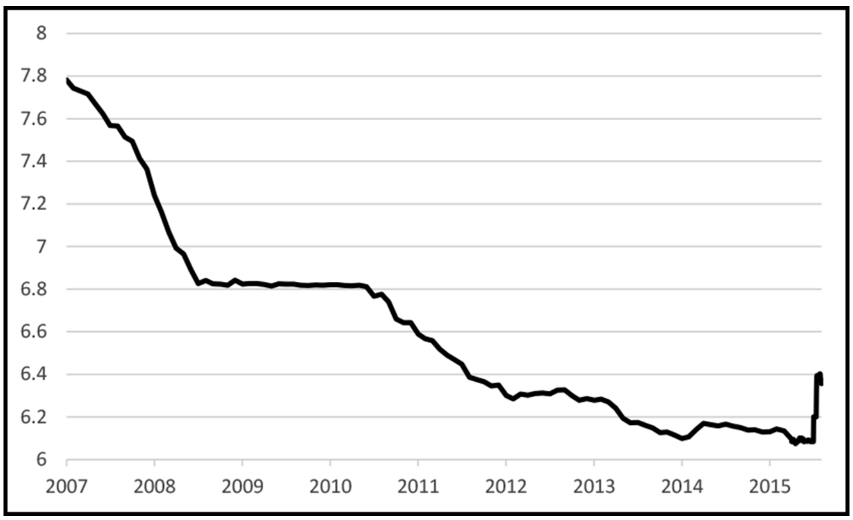


Source: U.S. Census Bureau.

Currency and Foreign Exchange Reserves

In July 2005, China moved the RMB from a tight peg to the U.S. dollar to a managed float.* A decade later, the government retains a firm grip on the currency: the PBOC sets a new value for the RMB-dollar exchange rate each trading day, even while permitting fluctuations in intra-day trading within a 2 percent trading band. In the intervening years, the government has allowed the RMB to slowly appreciate against the dollar—though the government reinstated the peg during the financial crisis—ultimately rising 30 percent (see Figure 9).

Figure 9: RMB to U.S. Dollar Exchange Rate, 2007–September 2015



Source: Oanda, “Historical Exchange Rates.” *http://www.oanda.com/currency/historical-rates/.*

As China’s economic growth weakened in the first half of 2015, the Chinese government stepped in to act. On August 11, the PBOC unexpectedly devalued the RMB by 1.9 percent, followed by another 1.6 percent cut on August 12, and a 1.1 cut on August 13, bringing the total devaluation over three days to 4.4 percent, the biggest drop in decades (see Figure 10). Rather than using its traditional method of devaluing the currency—buying dollars and selling the RMB—the PBOC set the RMB daily trading rate according to the market-determined closing price within its trading band from the previous day. This change in policy does not mean the RMB will now have a free-floating exchange rate, since the PBOC reserves the right to reset the exchange rate to any value.

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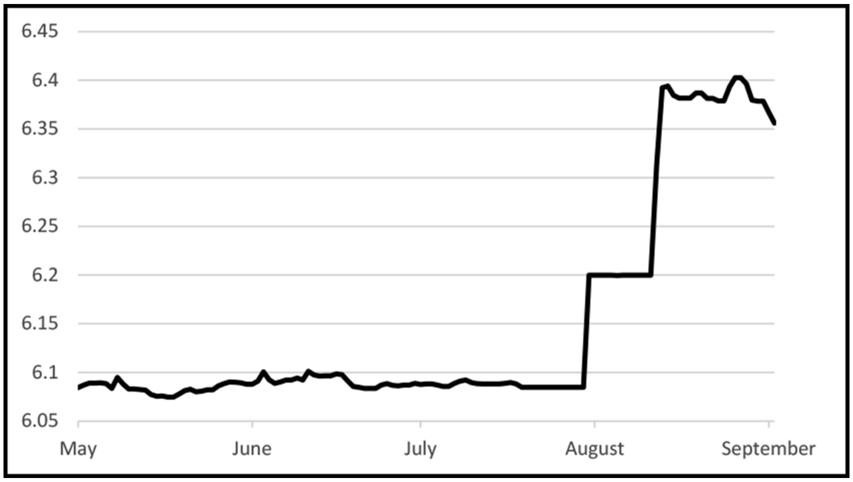
*According to the PBOC, the RMB’s value is managed against a basket of currencies. The composition of this basket has not been revealed.

Figure 10: RMB to U.S. Dollar Exchange Rate, May–September 2015



Source: Oanda, "Historical Exchange Rates." *http://www.oanda.com/currency/historical-rates/*.

After the three-day devaluation under the new trading system prompted worries that the RMB would have a prolonged fall, the PBOC intervened on August 15, stopping the devaluation and setting the daily RMB-dollar exchange rate marginally higher (see Figure 10). By the end of August, the central bank spent as much as $200 billion of China's foreign exchange reserves to keep the RMB from falling too much.[49]

The government's decision to turn to a weaker currency raises concerns among observers that the economy is slowing down much faster than previously thought. This was a significant departure, since in the first half of 2015, the government has been intervening in the foreign exchange markets to keep the RMB from depreciating against the dollar. Since May 2015—and until the August 11 devaluation—the RMB had barely moved against the dollar (see Figure 10). Many China watchers welcomed the move to weaken the currency because it better corresponds to the overall state of China's economy. According to Nicholas Lardy, senior fellow at the Peterson Institute for International Economics, if the RMB were permitted to move based on a market-determined exchange rate, it likely would have depreciated on its own in response to China's slowdown.[50] Others, however, warned that China's government devalued the RMB to help China's battered export sector.[51] China has a history of manipulating its exchange rate for mercantilist purposes; therefore, the burden is high on China to prove that this devaluation of the RMB is indeed a step toward a more market-determined rate and not an opportunistic way to boost competitiveness of its exports.

The RMB's devaluation comes at a time when China is seeking a broader international role for its currency. In May 2015, the IMF announced that, in its view, China's currency was "no longer undervalued," citing the RMB's appreciation over the previous 12 months.[52] This announcement marked an important reversal by the IMF after more than a decade of criticizing China for tightly managing the RMB's value.

While acknowledging that the RMB "had appreciated in real effective terms," the U.S. government believes that China's currency "remains below its appropriate medium-term valuation."[53] This is a change from its previous assessment that the RMB is "significantly undervalued." In its October 2015 semiannual report to Congress, the U.S. Department of the Treasury pointed to China's high current account surplus and lack of sufficient domestic rebalancing toward consumption over investment as indicators that "core factors that have driven RMB appreciation remain in place."[54] The report also highlighted that China's central bank, the PBOC, continues to intervene in the value of the RMB.[55] Following China's move to a new exchange rate mechanism, Treasury said it would carefully monitor its implementation—specifically, whether China allows the RMB to respond to market forces—and called for further exchange rate policy transparency.[56] The only way of determining the actual value of the RMB against the dollar would be to allow the Chinese currency to be freely traded on international currency markets without government interference—something Beijing has steadfastly refused to do.

The IMF's May 2015 announcement comes amid China's efforts to promote the RMB for inclusion as a reserve currency in the Special Drawing Rights (SDR) basket at the IMF.* Chinese authorities have stated publicly their interest in including the RMB in the SDR basket. IMF First Deputy Managing Director David Lipton said, "RMB inclusion [in the SDR basket] is not a matter of 'if' but 'when.'"[57] The IMF's decision on the SDR basket is expected in November 2015; in August, however, the IMF indicated that following the decision, the new basket will become effective starting October 2016 rather than January 2016 as is customary.[58] A currency must be "freely usable" to be eligible for inclusion—a criterion China does not meet because it maintains strict controls over movement of capital over its borders and the amount the RMB can move against the dollar.[59] The IMF reviews composition of the SDR basket every five years; therefore, if the RMB were not included in 2015, then it would not be up for reconsideration until 2020.

The Chinese government's intervention to keep the RMB steady before the August 11 devaluation and after partly explains why China's foreign exchange reserves declined† from $4 trillion last year to $3.51 trillion in September 2015.[60] China's official holdings of U.S. Treasuries‡ recovered in August to reach $1.27 trillion, after falling more than $30 billion in July 2015 (Japan is in second place, with $1.20 trillion).[61]

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*The SDR is an international reserve asset created by the IMF. Currently, the SDR basket is composed of the U.S. dollar, euro, pound, and yen. See International Monetary Fund, "Special Drawing Rights (SDRs)," April 9, 2015.

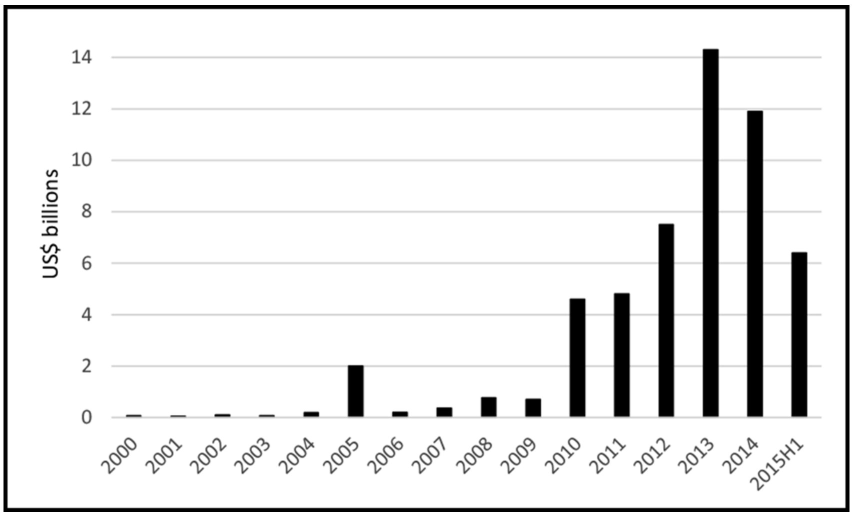
†Other causes of the decline in China's foreign reserves are capital flight (estimates put the amount at $250 billion to $300 billion in the six months to March 2015) and China's contribution to the two multilateral development institutions it has spearheaded, the Asian Infrastructure Investment Bank and the New Development Bank, though the amounts in both cases are relatively small.

‡Because the Chinese government also buys unregistered Treasuries on the secondary market—purchases that do not show up in official tallies—China's actual holdings of U.S. government securities are higher than officially reported.

Chinese Investment in the United States

Chinese investment in the United States continued to rise in 2015.* According to data from Rhodium Group, the stock of Chinese foreign direct investment (FDI) in the United States grew from $2.5 billion in 2005 to $47.6 billion in 2014, with $11.9 billion worth of deals completed in 2014 alone.[62] In the first six months of 2015, Chinese investors spent $6.4 billion in the United States, nearly double the amount for the same period last year (see Figure 11).

Figure 11: Chinese FDI in the United States, 2000–2015H1



Note: Data for 2015 are for the first six months.
Source: Rhodium Group, "China Investment Monitor." *http://rhg.com/interactive/china-investment-monitor*.

The biggest transaction so far this year is the $1.95 billion acquisition of the Waldorf Astoria hotel in New York City by Anbang, a Chinese insurance company (see textbox below). This continues the trend of sizable investments by Chinese companies in U.S. real estate, including residential and commercial properties.[63] The information and communications technology sector is also a major recipient of Chinese investment. Chinese computer company Lenovo's acquisitions of Motorola Mobility (for $2.9 billion) and IBM's x86 server business (for $2.1 billion) were the two biggest deals by Chi-

* This section relies on private, rather than official, estimates of Chinese FDI in the United States. Official statistics (both U.S. and Chinese) underestimate the true volume of Chinese investment because they do not fully account for flows of FDI, including through Hong Kong and other offshore financial centers. Official data are also provided after a significant delay, which hinders analysis. For example, as the International Trade Administration (ITA), a bureau within the U.S. Department of Commerce, stated in a 2013 report on Chinese FDI in the United States, estimates from the Rhodium Group showed $6.5 billion of FDI flows from China to the United States in 2012, while U.S. government estimates showed only $219 million for the same year. In the same report, ITA said it is "important to be aware of different estimates" of Chinese investment. ITA noted that private sector valuations employ different definitions of FDI, data-gathering mechanisms, and accounting methods that lead to differences in reported value of investments. See International Trade Administration, *Report: Foreign Direct Investment (FDI) in the United States from China and Hong Kong SAR*, July 17, 2013.

nese investors in the United States in 2014. This year, Tsinghua Unigroup, the investment arm of one of China's top universities, reportedly wanted to acquire U.S. chip maker Micron for $23 billion.[64] News of the rumored deal prompted concern from observers and policymakers about the potential national security implications of selling the last U.S.-based chipmaker to a Chinese SOE at the time when cyber attacks against U.S. companies by China-based groups are on the rise (for more on Chinese state-sponsored cyber theft, see Chapter 1, Section 4, "Commercial Cyber Espionage and Barriers to Digital Trade in China"). Another Tsinghua subsidiary, Unisplendour, also announced a planned acquisition: $3.78 billion for a 15 percent stake in Western Digital, a U.S. data storage company; the deal is expected to close in early 2016.[65]

U.S. Government Officials Avoid Waldorf Astoria after the Sale

The Waldorf Astoria in New York City has historically served as the residence for U.S. ambassadors to the UN, and for decades has been used as accommodation for U.S. diplomats during the UN General Assembly.[66] The acquisition of the Waldorf by a Chinese company created a minor controversy when it was revealed that the president, White House officials, and U.S. Department of State personnel will not stay in the hotel following the purchase. The spokesman for the U.S. Department of State said the residency at the Waldorf of the current U.S. envoy to the UN, Samantha Power, was under review, but would not comment on the decision.[67] While U.S. government officials declined to comment, it is widely believed the decision was prompted by fears of Chinese espionage and the announcement of an upcoming "major renovation," which could be used to install surveillance equipment in the hotel.[68]

The Chinese government significantly liberalized regulations on outbound investment by abolishing the requirement for: (1) Ministry of Commerce approval for nonsensitive outbound FDI, (2) National Development and Reform Commission approval for projects of $1 billion or less, and (3) State Administration of Foreign Exchange approval of foreign exchange transactions related to FDI.[69] These changes are likely to encourage more Chinese firms to invest abroad, including in the United States.

At the same time, FDI flows into China continue to decelerate as the investment climate for foreign firms seeking to invest in China deteriorates. According to the U.S. Bureau of Economic Analysis, in 2014, annual U.S. FDI in China reached $6.3 billion, a 4.9 percent decrease year-on-year. In the first half of 2015, according to Chinese statistics, investment from the United States declined 37.6 percent year-on-year, and investment from Japan, another big investor, decreased 16.3 percent.[70] Alongside rising costs, increased competition, and inadequate protection of intellectual property, hostile and discriminatory treatment by Chinese regulators has emerged as a key obstacle for U.S. and other foreign investors.

(China's regulatory environment, competition policy issues, and other factors related to treatment of foreign firms are covered in depth in Chapter 1, Section 2, "Foreign Investment Climate in China.")

A U.S.-China Bilateral Investment Treaty (BIT) currently under negotiation has the potential to alter the bilateral investment relationship. BIT negotiations entered a new phase with China's formal submission of its negative list * on June 12. China made a revised negative list offer in advance of the September summit between President Barack Obama and President Xi. U.S. Trade Representative Michael Froman said the revised negative list, while an improvement, fell short of "the kind of high-standard agreement necessary to achieve our mutual objectives." [71]

U.S.-China Bilateral Engagement

World Trade Organization-Related Issues

The U.S.-China relationship continues to be marked by tensions over China's violation of key World Trade Organization (WTO) provisions and failure to make a sufficient offer to join the WTO's Agreement on Government Procurement, which China agreed to do in 2001 as part of its accession to the WTO. In December 2014, China submitted its latest accession offer to join the Agreement on Government Procurement, making incremental improvements in the scope of coverage, though other parties to the Agreement—including the United States—still deemed it insufficient. The primary improvement in the new offer is the minor addition of five provinces and new service sectors to the deal.† China has refused to include most SOEs as parties to the deal—a key demand from the United States.

The United States also continued to urge China to report its subsidies to the WTO. Although China agreed to do so when it acceded to the WTO in 2001, it has never submitted a "complete notification of subsidies maintained by central and sub-central governments." [72] In response to China's failure to carry out its obligations, the United States has been conducting its own research and analysis, and filing with the WTO so-called "counter notifications" of Chinese subsidy measures. The United States made its first such submission in 2011, listing nearly 200 subsidies; it followed with a second notification in October 2014, identifying over 100 subsidies.[73] In their 2015 *Subsidies Enforcement Annual Report to the Congress*, the Office of the U.S. Trade Representative (USTR) and the U.S. Department of Commerce noted that to date "China has not provided a complete, substantive response to these counter notifications," instead claiming that the United States has "misunderstood" China's subsidy programs.[74] China also refuses to discuss this matter with the United States or to notify any of the subsidies in question to the WTO.[75]

* Under a negative list, only items in the list are excluded from the agreement; all other items are included. In other words, foreign investment is prohibited or restricted in the sectors included in the negative list, but permitted in all other sectors.

† For details of China's latest accession offer, see U.S.-China Economic and Security Review Commission, *Monthly Analysis of U.S.-China Trade Data*, January 7, 2015.

New and pending WTO cases between the United States and China are summarized in Addendum I. Other key developments in U.S.-China engagement at the WTO are discussed in the following subsections.

China Ends Rare Earths Quotas, Introduces Licensing System

In January 2015, the Chinese government announced the end of restrictive quotas on exports of rare earth minerals, tungsten, and molybdenum, all of which are crucial for many advanced technology industries, including clean energy and weapons guidance systems. The move was widely expected following the WTO dispute settlement body's ruling (upheld on appeal) finding China's exports restrictions on rare earths to be in violation of China's WTO obligations.* In May, China announced it had complied with the WTO ruling and eliminated export duties on rare earths; however, the United States did not agree that China was in full compliance.[76] The two sides agreed to resolve the dispute in accordance with WTO procedures; the outcome is pending.

The ending of the quotas will likely have limited impact on the global rare earths market. One reason is that China's exports of rare earths—and therefore the importance of the quotas—started to decline slightly before the WTO's ruling when other nations, pressed by price shocks and limited supply, ramped up their own production or sought alternatives. According to the latest estimates, as other sources of supply became available, China's exports of rare earths started falling below levels permitted by the quota.[77] Molycorp, the only U.S. miner and producer of rare earth elements, came online after China initially restricted exports. However, as global prices for rare earths plunged in response to the rise of alternative sources of production or substitutes, Molycorp struggled to turn a profit, ultimately filing for bankruptcy protection in June 2015.[78]

Still, the Chinese government does not plan to relinquish control over the rare earths industry following the ending of the quotas. The announcement from China's Ministry of Commerce ending the quotas also introduced a licensing system for enterprises wishing to export rare earths. Enterprises that seek to export rare earths will need to apply for a license, with approvals decided on a case-by-case basis.[79]

United States Challenges Chinese Export Subsidies at the WTO

In 2015, the USTR announced new action at the WTO over China's "Demonstration Bases-Common Service Platform" program, which provides WTO-illegal export subsidies † to businesses in industrial clusters—known as "Demonstration Bases"—located throughout China. The program targets seven critical industries: (1) textiles, apparel, and footwear; (2) advanced materials and metals (including specialty steel, titanium, and aluminum products); (3) the light industry; (4) specialty chemicals; (5) medical products;

* For background on the case, see U.S.-China Economic and Security Review Commission, *Monthly Analysis of U.S.-China Trade Data*, April 4, 2014.

† While the WTO permits some subsidies, those that are "contingent, in law or in fact, whether wholly or as one of several conditions, on export performance," are among those deemed prohibited. See World Trade Organization, "Agreement on Subsidies and Countervailing Measures."

(6) hardware and building materials; and (7) agriculture.[80] The request for consultations is a first step in the dispute settlement process. In the meantime, the EU, Brazil, and Japan requested to join the consultations.

The United States alleges that under the program, "enterprises that meet export performance criteria and are located in 179 Demonstration Bases throughout China" receive cash grants and low-cost or no-cost services (such as information technology [IT], product design, and worker training).[81] According to USTR estimates, China has given almost $1 billion over a three-year period to Common Service Platform suppliers. In addition, certain Demonstration Base enterprises have received at least $635,000 worth of benefits annually.[82] According to the USTR, exports from Demonstration Bases comprise a significant portion of China's exports. For example, 16 of the approximately 40 Demonstration Bases in the textiles sector accounted for 14 percent of China's textile exports in 2012.[83]

The United States has a history of challenging China's export subsidy programs at the WTO. The USTR brought a 2007 case against subsidy programs supporting a wide range of industries, including steel, computers, and other manufactured goods,[84] and a 2008 case against China's "Famous Brands" program, which offered grants, loans, and other incentives to Chinese enterprises to promote their global presence.[85] Both cases were ultimately settled by mutual agreements, with China agreeing to eliminate the prohibited subsidies.[86] The new Demonstration Bases-Common Service Platform program itself was discovered during consultations with China over export subsidies to the auto industry under China's "National Auto and Auto Parts Export Base" program.[87] Although the consultations on the auto subsidy program began in September 2012,[88] three years later they have yet to reach a resolution, and USTR officials said they are still "actively engaged" with China.[89]

Information Technology Agreement

On July 28, 2015, the WTO announced that negotiations to revise the Information Technology Agreement (ITA) have concluded.[90] The agreement covers 201 tariff lines, including new-generation semiconductors, global positioning system (GPS) navigation systems, tools for manufacturing printed circuits, telecommunications satellites, and touch screens.[91]

By the end of October 2015, each participant agreed to submit a draft implementation schedule, with the goal of finalizing the agreement in time for the December ministerial conference in Nairobi. The participants agreed to reduce tariffs on the covered goods in four equal annual reductions of customs duties, beginning on July 1, 2016, and concluding on July 1, 2019.[92]

The original ITA went into effect in 1997 among the United States and 28 other WTO members, not including China (which did not join the WTO until 2001).* Negotiations for a revised ITA were begun in 2012 and slated for conclusion at the WTO Bali Summit in December 2013. However, the process stalled because Beijing de-

*The ITA currently includes 81 participants, including the United States, China, South Korea, and the EU member states. For a full list, see World Trade Organization, "Information Technology: Schedule of Concessions."

vised a long list of items it wanted to either exclude completely or subject to tariff phaseout periods longer than those permitted under the original ITA framework.[93] The talks were suspended in November 2013. In November 2014, the U.S. Administration announced it convinced China to table a more acceptable offer. Specifically, China agreed to: (1) revise its ITA list to include disputed tariff lines, notably advanced semiconductors known as MCOs, magnetic resonance imaging (MRI) machines, and high-tech testing equipment; and (2) ensure its tariff phaseout periods comply with the ITA framework's three staging categories of immediate, three years, and five years.[94] Based on the U.S.-China agreement, the other ITA participants reopened the talks.

Since 1997, information technologies have proliferated, IT product trade has risen threefold, and China has become a dominant producer and consumer of technology goods. As Table 3 demonstrates, the United States currently runs trade deficits with China in several key technology product lines (for example, static converters, video game consoles, and semiconductors). In some cases, China accounts for the largest share of U.S. imports of these goods.

Table 3: U.S.-China Trade in Select Technology Products

(US$ millions; share %)

	U.S. Imports					
	U.S. global imports			***China's share***		
	2002	**2008**	**2014**	**2002**	**2008**	**2014**
Static converters	3,594	6,517	9,060	30.7%	45.0%	49.5%
Video game consoles	5,893	12,849	6,106	45.0%	90.2%	87.9%
Diodes, transistors, and semiconductors	3,289	5,549	9,447	8.5%	17.2%	31.3%
CT scanners	387	455	526	1.0%	20.8%	20.6%
MRI machines	514	530	444	0.7%	4.0%	7.5%
	U.S. Exports					
	U.S. global exports			***China's share***		
	2002	**2008**	**2014**	**2002**	**2008**	**2014**
Static converters	1,505	2,815	4,004	3.3%	6.3%	6.6%
Video game consoles	1,161	4,567	2,939	0.4%	0.4%	0.7%
Diodes, transistors, and semiconductors	4,020	8,555	7,466	5.4%	5.1%	4.8%
CT scanners	240	656	430	8.0%	6.0%	17.9%
MRI machines	478	441	722	4.1%	7.4%	20.8%

Source: U.S. International Trade Commission.
Note: HS Codes used for this table are static converters (850440); video game consoles (9504); diodes, transistors, and semiconductors (8541); CT scanners (9022120000); and MRI machines (9018130000).

While the conclusion of the WTO negotiations is important, it does not guarantee success. China has not consented to including tariff elimination on several key products, including liquid crystal displays (LCDs). More important, phaseout periods for the covered items remain subject to negotiation.[95] Although China may not go beyond the maximum phaseout period, ITA members meeting for the first round of negotiations for the phaseouts reported China was demanding it be allowed to phase out tariffs over the longest period (five or seven years, depending on the product) for around 80 IT products (40 percent of the total) being considered.[96] If China succeeds in securing these phaseouts, it could use those years to establish nontariff barriers that protect sensitive products from foreign competition. Examples of such barriers include discriminatory value-added taxes on imports, hidden subsidies for domestic producers, standards that favor indigenous products, and control over procurement of key technologies by state-owned entities. (China is still not a signatory to the WTO's Agreement on Government Procurement, which generally bans discrimination against foreign goods in government purchases.)

Minimal Progress at Seventh Strategic and Economic Dialogue

At the seventh round of the Strategic and Economic Dialogue (S&ED) talks, held in Washington on June 23–24, 2015, participants discussed over 100 issues but accomplished little. Several of the outcomes announced at the conclusion of the S&ED merely repackaged China's existing reforms as new commitments. Overall, the S&ED yielded slight progress on environmental and financial issues but reached an impasse in addressing fundamental strategic and economic issues such as China's activities in the South China Sea, cybersecurity, anticorruption cooperation, and investment barriers. Among the limited outcomes of the S&ED are:

- *China's commitment to reduce intervention in the RMB exchange rate:* China promised to intervene in its exchange rate only when "disorderly market conditions" make it necessary.[97] This commitment serves the Chinese government's purpose of portraying the RMB as a liberalized currency, and allows Beijing to promote the RMB for inclusion as a reserve currency in the SDR basket at the IMF.[98] As U.S. Treasury Secretary Jacob J. Lew cautioned early on in the S&ED, "the real test will come when the market again pushes for RMB appreciation against the dollar."[99]
- *China's pledge to expand foreign investors' access to its capital markets:* The Chinese government repackaged its financial reforms as an S&ED commitment. The reforms were previously outlined at the Third Plenum in December 2013. At the S&ED, China once again promised to loosen restrictions on access to its capital markets for foreign financial firms and investors, particularly in its pilot Shanghai Free Trade Zone (FTZ).[100] These promises outlined in more detail than previous commitments greater freedom for foreign firms to issue ratings on local government bonds; set up futures, private security fund management, and joint venture securities companies; and participate in interbank and listed bond markets.[101] If implemented, these policies could open market access to the world's third-largest bond market after the United States and Japan, though strong state controls will remain in place.[102]

- *Enhanced cooperation on climate change and environment protection:* The United States and China bolstered their environmental cooperation, with nearly half of the strategic outcomes listed related to climate change and environmental protection.[103] The United States and China established a formal U.S.-China fisheries dialogue and announced the creation of six new collaborations under the "EcoPartnerships" program, which brings together nonprofit, public, and private organizations to address air pollution, carbon dioxide sequestration, iron and steel slag waste, aircraft biofuel, solar thermal power, and sea turtle migration.* [104] The two sides also highlighted exchanges or past agreements such as the extension of the Clean Energy Research Center in November 2014, overstating the accomplishments of the seventh S&ED.[105]

President Xi Visits the United States

President Xi Jinping made his first state visit to the United States in September 2015. Given the daunting list of U.S. complaints against China's conduct—including commercial cyber espionage and a worsening foreign investment climate in China—expectations for substantive breakthroughs were low.

President Xi started the visit in Seattle, delivering a speech to 650 business leaders and other guests which sought to dispel concerns about China's slowing growth and reassure the U.S. government and companies that China remains committed to its reform agenda. President Xi said China will not manipulate its currency, discriminate against foreign businesses, or engage in cyber theft.[106] For all its rhetorical flourish, the speech was light on substance, with few firm statements or concessions on the direction of Chinese government policies in key areas of friction.

After Seattle, President Xi traveled to Washington for a meeting with President Obama. The two countries announced several cooperative efforts, including on commercial cyber espionage and climate change. On commercial cyber espionage, the joint factsheet issued by the United States and China said that "neither country's government will conduct or knowingly support cyber-enabled theft of intellectual property, including trade secrets or other confidential business information, with the intent of providing competitive advantages to companies or commercial sectors," though President Xi continued to deny that China ever engaged in cyber espionage for economic purposes (for an in-depth assessment of President Xi's Seattle visit and the cyber agreement, see Chapter 1, Section 4, "Commercial Cyber Espionage and Barriers to Digital Trade").[107]

The announcement on cooperation to combat climate change was more substantial. China confirmed that it plans to launch in 2017 a national emissions trading system (known as cap-and-trade), which will cover power generation, steel, cement, and other industrial sectors.[108] China has seven pilot emissions trading systems, and originally planned a nationwide system for 2015 and then 2016, but the deadline kept getting delayed due to difficulties of

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*For additional analysis on China's clean energy policy and U.S.-China clean energy cooperation, see U.S.-China Economic and Security Review Commission, *2014 Annual Report to Congress*, November 2014, 183–226.

scaling up local projects nationally and lack of transparency in pricing and quota allocations.[109] The delay prompted some skepticism over the summit announcement, with some observers saying the 2017 start date refers only to the initial stages of the nationwide implementation.[110]

Presidents Obama and Xi also expressed a "common vision" for UN climate talks in Paris in December 2015.[111] China, one of the world's biggest suppliers of public infrastructure, promised to provide $3.1 billion (RMB 20 billion) to a bilateral fund designed to help developing countries combat climate change.[112]

No substantial progress was announced on the BIT. A statement released by the White House said both presidents "reaffirm as a top economic priority the negotiation of a high standard BIT" and promised to "intensify the negotiations."[113] The statement went on to commit both governments to "limit the scope of their respective national security reviews of foreign investments (for the United States, the CFIUS process) solely to issues that constitute national security concerns, and not to generalize the scope of such reviews to include other broader public interest or economic issues."[114] The statement is directed at Chinese concerns over U.S. review of Chinese acquisitions, and U.S. concerns over unfair treatment of foreign companies in China, but lacks firm commitments, raising questions about its practical significance.

China's Financial Statecraft

This year China launched several initiatives that will extend its global reach and boost Chinese exports by creating demand for Chinese-built infrastructure across Asia. Together with China's "Silk Road" initiatives in Central and Southeast Asia, the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank (NDB), among other institutions, reflect China's strategy of "targeting gaps within established intergovernmental organizations" to push "towards a realignment of the international order."[115] (For an in-depth discussion of the Silk Road policies in Central Asia, see Chapter 3, Section 1, "China and Central Asia"; for Chinese activities in Southeast Asia, including the role of China-led development institutions, see Chapter 3, Section 2, "China and Southeast Asia.")

Asian Infrastructure Investment Bank

In June 2015, almost two years after President Xi first proposed the idea, China launched the AIIB to provide loans for construction projects in Asia.[116] Though no Western nation signed the 2014 Memorandum of Understanding (MOU) to become a founding AIIB member,* by the time the bank launched in 2015, it received backing from 50 countries, including many U.S. allies, despite alleged pressure from the United States not to join. The United Kingdom became the first Western nation to announce its intention to join the AIIB, followed days later by France, Germany, Italy, Switzerland, and Australia.[117]

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*The founding AIIB members are Bangladesh, Brunei, Cambodia, China, India, Kazakhstan, Kuwait, Laos, Malaysia, Mongolia, Burma (Myanmar), Nepal, Oman, Pakistan, the Philippines, Qatar, Singapore, Sri Lanka, Thailand, Uzbekistan, and Vietnam. Xinhua (English edition), "21 Asian Countries Sign MOU on Establishing Asian Infrastructure Investment Bank," October 24, 2014.

The AIIB will be headquartered in Beijing, with initial capital of $50 billion and an authorized capital of $100 billion.[118] Share allocation will be based on GDP, with China as the largest shareholder. According to the announcement from China's Ministry of Finance, China supplied about 30 percent of the $100 billion initial operating capital and has 26.1 percent of the voting power. India and Russia, the second- and third-largest shareholders, will have 7.5 percent and 5.9 percent voting power, respectively.[119] Since major decisions require 75 percent agreement, China will have de facto veto power.

Proponents argue the AIIB provides long overdue competition to international financial institutions and promises to address the unmet demand for infrastructure investment. The AIIB's creation can be attributed in part to China's frustration "with the lack of governance reform, slow pace of project implementation, and reluctance to expand lending on the part of the existing development banks."[120] Despite promises sought by China to restructure the governance procedures at the IMF and World Bank, increases in the voting shares for China and other emerging economies have not materialized due to Congressional inaction.[121] According to David Dollar, senior fellow at the Brookings Institution (and formerly the Treasury emissary to China and the World Bank country director for China and Mongolia), the AIIB "will provide some healthy competition" for the IMF and World Bank.[122] Dr. Dollar hopes this pressure will lead to needed IMF and World Bank reform, so China will "buy fully into the existing institutions."[123]

The Asian Development Bank (ADB), World Bank, and IMF all publicly announced support for the AIIB, and expressed interest in partnering with the bank.[124] Jim Yong Kim, president of the World Bank, stated the AIIB "should be a very welcome addition to the current situation, which is a woeful lack of financing for infrastructure."[125] In 2010, the ADB estimated that infrastructure investment in Asia will require roughly $800 billion per year in financing to meet demand between 2010 and 2020.[126] Multilateral development banks and private investors have contributed $205 billion, representing just a fraction of the demand.[127]

Critics argue the AIIB lacks fair governance arrangements, risks weakening international lending requirements such as environmental and social standards, and challenges the existing international and regional lenders, namely the World Bank and the ADB.[128] While the White House has not publicly criticized the AIIB, it reportedly pressured U.S. allies to abstain from joining the new bank.[129] The U.S. Treasury and Japan's Ministry of Finance raised transparency and governance objections to the AIIB's proposed lending practices.[130] China continues to rank as the least transparent donor nation or institution.[131] As one U.S. official asked, "How would the Asian Infrastructure Investment Bank be structured so that it doesn't undercut the standards with a race to the bottom?"[132] Consequently, the ADB urged the AIIB to "adopt international best practices in procurement and environmental and social safeguard standards on its projects and programs."[133] If the bank complies, the stricter rules may attract additional AIIB members.

New Development Bank

Launched less than a month after the AIIB—and attracting significantly less fanfare and controversy—the NDB is another China-led institution aiming to challenge the established global development finance order. Brazil, Russia, India, China, and South Africa (BRICS) announced the creation of the NDB at the July 2014 BRICS summit in Brazil. The bank will be headquartered in Shanghai with initial subscribed capital of $50 billion, which will later be increased to $100 billion. The five members will have "equal shares" in the bank, according to the state-run news agency Xinhua.[134] The NDB will also set up a $100 billion emergency swap fund, to which China has pledged to contribute $41 billion.[135] The bank's first leader, K.V. Kamath, is Indian, and will be followed by a Brazilian and then a Russian.

The NDB funds are to be directed toward "infrastructure and sustainable development projects in BRICS and other emerging and developing countries"; as such, they could fill an estimated $1 trillion infrastructure gap in low- and middle-income countries.[136] However, reactions from international observers have been mixed. Bhaskar Chakravorti, senior associate dean at The Fletcher School of Law and Diplomacy at Tufts University, questioned the credibility of the new bank as a globally responsible lender, and criticized the structural inequity of its members' contributions, roles, and economic weight.[137] In contrast, Raj M. Desai and James Vreeland, associate professors at Georgetown University, welcomed the bank's creation, arguing it will exert much-needed pressure on the World Bank and IMF to reform their quota system and accord a larger role to emerging economies.[138]

Implications for the United States

China's weak growth this year and the government's heavy-handed and haphazard intervention to stop the stock market collapse have shaken global confidence in China's commitment to economic reform. At least in the short term, the U.S. economy remains somewhat insulated from China's economic difficulties. Exports to China account for about 1 percent of U.S. GDP, while China's relatively closed capital account means few U.S. investors will be affected by the stock market decline.

However, the slowdown—and possible deferral—of China's rebalancing will have negative repercussions not only for the prospects of China's future growth, but also for the continued economic health of its trade partners. The U.S. trade deficit with China, already the world's largest bilateral deficit, has continued to increase despite global economic weakness, with negative consequences for U.S. businesses and workers. Meanwhile, China's reliance on investment-driven growth and policies that support SOEs at the expense of the private sector and foreign competitors continues to frustrate U.S. efforts to create a level playing field for U.S. firms.

In the international arena, the launch of the AIIB—and support from many U.S. allies despite U.S. opposition—was seen as a major diplomatic victory for President Xi. U.S. dominance in international institutions such as the World Bank has provided the United States significant political and economic influence in shaping lending practices and developing international lending norms. Therefore, the creation of the AIIB and other similar organizations could erode U.S. leadership and its established international economic institutions and policies.

Conclusions

- In 2014, the U.S. goods trade deficit with China increased by 7.5 percent year-on-year to $342.6 billion, a new record. In the first eight months of 2015, the U.S. trade deficit in goods with China totaled $237.3 billion, a 9.7 percent increase year-on-year. Over the same period, U.S. deficit with China in advanced technology products reached $72.7 billion. China stalled on liberalizing key sectors in which the United States is competitive globally, such as services.
- As a consequence of domestic economic weakness, China's stated rebalancing policies appear to have been put on hold. Instead, fearful of a protracted slowdown, the Chinese government has been intervening in various sectors of the economy, including the stock market. However, the government's intervention, which failed to arrest the stock market's fall and stabilize the economy, undermined public confidence in the ability of China's policymakers to successfully manage the economy.
- Although it has been ten years since China moved the RMB to a managed float, the government continues to intervene in foreign exchange markets. For the first half of 2015 the government has prevented the RMB from depreciating, seeking its inclusion in the International Monetary Fund's Special Drawing Rights basket of reserve currencies. However, on August 11, the People's Bank of China unexpectedly devalued the RMB, giving rise to fears among observers and policymakers that the economic slowdown was becoming entrenched.
- The U.S. government's efforts to address tensions in the U.S.-China relationship through bilateral dialogue continue to yield limited results. The latest Strategic and Economic Dialogue concluded with some progress on environmental and financial issues, but reached an impasse in addressing fundamental strategic and economic issues such as cybersecurity, anticorruption cooperation, and investment barriers to foreign firms in many industries.
- President Xi came to the United States in September on a state visit, and although Presidents Obama and Xi discussed several issues of concern, including commercial cyber espionage by Chinese actors, there were few significant breakthroughs. Among outcomes were the statements by the two presidents that neither country will engage in cyber espionage (though China continued to deny any involvement in commercial cyber theft) and commitments to enhance cooperation on combatting climate change.
- China's adherence to the World Trade Organization principles and its Protocol of Accession remains spotty. Most recently, the Office of the U.S. Trade Representative has engaged China over a program that provides export subsidies considered illegal by the World Trade Organization to businesses in seven critical industries.

- China launched two new development institutions: the Asian Infrastructure Investment Bank and the New Development Bank. In addition to boosting China's economy by creating export opportunities for its companies, the new banks aim to extend China's role in the international economic order, potentially challenging established multilateral development institutions.

Addendum I: Pending WTO Cases

Pending WTO Cases Brought by the United States against China

No.	Title	Request for Consultations	Panel Report	Appellate Body Report	Status
DS450	Certain Measures Affecting the Automobile and Automobile-Parts Industries	September 17, 2012	In consultations; panel not yet formed		The United States requested consultations with China concerning export-contingent provisions of certain subsidies and other incentives to automobile and automobile-parts enterprises in China.
DS489	Measures Related to Demonstration Bases and Common Service Platforms Programs	February 11, 2015	In consultations; panel established		The United States requested consultations with China with regard to certain measures providing subsidies contingent upon export performance to enterprises in several industries in China.

Source: World Trade Organization; compiled by Commission staff.

Pending WTO Cases Brought by China against the United States

No.	Title	Request for Consultations	Panel Report	Appellate Body Report	Status
DS471	Antidumping Methodologies	December 3, 2013	Panel established March 26, 2014; report pending		China requested consultations with the United States regarding the use of certain methodologies in antidumping investigations involving Chinese products.

Source: World Trade Organization; compiled by Commission staff.

ENDNOTES FOR SECTION 1

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SECTION 2: FOREIGN INVESTMENT CLIMATE IN CHINA

Introduction

In addition to China's economic slowdown, foreign companies doing business in China continue to face challenges related to China's preferential treatment of domestic firms, including foreign investment restrictions, unequal and sometimes targeted law enforcement and implementation, weak enforcement of intellectual property (IP) rights, and lack of transparency. To explore these issues, the Commission held a hearing in January 2015 on the foreign investment climate in China, China's Anti-Monopoly Law (AML) enforcement, and continuing reform of the foreign investment framework. This section draws on expert testimony, findings from the Commission's July trip to China, and a substantial body of staff research into China's application and enforcement of the AML and other investment-related laws.

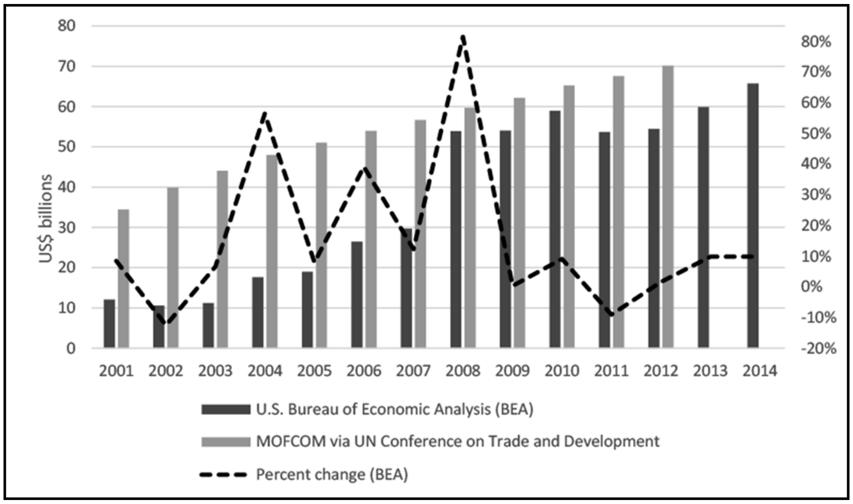
Trends in U.S. Direct Investment in China

Bilateral foreign direct investment (FDI) between the United States and China remains relatively low, considering the two countries have been the top recipients of global FDI since 2009 and are among the top ten largest sources of annual outbound FDI in the last decade.[1] For the first time, Chinese FDI flows to the United States now exceed U.S. FDI flows to China by most measures due to rapid growth in Chinese annual FDI to the United States over the past five years, according to U.S.-based advisory firm Rhodium Group.[*] [2] In contrast, growth in U.S. FDI in China over the last five years appears to have slowed and even decreased. According to the U.S. Bureau of Economic Analysis (BEA), in 2014, annual U.S. FDI in China reached $6.3 billion—a 4.9 percent decrease year-on-year—bringing the share of U.S. FDI flowing to China in 2014 to 2 percent of total outbound U.S. FDI.[3] As seen in Figure 1, official U.S. data show accumulated U.S. FDI into China measured $65.76 billion in 2014, representing approximately 9 percent of the stock of U.S. direct investment in the Asia Pacific region and only 1.3 percent of the total stock of U.S. investment abroad.[4] China's Ministry of Commerce (MOFCOM) estimates the U.S. FDI stock in China is higher—reaching around $70 billion in 2012—illuminating discrepancies in official data, which are lagging significantly and often fail to capture major trends.[†]

* For a more detailed analysis of U.S.-China bilateral investment, see Chapter 1, Section 1, "Year in Review: Economics and Trade," of this Report.

† International Trade Administration, *Report: Foreign Direct Investment (FDI) in the United States from China and Hong Kong SAR*, July 17, 2013; Thilo Hanemann, "China Investment Monitor: Methodology Update," *Rhodium Group*, July 15, 2015.

Figure 1: U.S. FDI Stock in China, 2001–2014
(cumulative, historical-cost basis)



Note: Latest data available (as of August 2015).
Source: U.S. Department of Commerce, Bureau of Economic Analysis; China's Ministry of Commerce via UNCTADstat database.

Across industries, official U.S. data show the top destination by far for U.S. direct investment into China is manufacturing (52.5 percent), followed by wholesale trade (8.8 percent), depository institutions (6.1 percent), nonbank holding companies (5.3 percent), and finance and insurance excluding depository institutions (5.2 percent) (see Table 1).[5] U.S. investment in manufacturing in China fell into several main categories, including chemicals, transportation equipment, computers and electronic products, and food (see Figure 2). As seen in Table 1, the overall sectoral distribution of investment has for the most part remained constant since 2007; data for intervening years were not comprehensive.

Table 1: U.S. FDI Stock in China by Sector
(US$ millions)

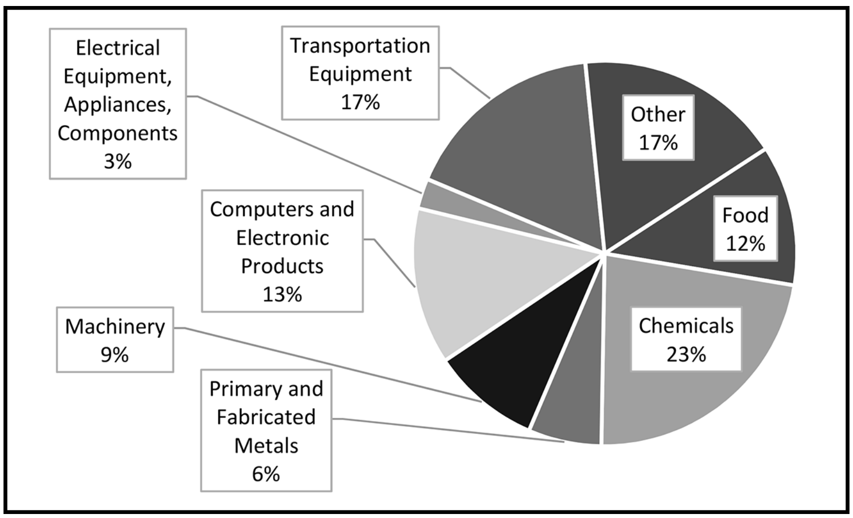
	2007	2009	2014
Mining	1,772	3,148	3,323
Manufacturing	18,461	23,972	34,552
Wholesale Trade	2,015	2,645	5,834
Information	546	2,487	1,792
Depository Institutions	850	(D)	4,045
Finance	1,798	(D)	3,417
Professional, Scientific, and Technical Services	227	777	1,732

Table 1: U.S. FDI Stock in China by Sector—*Continued*
(US$ millions)

	2007	2009	2014
Nonbank Holding Companies	1,644	(D)	3,494
Other	2,397	(D)	7,577

Note: (D) indicates that the data in the cell have been suppressed to avoid disclosure of data of individual companies.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Figure 2: Total U.S. FDI in China's Manufacturing Sector by Product, 2014



Note: For U.S. FDI, industry classifications for estimates after 1997 are based on the North American Industry Classification System (NAICS).
Source: U.S. Department of Commerce, Bureau of Economic Analysis, *China Factsheet*, July 31, 2015.

China's Foreign Investment Regime

Legal and Regulatory Framework

Compared to other large economies, China maintains a restrictive FDI regime. China's discriminatory restrictions on foreign equity and onerous screening and approval requirements have placed it at the top of the Organization for Economic Co-Operation and Development's (OECD) FDI Regulatory Restrictiveness Index* every year since its inception in 2010.[6] The U.S. Department of State estimates that in addition to over 1,000 rules and regulatory documents related to FDI in China issued by central government

*Among OECD economies and non-OECD member economies. The OECD FDI Regulatory Restrictiveness Index is based on four main indicators: "equity restrictions, screening and approval requirements, restrictions on foreign key personnel, and other operational restrictions (such as limits on purchase of land or on repatriation of profits and capital). The discriminatory nature of measures is the central criterion to decide whether a measure should be scored." Blanka Kalinova, Angel Palerm, and Stephen Thomsen, "OECD's FDI Restrictiveness Index: 2010 Update," *OECD Working Papers on International Investment* 03 (2010): 6.

ministries, local legislatures and governments also enact their own rules and regulations on foreign investments in their jurisdictions.[7] Taken together, these laws and policies—and the uncertain application thereof—create a complicated, opaque, and unfavorable environment for foreign investment.

In an effort to push through a series of open market reforms announced during the November 2013 Third Plenum, China's MOFCOM and the National Development and Reform Commission (NDRC) published a draft of a new, unified foreign investment law (FIL) on January 19, 2015.[8] When it comes into effect, this new law will apply to all forms of foreign investment and replace the three existing laws, potentially streamlining and clarifying foreign investment procedures.* (For details on the draft FIL, see "Reforms of China's Foreign Investment Framework" in this section.) Until the unified FIL is implemented, FDI in China will continue to be governed by three main laws: the Sino-Foreign Equity Joint Venture (JV) Law, the Sino-Foreign Cooperative JV Law, and the Wholly Foreign-Owned Enterprise Law. In addition to the these laws, the Chinese government maintains a series of policies that directly and indirectly affect foreign investors and the overall foreign investment climate in China, including additional government approval policies, industrial policies, and processes for reviewing and appealing administrative decisions.

Foreign Investment Approval Policies

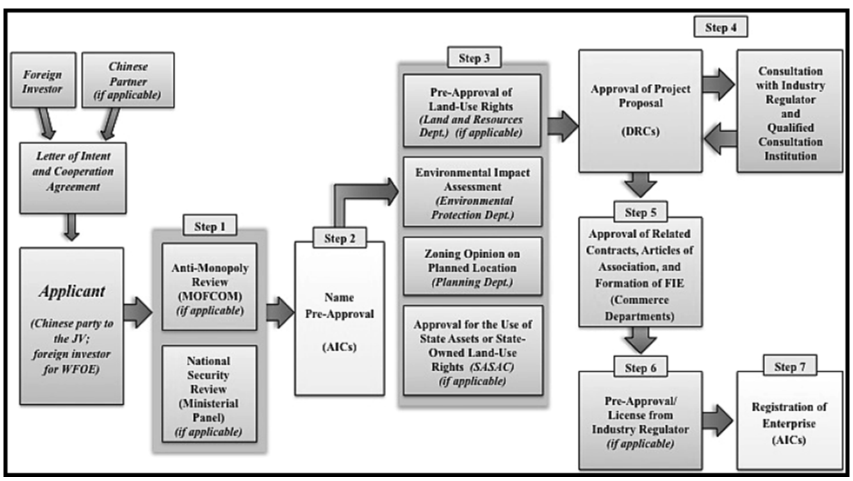
Before a foreign-invested entity (FIE) is established in China, it must undergo a lengthy approval process. Under the authority of China's State Council, MOFCOM and the NDRC maintain the Catalogue for the Guidance of Foreign Investment Industries (Catalogue), which categorizes industries as either "encouraged," "restricted," or "prohibited" to foreign investment.† [9] In principle, any sector not included in the Catalogue is permitted, and foreign investors in such sectors need only file with the local government. In encouraged industries, foreign investors may enjoy preferential policies such as tax incentives. In restricted industries, however, foreign investment is often subject to higher levels of government scrutiny, stricter review, and burdensome application requirements.[10] The Catalogue also outlines other structural guidelines for foreign investment in specific sectors. For example, in certain industries, foreign investment may be limited to Sino-foreign JVs, or may require that a Chinese partner is the "controlling shareholder" of the investment.[11]

* MOFCOM will revise the draft FIL on the basis of comments gathered from the public, and submit the revised draft to the standing meeting of the State Council for deliberation and then circulate an updated draft for the Standing Committee of the National People's Congress to review. The FIL is not expected to be promulgated before 2018. Anna Elshafei, "China's Draft Foreign Investment Law Could Be a Game Changer?" *Miller Canfield*, June 8, 2015.

† "Encouraged" sectors include high technology, green technology, energy conservation, and pollution control; "restricted" sectors include rare earth smelting and passenger rail transportation companies; "prohibited" sectors include those that fall under national security (such as manufacturing of weapons), or are sectors where the government seeks to preserve state monopolies (such as postal companies) or protect Chinese firms from competition (such as mining of rare earth elements). Wayne M. Morrison, "China-U.S. Trade Issues," *Congressional Research Service*, March 17, 2015, 24.

Even if a foreign investment is permissible in accordance with the Catalogue, it must undergo a lengthy series of additional approvals to be established. These approvals and the processes for obtaining them typically vary depending on the structure of the investment, the specific industry, and local regulations.[12] Generally, a foreign investment must undergo the following approval processes: AML review, national security review, preapproval of enterprise name and corporate registration with the State Administration of Industry and Commerce (SAIC) or its local branches, approval of use of local land from various government authorities, project approval from the NDRC and local development and reform commissions (DRCs), foreign investment approval from MOFCOM, regulatory approval, and other administrative registrations (see Figure 3).[13]

Figure 3: General Approval Process for FDI in China



Note: WFOE is wholly foreign-owned enterprise. AIC is Administration for Industry and Commerce. SASAC is State-Owned Assets Supervision and Administration Commission.
Source: U.S. Chamber of Commerce, "China's Approval Process for Inbound Foreign Direct Investment: Impact on Market Access, National Treatment and Transparency," 2012, 10.

Industrial Policies

China's national economic goals are bolstered by industrial policies, which are designed to support the development of domestic industries and the creation of national champions.[14] To ensure inbound FDI supports these goals, the Chinese government identifies different industries as desirable for or restricted to foreign investment in the Catalogue. In addition to the Catalogue, other laws and regulations allow industrial policies to dictate treatment of foreign investors in certain industries. For example, while China's AML enforcement decisions reference competition law and cite alleged threats to competition, in reality these decisions do not always promote competition, and in some cases actually hinder it, in furtherance of Chinese industrial policy objectives.[15] (For more details on China's industrial policies, see Chapter 1, Section 3, "China's State-Led Market Reform and Competitiveness Agenda," in this Report.)

Review and Appeal Processes

Foreign investors who fail to gain approval face a daunting appeals process that, in the end, frequently reverts to a decision in favor of domestic competitors regardless of the merits of the case. If a foreign investor feels an application has been unreasonably denied by Chinese authorities, the investor may appeal.* In practice, however, the appeal process has severe limitations, and foreign investors seldom use it.[16] For one, the grounds for denying investment applications are very broadly defined, and approval authorities are not required to approve applications submitted to them even if all requirements are clearly met. Another factor that discourages foreign investors from pursuing administrative appeal is the difficulty in producing solid evidence of inappropriate conduct on the part of reviewing agencies, given such misconduct is often informally or orally executed. A third factor is that the decisions of approval authorities and the People's Courts are all subject to the supervision of the Chinese Communist Party (CCP), and are expected to align with the Party's underlying policies.[17]

Challenges for Foreign-Invested Enterprises in China

Overall, China remains a profitable market for U.S. companies, though profitability levels are decreasing.[18] According to a survey conducted by the US-China Business Council (USCBC), 85 percent of respondents † described their operations in China as profitable, but at lower profit margins than in previous years due to rising costs.[19] Similarly, 73 percent of companies ‡ surveyed by the American Chamber of Commerce in China (AmCham China) described their China operations in 2014 as profitable.[20] In both surveys, roughly two-thirds of respondents reported profit margins in China comparable to or higher than margins for their company operations in other markets.[21]

* In theory, a rejected foreign investor may apply for administrative reconsideration within 60 days of the contested decision; the reviewing agency may affirm or nullify the original administrative decision within 60 to 90 days. If the applicant is not satisfied with the reviewing agency's decision, or if the reviewing agency has failed to act, the applicant may bring an administrative lawsuit within 15 days of the reconsideration decision. U.S. Chamber of Commerce, "China's Approval Process for Inbound Foreign Direct Investment: Impact on Market Access, National Treatment and Transparency," 2012, 20.

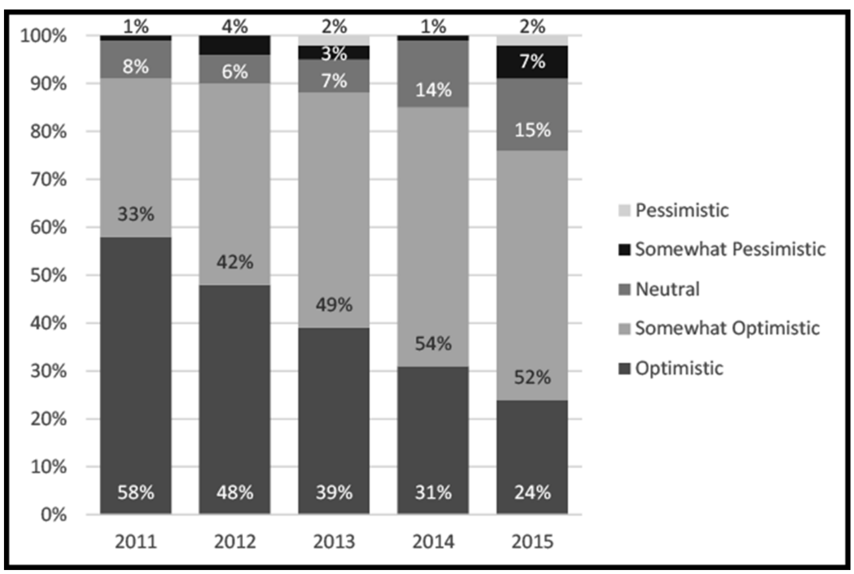
† The USCBC's 2015 China business environment survey analyzed responses from 106 companies, representing roughly half of its member companies. Fifty-eight percent of respondents operate in the manufacturing sector, 47 percent in the services sector, and 13 percent in primary industries such as agriculture. The majority of respondents have been operating in China for more than 20 years. US-China Business Council, "USCBC 2015 China Business Environment Survey Results: Growth Continues amidst Economic Slowdown, Rising Competition, Policy Uncertainty," 2015, 33.

‡ AmCham China's 2015 business climate survey analyzed responses from 477 companies, representing 47 percent of the organization's 1,012 member companies. Respondent companies were fairly evenly distributed across four lines of business, with approximately 30 percent in the resources and industrial sector, approximately 25 percent in the services (excluding information services) sector, approximately 25 percent in the information/knowledge-based services sector, and approximately 15 percent in research and development (R&D)-intensive industries. Nearly 40 percent of respondents forecasted a revenue of $100 million or more for 2014. American Chamber of Commerce in the People's Republic of China, "2015 China Business Climate Survey Report," February 2015, 7.

Though the majority of U.S. firms still consider China a profitable market, optimism is waning (see Figure 4). According to AmCham China's 2015 member survey, 29 percent of respondents described the foreign investment environment in China as deteriorating—an increase of 11 percentage points from the previous year—with 2 percent fewer companies reporting improvements in the environment (see Figure 5).[22] Nearly half of companies surveyed—a 3 percent increase from the previous year—reported foreign enterprises are less welcome in China than in previous years.[23] Members of the EU Chamber of Commerce in China (European Chamber) are similarly concerned: only 58 percent of survey respondents* in 2015 were optimistic about the growth outlook in China—a 10-point drop from 2014, and an all-time low—while only 28 percent of respondents were optimistic about profitability in the next two years.[24]

Figure 4: Five-Year Outlook for Business in China, 2011–2015

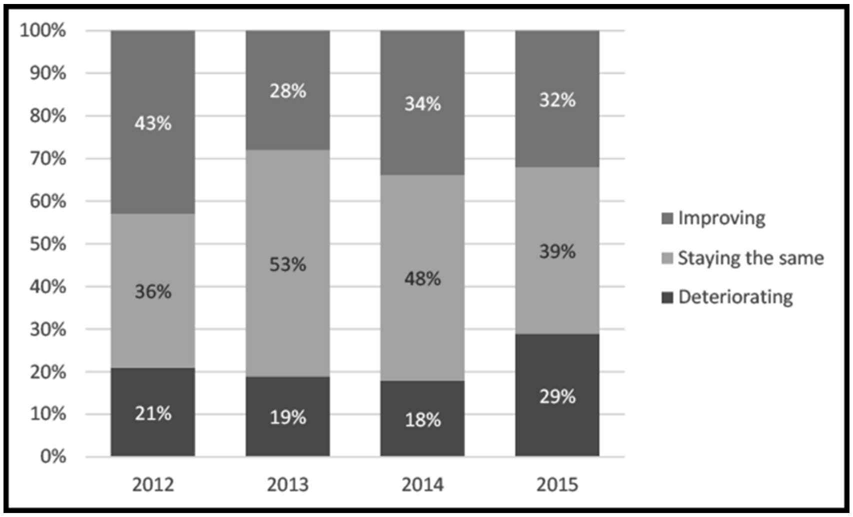
(surveyed U.S. companies)



Source: US-China Business Council, "USCBC 2015 China Business Environment Survey Results: Growth Continues amidst Economic Slowdown, Rising Competition, Policy Uncertainty," 2015, 5.

* The European Chamber's 2015 member survey analyzed responses from 541 respondents, or 37 percent of 1,474 member companies. The various industries were represented almost equally, with 37 percent of respondents in the industrial goods and services sector, 35 percent in the consumer goods and services sector, and 27 percent in the professional services sector. The majority of respondents are small- and medium-sized enterprises that employ fewer than 250 employees, and 54 percent of those surveyed have been operating in mainland China for more than ten years. EU Chamber of Commerce in China, "Business Confidence Survey," June 2015, 57–59.

Figure 5: Quality of China's Foreign Investment Environment, 2012–2015
(surveyed U.S. companies)



Source: American Chamber of Commerce in the People's Republic of China, "2015 China Business Climate Survey Report," February 2015, 19.

While some of the challenges—including rising labor costs and human resources constraints—cited by foreign investors in China stem from the country's economic slowdown, investors also attribute the worsening business climate in China to the restrictive legal and regulatory framework for foreign investment and the government's discretionary, uneven enforcement thereof (see Table 2). These challenges are exacerbated by the Chinese government's industrial policies, which serve to support domestic companies in sectors deemed strategic to the development of the national economy by extracting advantages from foreign competitors. For example, 53 percent of companies in both the resources and industrial sector * and research and development (R&D)-intensive industries †—sectors where China's industrial policies favor domestic companies and authorities impose localization requirements on foreign companies—felt the least welcome.[25] In contrast, investors in the services (excluding information services) sector ‡ largely reported improvements in the investment environment, likely due to the recent relaxing of foreign investment restrictions in that sector to boost domestic consumption.[26] Optimism among European companies surveyed reflected a similar division: those in industrial goods and services were least optimistic about future growth and profitability,

* The AmCham China survey categorizes the following industries as part of the resources and industrial sector: agriculture; metals (mining and production); oil, energy, and power; chemicals; construction, architecture, and interior design; electronics; automotive; cosmetics; other manufacturing and sourcing; and other consumer goods.

† The AmCham China survey categorizes the following as R&D-intensive industries: information, communications, and technology; clean technology; aerospace; pharmaceuticals; and environmental protection.

‡ The AmCham China survey categorizes the following industries as part of the services (excluding information services) sector: hospitality; food and beverage; healthcare services; real estate and development; banking and financial services (other than insurance); insurance; retail and distribution; transportation and logistics; and travel and leisure.

while those in professional services and consumer goods and services were more optimistic.[27]

Table 2: Top Business Challenges for Foreign Firms in China, 2015
(surveyed U.S. and European companies)

	USCBC, 2015	AmCham China, 2015	European Chamber, 2015
1	Competition with Chinese companies in China	Labor costs	Chinese economic slowdown
2	Foreign investment restrictions	Inconsistent regulatory interpretation/Unclear laws	Rising labor costs
3	Cost increases	Shortages of qualified employees	Global economic slowdown
4	Intellectual property rights (IPR) enforcement	Shortage of qualified management	Market access barriers and investment restrictions
5	Transparency	Increasing Chinese protectionism	Competition from Chinese privately owned enterprises
6	Licensing		Renminbi (RMB) volatility
7	Human resources		Ambiguous rules and regulations
8	Data flows		Talent attraction and retention
9	Uneven enforcement		Discretionary enforcement of regulations
10	Overcapacity in the China market		Lack of sufficient and qualified talent

Note: Derived from latest information available. AmCham China only releases the top five business challenges in its survey.
Source: US-China Business Council, "USCBC 2015 China Business Environment Survey Results: Growth Continues amidst Economic Slowdown, Rising Competition, Policy Uncertainty," 2015, 1; American Chamber of Commerce in the People's Republic of China, "2015 China Business Climate Survey Report," February 2015, 20; EU Chamber of Commerce in China, "Business Confidence Survey," June 2015, 17.

During the Commission's trip to Beijing and Hong Kong in July, U.S. business representatives expressed grave concern about the "chilling effect" of a new series of Chinese laws on the prospects of foreign companies, saying they could seriously harm foreign firms' ability to do business there, especially in IP-intensive sectors.[28] The laws identified as most problematic are the National Security Law, adopted July 1, which requires onshoring of R&D, among other requirements; the draft Cybersecurity Law, which authorizes broad discretion to control the flow of information online; a draft counterterrorism law, revised in February, which could require foreign companies to turn over encryption keys; and a draft law threatening the operations of foreign nongovernmental organizations (NGOs) in China.[29] One U.S. business representative in the financial services industry, for example, reports these laws prevent stakeholders from attending meetings in mainland China, result in transfer of data due to onshoring requirements, and have a detrimental impact on cross-border trade due to controls on the flow of information.[30] In effect, these laws counteract China's efforts to liberalize aspects of the foreign investment framework. While China's market and investment barriers have been discussed in nearly every meeting of the U.S.-China Strategic and Economic Dialogue (S&ED), some U.S. business representatives argue S&ED outcomes have not been sufficiently implemented.[31]

Market Access Restrictions

In general, according to World Bank calculations, starting a business in China is getting easier: globally, China ranked 128th out of 189 economies* in the ease of starting a business in 2015, a 23-position improvement in ranking since 2014.[32] However, continuing or expanding operations in China in certain sectors is getting increasingly difficult. Across industries, market access limitations are the primary inhibitors of U.S. companies' ability and willingness to invest in China (see Table 3).[33] China primarily maintains national-level market access restrictions through the Foreign Investment Catalogue, though local governments frequently employ region- or industry-specific Catalogues, further restricting access. Contradictions between the Catalogue and other measures serve to confuse investors, contributing to the perception among foreign-invested firms that investment guidelines do not provide a secure basis for business planning and undermine confidence in the stability and predictability of the investment climate.[34] Chinese authorities sometimes condition provision of market access on forced technology transfer or price suppression.[35] For example, during the Commission's July trip to Asia, U.S. business representatives in the information technology sector said foreign tech firms were required to form JVs with local partners in order to be allowed to provide cloud-based services.[36] The broad and potentially intrusive national security review mechanism as proposed in the new draft foreign investment law could also be used to hinder market access (see "National Security Review" later in this section).[37] U.S. business representatives who met with the Commission during its fact-finding trip to China this year said these measures reflect the Chinese government's concerns about protecting local competitors, resulting in unequal treatment toward foreign investors.[38]

Table 3: Chinese Government Measures Limiting U.S. Investment, 2015

	Services (excl. Information Services)	**Information/ Knowledge-Based Services**	**R&D-Intensive Industries**	**Resources and Industrial**
1	Market access limitations	Market access limitations	Market access limitations	Market access limitations
2	Local partner/ equity requirements	Local partner/equity requirements	Targeted enforcement for foreign firms	Chinese government funding provided solely for domestic competitors
3	Unequal approval process for investments	Targeted enforcement for foreign firms	Chinese government funding provided solely for domestic competitors	Targeted enforcement for foreign firms

* A ranking of 1 denotes the easiest place to do business, and 189 is the most difficult. Data collected by the World Bank estimates starting a business in China on average requires 11 procedures, takes 31.4 days, costs 0.9 percent of income per capita, and requires no paid-in minimum capital.

Table 3: Chinese Government Measures Limiting U.S. Investment, 2015
Continued

	Services (excl. Information Services)	Information/ Knowledge-Based Services	R&D-Intensive Industries	Resources and Industrial
4	Targeted enforcement for foreign firms	Unequal approval process for investments	De facto technology requirement for market access	Local partner/equity requirements
5	Chinese government funding provided solely for domestic competitors	Investment approvals	Local partner/equity requirements	Investment approvals

Source: American Chamber of Commerce in the People's Republic of China, "2015 China Business Climate Survey Report," February 2015, 25.

Foreign Investment Catalogue

In early 2015, MOFCOM and the NDRC jointly released an updated version of the Catalogue, the sixth amended version since it was first implemented in 1995.[39] Restrictions were eased, particularly for foreign-invested enterprises entering the service sector. Compared with its predecessor, the 2011 Catalogue, the 2015 version reduces the number of restricted sectors from 79 to 38; the number of sectors in which Sino-foreign JVs are required decreased from 43 to 15; and the number of sectors requiring Chinese majority shareholding fell from 44 to 35.[40] But industries the Chinese government has long sought to nurture as national champions—such as automobiles and healthcare—saw heightened restrictions. Industries no longer categorized as restricted include many manufacturing industries; e-commerce (excluding any value-added telecommunications services such as Internet access services); * land development, construction, and operation of high-end hotels and office buildings; investment in real estate secondary market and real estate brokerages; operation of golf courses and other entertainment venues; and nonbank financial institutions, trust companies, and currency brokerage companies.[41] In addition, the 2015 Catalogue uses tax incentives and subsidies to encourage wholly foreign-owned enterprises to establish and operate nursing homes.[42]

Despite these positive changes, restrictions remain largely intact in those industries—such as banking, telecommunications, and art and cultural industries †—that have consistently faced heavy con-

* Telecommunications services in China are divided into basic telecommunications services and value-added telecommunications services, which include: (1) online data processing and online transaction processing business, (2) domestic multiparty communication business, (3) domestic Internet virtual private network (VPN) business, (4) Internet data center business, (5) store and forwarding business, (6) call center business, (7) Internet access business, and (8) information service business. Karen Ip and Huang Yilin, "China: TMT Liberalized in the Shanghai FTZ: Part 1," *Mondaq*, November 18, 2014.

† Cultural industries include production and publication of broadcasting and television programs and films, construction and operation of cinemas and large theme parks, and brokering of stage performances. Art industries include publication of books, newspapers, and periodicals, production and publication of audio and visual products, electronic publications, and radio programs, and auction and antique auction businesses. "Catalogue for the Guidance of Foreign Investment Industries (Comparison of the English translations of the new 2015 Catalogue against the 2011 Catalogue)," Covington & Burling LLP, 2015.

trols on foreign investment.[43] Moreover, a number of restrictions on foreign investment in culture and entertainment industries that were originally removed from a 2014 draft version of the revised Catalogue were maintained in the 2015 version.[44] Additionally, some industries became more restricted to foreign investment.

- *Automobile (auto) manufacturing:* For the first time, the 2015 Catalogue designated the manufacturing of complete cars, specialty vehicles, and motorcycles as restricted, requiring at least 50 percent Chinese ownership. In the 2011 Catalogue, foreign investment was permitted in the industry, and in the 2004 Catalogue it was encouraged. Moreover, one foreign investor is not permitted to invest in more than two JVs manufacturing the same type of motor vehicle, except where the foreign investor acquires or merges with a Chinese JV partner.[45] While foreign equity restrictions have always been in place in some form in China's auto manufacturing industry, the new cap on JVs "may be implicitly aimed at encouraging the development of its self-owned branded vehicles."[46]

- *Medical institutions:* In contrast to the 2011 Catalogue, under which wholly foreign-owned enterprise investment into Chinese medical institutions was permitted, the 2015 Catalogue categorizes the industry as restricted, and limits foreign investment to JVs with Chinese partners.[47] This tightening of restrictions counteracts a MOFCOM pilot program implemented in July 2014 to allow foreign investors full ownership of medical institutions in seven pilot cities, implying foreign investors in this sector may meet increased challenges in obtaining the necessary regulatory approvals.[48] Two major U.S. groups—Massachusetts General Hospital and Columbia Pacific Management—have planned investments upward of $200 million for two hospitals in China under the pilot program, but municipal and provincial authorities have yet to specify the necessary steps to move forward.[49]

- *Educational services:* In addition to upper secondary school institutions, which were restricted under the 2011 Catalogue, tertiary (e.g., university) and preschool educational institutions are now restricted, and foreign investment is now limited to cooperative JVs with a Chinese partner.[50] Compulsory educational institutions (primary school through early secondary school) remain prohibited to foreign investors. The chief administrator of the JV must be a Chinese national, and the Chinese partner must account for at least half of the members on the board of directors.[51] Moreover, education provided by the JV must be unrelated to the military, law enforcement, politics or political parties, and religion.[52] The market for educational services in China is experiencing rapid growth: spending on education in China reached approximately $66 billion in 2014, and Chinese households spend 30 percent of their income on education.[53]

- *Legal services:* While the legal services industry was restricted to foreign investment in the 2011 Catalogue, the revised Catalogue categorizes the industry as prohibited, though it clarifies that foreign law firms may "provide information on the impact of the Chinese legal environment" in an effort to uphold China's World Trade Organization (WTO) commitments to do so.[54] Market access liberalization offered to foreign firms upon WTO accession was small—limited to opening one representative office, subject to approval—and the types of services they could provide were restricted.[55] Despite encouragement from WTO members to liberalize its legal services market, China has made little progress.[56]

Market Access Barriers in China's Automotive Industry

Over the past three decades, China's automotive industry has grown to become the world's top auto producer and biggest auto sales market.[57] According to global management consulting firm McKinsey & Company, China's auto sector grew at a compound average rate* of 24 percent per year between 2005 and 2011.[58] In 2010, China overtook the United States as the largest single-country market for new passenger cars, and by 2020 is expected to surpass both North America and Europe to become the biggest regional market.[59] As a result, the auto parts manufacturing industry in China is thriving: in 2015, industry revenue is expected to reach $567 billion, a 9.7 percent increase from the previous year.[60] Due to faster growth in domestic demand—China's vehicle ownership is projected to rise from 58 per 1,000 people in 2010 to 269 by 2030—most cars manufactured in China sell to domestic consumers.[61] Slowing economic growth and stock market volatility in China, however, have dampened auto sales growth in 2015. August passenger car sales fell 3.4 percent year-on-year, according to the China Association of Automobile Manufacturers, while future growth is projected to slow to approximately 5 percent annually over the next several years.[62]

Foreign automakers have been permitted to participate in this enormous market only through forming JVs—each no more than 50 percent controlled by the foreign manufacturer—with local partners, oftentimes state-owned enterprises (SOEs).[63] Since the opening of China's economy in the 1980s, foreign investment in auto manufacturing was limited to JVs under an informal auto development policy, which employed high tariffs and import quotas to protect the domestic market.[64] Restrictions on foreign ownership of JVs were maintained in the 1994, 2004, and 2009 versions of the Policy on Development of the Automotive Industry.[65] These industrial policies also mandated the creation of domestic R&D centers and transfer of technology to Chinese partners with the goal of generating indigenous IP.[66] According to U.S.-based industry group Information Technology Innovation

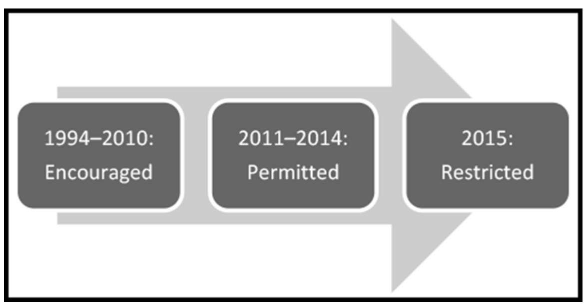
* Compound average growth rate is the mean annual growth rate over a specified period of time.

Market Access Barriers in China's Automotive Industry—*Continued*

Foundation, these policies fail to deliver on China's WTO commitments not to condition market access on whether a company transfers technology or conducts R&D in China.[67]

China has also pursued policies designed to promote the development of a domestic new energy vehicle (NEV) market.[68] After production of NEVs was identified in the 12th Five-Year Plan (2011–2015) as a "strategic emerging industry," foreign manufacturers were told by NDRC officials that approval to manufacture electric vehicles in China would be granted only if they assume a minority stake in a JV, transfer certain core technology, and agree to local branding for the vehicles.[69] Moreover, only domestic NEVs qualify for consumer subsidies and other incentive programs maintained by the Chinese government, raising national treatment concerns.[70] Correspondingly, the whole auto manufacturing industry * changed from "encouraged" for foreign investment in 2007 to "permitted" in the 2011 Catalogue, and in 2015 is now categorized as "restricted" (see Figure 6), with limitations on the number of JVs one foreign investor can participate in—except where the foreign investor acquires or merges with a Chinese partner.[71]

Figure 6: Foreign Investment Catalogue Classification of Whole Auto Manufacturing



Despite policy uncertainty and discrimination, foreign auto manufacturers have still managed to dominate China's domestic auto sales and manufacturing markets. In 2014, foreign brands accounted for 62 percent of passenger vehicle sales in China, with international JVs comprising the top five carmakers by sales in China (see Table 4).[72] General Motors China (GM China) alone has 11 JVs and two wholly-owned foreign enterprises † in China; in 2014, GM China's domestic sales of all vehicles rose 12 percent to 3.5 million units, or 15 percent of the 23.7 million vehicles sold in China in 2014.[73]

* On an industry basis, the manufacturing of whole automobiles is separate from the manufacturing of auto parts.

† One of GM's two wholly foreign-owned enterprises is an investment company, and the other is a parts distribution center. As neither produces automobiles or parts, they are not subject to foreign equity restrictions.

Market Access Barriers in China's Automotive Industry—*Continued*

Table 4: Top Passenger Car Sales in China by Carmaker, 2014

Rank	Carmaker	Foreign Company	Chinese Company	Sales (by unit)	Market Share
1	FAW Volkswagen	Volkswagen	FAW	1,780,888	9.04%
2	Shanghai Volkswagen	Volkswagen	SAIC	1,725,006	8.75%
3	Shanghai GM	General Motors	SAIC	1,723,940	8.75%
4	SAIC–GM–Wuling	General Motors	SAIC and Wuling	1,586,383	8.05%
5	Beijing Hyundai	Hyundai	BAIC	1,120,048	5.68%
6	Changan	n/a	Changan	975,431	4.95%
7	Dongfeng Nissan	Nissan	Dongfeng Motor	951,710	4.83%

Note: FAW is First Automobile Works; SAIC is Shanghai Automotive Industry Corporation; BAIC is Beijing Automotive Industry Corporation. These figures cover two- or three-box sedans, multipurpose vehicles, micro vans, and sport utility vehicles. Pickup trucks, buses, and other commercial vehicles are not included.

Source: China Passenger Car Association via ChinaAutoWeb, "2014 Passenger Car Sales by Maker," January 12, 2015.

China's auto policies nonetheless pose risks to foreign automakers. According to the Office of the U.S. Trade Representative (USTR) 2014 report to Congress on China's WTO compliance efforts, China's auto sector industrial plans—including discrimination based on the country of origin of IP, forced technology transfer, R&D requirements, investment restrictions, and discriminatory treatment of foreign brands and imported vehicles—include guidelines that "appear to conflict with its WTO obligations." [74] In response to China's 2004 and 2005 industrial policies in the automotive industry, the United States, the EU, and Canada initiated dispute settlement proceedings against China at the WTO* in 2006, charging that China unfairly discriminated against imported automotive parts.[75] The WTO panel ruled in favor of the complaining parties in March 2008; China's appeal of the decision was rejected later that year. In 2009 China repealed its discriminatory rules on automobile parts, but "more work remains to be done" to address the full host of concerning policies, according to the USTR's 2015 *National Trade Estimate Report on Foreign Trade Barriers*.[76]

These fluctuations in China's foreign investment restrictions reflect a pattern whereby the government welcomes FDI into sectors

*Upon accession to the WTO in 2001, China committed to lift restrictions on vehicle manufacturers regarding categories, types, or models of vehicles permitted for production, and to increase limits within which investment in motor vehicle manufacturing could be approved by provincial governments, within two years. U.S. Department of State, *2015 Investment Climate Report—China*, May 2015, 20.

designated as strategic for China's national economic development in order to extract technology, IP, and know-how from foreign firms. However, after domestic industry is deemed sufficiently developed, policies welcoming investment are gradually withdrawn and new policies restricting investment are put in place to free up market space for domestic firms and push out foreign firms. Within a legal framework subject to opaque rule-making procedures and designed to serve CCP interests, U.S. investors seemingly have little to no recourse to protect their rights or effectively resolve disputes.[77] Moreover, because "there are no accepted techniques for estimating the impact of [investment barriers] on U.S. investment flows," according to the USTR, it is difficult to quantify the effect of China's restrictive investment policies.[78]

Despite these concerns, few foreign companies report that they plan to reduce or stop a planned investment in China. Only 14 percent of USCBC survey respondents in 2014 indicated they canceled a planned investment in the previous year, most citing better business prospects in another country; increasing market access restrictions and reduced capital investment globally were the next most cited reasons for decreased China investments.* [79] Among AmCham China survey respondents whose planned increase in investment in 2015 is lower than it was in 2014, the primary causes of their decision were expectations of slower growth in China compared with faster-growing markets elsewhere and market access barriers or government policies that disadvantage foreign companies.[80] On the whole, European companies exhibited growing unwillingness to expand current China operations in 2015—those not considering expansion grew from 6 percent in 2013 to 31 percent in 2015. However, on a sectoral basis, the majority of surveyed European companies in the professional services, automotive and auto components, and medical devices industries are considering expanding current China operations in 2015.[81]

China's Inconsistent and Opaque Anti-Monopoly Law Enforcement

Discretionary, unclear legal and regulatory interpretation and weak or inconsistent enforcement have consistently ranked among the top business challenges for U.S. companies in China.[82] European Chamber companies likewise cited the discretionary enforcement of regulations as one of the top regulatory obstacles to doing business in China.[83] In recent years, a broad range of Chinese regulatory activities seem to have focused disproportionately on foreign investors across various industries of strategic importance to China's national economy. AmCham China's 2015 member survey indicated that 57 percent (271 companies) of 477 respondent companies believe foreign firms are being singled out in the government's recent campaigns; of those 271 companies, 65 percent are concerned that such campaigns will have a detrimental impact on their companies, while 52 percent report these campaigns have a negative impact on their companies' intent to invest.[84]

In 2013 and 2014, China's increased enforcement of the AML, in particular against high-profile foreign companies, garnered inter-

* Information regarding planned investments was not published in the USCBC's 2015 survey.

national attention from industry, government, and media actors. According to the U.S. Chamber of Commerce, although China's AML has been used to foster competition in line with international legal practices, "China has also employed [the AML] both domestically and extraterritorially to pursue [industrial policy] objectives that have no place in a free, open, and fair market-based economy." [85] Further, Chinese enforcement agencies appear to use the threat of AML investigations against foreign actors to control price and supply of goods to the benefit of Chinese market participants.[86] Due to a lack of transparency in China's investigation and enforcement decisions, it is not possible to conclusively assess whether foreign companies have been targeted in these campaigns; however, they do appear to have been subject to unequal treatment.

History of China's AML

Compared with other advanced economies, China's competition regime is relatively nascent. Its AML came into force in 2008 after Chinese authorities spent more than a decade drafting the law and consulting with foreign competition authorities from the United States, the EU, and other jurisdictions. The AML draws from elements of both the U.S. and EU competition laws, though it is more closely tied to the EU model,* and contains some elements unique to China.[87]

China's AML allows for the consideration of noncompetitive factors, namely industrial policy, in its application and enforcement. Examples include articles that emphasize the need to harmonize competition policy with the specific needs of China's socialist market economy (Articles 1 and 4), encourage mergers and acquisitions (M&As) as a means to achieve economic scale (Article 5), institute national security reviews of Chinese M&A transactions with foreign companies (Article 31), and prohibit the abuse of IP † to eliminate or restrict market competition (Article 55).[88]

Three government agencies are primarily responsible for AML enforcement in China. The NDRC handles price-related conduct, including investigations of pricing practices by companies, price-related aspects of monopoly agreements, and company abuse of dominant market position to set or control prices, via its Price Supervision and Anti-Monopoly Bureau. MOFCOM reviews M&A transactions and other types of proposed business concentrations via its antimonopoly bureau. The State Administration for Industry and Commerce (SAIC) investigates non-price-related monopolistic be-

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* Following the EU model, China's AML purports to develop a healthy economy, prioritize economic integration, promote fairness for business operators of varying sizes, and support technology development alongside consumer interests. US-China Business Council, "Competition Policy and Enforcement in China," September 2014, 3–4.

† Chinese regulators seek to prevent IP rights holders with dominant positions in relevant markets from misusing these rights or engaging in abusive practices in the name of exercising their IP rights. These behaviors constitute abuse of dominance only where they eliminate or restrict competition in the relevant market. However, the AML does not clearly define the relevant markets involving IP rights, nor does it define the standards for determining abuse of dominance. As a result, Chinese regulators reportedly have pressured foreign firms in some sectors to disclose IP content or license it to domestic competitors at below-market rates, under threat of "abuse of intellectual property" allegations. For an example of the application of this article of the AML, see the Qualcomm textbox later in this section. Hao Zhan, "Abuse of Dominance in Relation to Intellectual Property: The Chinese Perspective," *AnJie Law Firm*, October 9, 2014.

havior, including monopoly agreements, abuse of market dominance, and monopoly control, via its Anti-Monopoly and Anti-Unfair Competition Bureau.[89]

U.S. Business Concerns Regarding China's AML Enforcement

In its 2014 member company survey, the USCBC found over 86 percent of companies surveyed indicate they are somewhat or very concerned* about China's increased AML enforcement activity, with 56 percent of companies indicating enforcement is a primary concern regarding China's competition policy.[90] U.S. companies are most concerned about the following issues:

- *Fair treatment and nondiscrimination:* While it is not clear that enforcement activities target foreign companies, consideration of nonmarket factors (industrial policy), legal ambiguity and the discretionary legal framework, and the lack of transparency in pricing decision procedures lead some analysts to conclude that Chinese authorities emphasize industrial policy priorities over free market and competitive considerations.[91]
- *Lack of due process and regulatory transparency:* Throughout Chinese antitrust enforcement activities in 2013 and 2014, U.S. companies have reported the following procedural shortcomings:
  - Pressure to admit guilt without the ability to see and respond to evidence;
  - Restricted access to legal representation at unannounced onsite investigations;
  - Restricted access to foreign outside legal representation at ongoing proceedings;
  - Insufficient transparency during competition reviews;
  - Insufficient transparency in publishing case decisions;
  - Lack of effective appeal process; and
  - Threats to personal safety.[92]
- *Use of noncompetitive factors in enforcement:* U.S. companies are concerned enforcement agencies use the AML to protect Chinese companies, industries, and policy goals such as innovation, patent creation, and technology licensing from foreign competition.[93]
- *Broad definition of monopoly agreements:* U.S. companies complain that China's competition enforcement deviates from international best practices. For example, Article 14 of the AML appears to prohibit manufacturers from signing specific kinds of pricing agreements and "other monopoly agreements" with distributors.[94] However, the interpretation of "other monopoly agreements" is to be determined by the NDRC or the SAIC. As a result, companies fear agreements they sign could be arbitrarily construed as monopolistic.

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*Surveyed companies described their level of concern as either "very concerned" (25 percent), "somewhat concerned" (61 percent), or "not concerned" (14 percent). US-China Business Council, "USCBC 2014 China Business Environment Survey Results: Growth Continues amidst Rising Competition, Policy Uncertainty," 2014, 20.

MOFCOM's AML Enforcement Activities: Reviews of Mergers and Acquisitions

In its reviews of proposed M&As, China's MOFCOM has exclusively blocked or modified transactions involving foreign companies, and imposed remedies that tend to protect and promote domestic industry and cap commodity prices and IP royalties.[95] According to its year-end work report, MOFCOM's antitrust enforcement sharply intensified in 2014: it reviewed 245 cases, the highest number of cases reviewed by MOFCOM in a single year since the law's implementation in 2008.[96] From August 2008 through the first quarter of 2015, MOFCOM unconditionally approved 97.5 percent of the 1,062 total transactions it reviewed (see Table 5). All of the 26 transactions that were either rejected or conditionally approved involved foreign firms; 21 of the 26 cases involved foreign-to-foreign transactions (see Addendum I).* [97] The two transactions rejected by MOFCOM were in the beverage manufacturing and transportation shipping industries. Among the 24 conditionally approved transactions, 25 percent involved the manufacturing of high-technology goods like electronics components, computer components, or mobile devices, while the remainder involved a variety of different industries.

Table 5: Merger Reviews Completed by MOFCOM, 2008–2015

Year	Approved		Rejected	Total Reviewed
	Unconditionally	Conditionally		
2008	16	1	0	17
2009	72	4	1	77
2010	113	1	0	114
2011	164	4	0	168
2012	158	6	0	164
2013	211	4	0	215
2014	240	4	1	245
2015Q1	62	0	0	62
Total	1,036	24	2	1,062

Source: US-China Business Council, "Update: Competition Policy & Enforcement in China," May 2015, 9; China's Ministry of Commerce, *MOFCOM's 2014 Year-End Roundup: Rolling out Antimonopoly Work in Accordance with the Law to Protect Fair Market Competition*, January 29, 2015. Staff translation.

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* For comparison, only one-third of conditional approvals and rejections issued by the United States between 2008 and 2012 involved foreign-to-foreign transactions; in the EU, only 54.3 percent of such decisions between 2008 and 2013 involved non-EU companies. U.S. Chamber of Commerce, "Competing Interests in China's Competition Law Enforcement," September 2014, 31.

While all M&A transactions, foreign or domestic, that satisfy the applicable monetary threshold must be reported to MOFCOM,* evidence suggests most qualifying domestic M&A transactions are not reported. Domestic-to-domestic transactions account for approximately 80 percent of M&A deals with a Chinese target, but from August 2008 to 2014, only 7.6 percent of the transactions decided by MOFCOM were domestic-to-domestic, suggesting the majority of such transactions were not submitted to MOFCOM for review.[98] By not reporting to MOFCOM, many domestic-to-domestic transactions were effectively exempted from AML requirements and rigorous review.[99] Even though most M&A transactions reviewed by MOFCOM are approved, the imbalance in reporting expectations across domestic and foreign M&A transactions puts foreign companies at a disadvantage by unfairly and disproportionately exposing them to increased scrutiny, regulatory uncertainty, approval delays, and associated costs. In December 2014, MOFCOM announced its first published decision penalizing a prominent SOE for failing to report a merger.[100] The company in question, Tsinghua Unigroup, was fined $48,300 (RMB 300,000) for completing its $907 million acquisition of RDA Microelectronics in November 2013 without reporting the merger to MOFCOM, in violation of Article 21 of the AML.[101]

NDRC's AML Enforcement Activities: Pricing Investigations

The NDRC's Price Supervision and Anti-Monopoly Bureau investigates pricing-related anticompetitive conduct. Between 2008 and 2012, the NDRC conducted nearly 20 pricing-related investigations, according to media reports.[102] Starting in 2013, the NDRC's enforcement activities increased sharply: the agency investigated more than 80 companies in 2013, and more than 150 companies and branches in 2014.[103]

Throughout China's intensification of AML enforcement efforts in 2013 and 2014, U.S. business groups have found the NDRC enforces the AML disproportionately against foreign companies to achieve industrial policy goals unrelated to the protection of competition.[104] The NDRC's antitrust enforcement officials, however, deny these allegations. On the sidelines of the Summer Davos Forum in September 2014, Xu Kunlin, then head of the NDRC's Price Supervision and Anti-Monopoly Bureau, asserted "there is no selective law enforcement" between foreign and domestic firms or private and SOEs, despite the CCP's dual role as both SOE owner and regulator.[105] According to Mr. Xu, as of September 2014, only 10 percent of the 335 enterprises and industry associations investigated by the NDRC for monopolistic conduct were foreign firms.[106] In a joint statement, the three Chinese antitrust enforce-

* Normally, cases are reviewed if global turnover or Chinese turnover in the previous year surpasses certain thresholds. In 2014, MOFCOM promulgated two regulations to simplify premerger filing procedures. To determine whether a proposed transaction can be filed under simplified procedures, MOFCOM adopts both "market share thresholds"—to determine whether an enterprise has a dominant position in a certain market—and nonmarket share tests to determine whether the transaction will affect the Chinese economy. These regulations can be seen as a positive development in China's AML enforcement in that simplified filing requires less paperwork and takes less time for approval, but there is still a degree of uncertainty in the exceptions for simplified filing procedures. For more specific details on MOFCOM filing procedures, see Amigo Lan Xie, Cecillia Dai, and Aqua Huang, "What Is Simplified under Anti-Monopoly Filing Procedures for Simple M&A Cases?" *K&L Gates*, February 12, 2015.

ment agencies argued that large market positions make multinational corporations "inevitably the main object of market regulators" in recent campaigns, resulting in the appearance of targeted enforcement.[107]

Based on a number of industry, legal, and academic reports, news articles, and Chinese government websites, announcements, and press conferences, research by Commission staff into the NDRC's enforcement activities as of September 2014 found foreign-invested firms constituted approximately 19 percent of the roughly 276 enterprises or associations implicated in price-related antimonopoly investigations—9 percentage points higher than the figure cited by Mr. Xu (see Addendum II). Across a case sampling expanded to include all known completed cases through September 2015, approximately 26.3 percent of entities subject to NDRC penalty decisions for price-related AML violations were foreign-invested entities. This updated case sampling covers a total of 36 completed price-related cases in which at least 269 enterprises and trade associations in total were penalized.* Foreign-invested enterprises also feature prominently in the NDRC's ongoing cases, but the lack of detail provided in investigation announcements makes the proportion of cases involving foreign-invested firms difficult to assess.

On an industry basis, the nearly $300 million in fines imposed by the NDRC in major antitrust cases in 2014 were most concentrated in four sectors: the automotive industry (cases involving 12 Japanese auto parts and bearing manufacturers, Audi, and Chrysler), the insurance sector (a case involving 23 Zhejiang insurance companies), the cement sector (a case involving three Jilin cement companies), and the eyeglass and contact lens market (a case involving seven foreign manufacturers).[108] On average, fines imposed by the NDRC in pricing investigations are higher for foreign companies (3.3 percent of previous year's sales revenue in China) than for domestic companies (2.5 percent of previous year's sales revenue in China).[109]

China's AML is ambiguous in its application of jurisdiction, definition of key terminology, and determination of penalty amounts; offers poor procedural protection; and provides for very limited disclosure of decisions.[110] Because the law employs vague legal terms and leaves broad space for enforcement agencies to exercise discretionary power, the agencies, especially the NDRC and local development and reform commissions, have not exercised their power in a fair, equal, and transparent way.[111] Moreover, the administrative decisions of the NDRC and local commissions are short on evaluation of the effect of a certain behavior on competition, and lacking in evidence of why an actor should be exempted from punishment or receive a heavier or reduced fine.[112] The lack of an effective mechanism for controlling the overly broad discretion granted by the AML to enforcement agencies results in inconsistent decisions and unequal treatment: analysis of the NDRC's publicly available investigation and penalty decisions suggests the NDRC "failed to

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*Additional information on monopoly offenses investigated by the NDRC but not disclosed on the NDRC's website can be found in Zhang Xingxiang, "China's Anti-Monopoly Law Enforcement: A Quest for Transparency, Consistency and Fairness," *Indiana University Research Center for Chinese Politics and Business* Working Paper #37, April 2015, Appendix 2, 12–13.

treat [the] same or similar cases[s] equally," resulting in more leniency toward SOEs, more rigorous enforcement against foreign companies, and substantially varied penalties imposed on companies, regardless of nationality of the controlling shareholder, in similar circumstances.[113]

SAIC's AML Enforcement Activities: Non-Pricing Monopoly Investigations

The SAIC and its local branches handle non-pricing-related monopoly conduct and behavior constituting unfair competition, such as abuse of dominant market position and horizontal monopoly agreements. According to the agency's official website, the SAIC had launched 45 monopoly investigations as of January 28, 2015, and had completed 20 of those cases.[114] In 2014, the SAIC investigated 15 new monopoly cases, one-third of all its monopoly cases since 2008, pointing to an intensification of AML enforcement activity.[115] In addition to monopoly cases, the SAIC investigated more than 34,000 cases of unfair competition in 2014 alone.[116] None of the known completed cases involved foreign companies, but two ongoing investigations were launched into Swedish company Tetra Pak in July 2013 and Microsoft in July 2014, both alleging abuse of market dominance (see Addendum III).

Additional Factors Contributing to China's Uneven AML Enforcement

At the Commission's January hearing, three experts testified that while industrial policy is a consideration in China's AML enforcement, the extent of its role in investigation and penalty decision making is not known due to a lack of transparency on the part of authorities. Because China's AML regime is nascent compared with other established antitrust regimes, however, a number of structural and political factors skew its AML enforcement outcomes. Scholars of Chinese antitrust law generally agree the following additional factors contribute to China's uneven AML enforcement:

- *Competition between agencies:* Because antitrust enforcement is split among the NDRC, the SAIC, and MOFCOM, the agencies compete with each other for antitrust policy control.[117] Moreover, each agency's mandate underlies its style of AML enforcement. The NDRC is responsible for macroeconomic management and industrial policy, and so tends to rely on government intervention to solve economic problems.[118] MOFCOM is responsible for formulating trade and investment policies, and so is perceived to be friendlier to free-market policies. The SAIC is smaller and focuses on administration of enterprises and consumer protection, and so tends to play a smaller role in antitrust enforcement.

- *Poor coordination and unclear jurisdiction across agencies:* There is a risk of conflicting or diverging interpretations between the NDRC and the SAIC. For example, while both agencies may pursue investigations of alleged IP abuses, the distinction between price-related and non-price-related conduct in such cases is not always clear.[119] In at least one instance where an antitrust violation came under the jurisdictions of both the NDRC and the SAIC, the NDRC exercised jurisdiction, even though the offense was not price related.[120]

- *Lack of resources:* MOFCOM is understaffed compared to other merger review antitrust agencies in large jurisdictions elsewhere in the world. In 2012, MOFCOM's antimonopoly bureau was staffed with only 35 people to review hundreds of transactions, resulting in heavy delays for M&A reviews.[121] As of February 2014, the NDRC and the SAIC had about 15 and 8 staff members working on antitrust enforcement, respectively.[122] Local- and provincial-level bureaus are better staffed, as investigation and enforcement work tends to fall to local agencies.

- *Discrepancies between national- and local-level agencies:* Both the NDRC and the SAIC have extensive networks of corresponding bureaus at various levels of regional government, and so can delegate their enforcement responsibilities to local authorities. In both agencies, the majority of cases were initiated and enforced by local antitrust agencies.[123] Local authorities face pressure from local governments and local SOEs, while national-level authorities tend to intervene in high-profile cases to achieve broader policy objectives.[124]

- *Lack of judicial oversight:* Since the AML went into effect, no defendant has appealed any administrative decision made by the enforcement agencies for three main reasons: (1) fear of backlash from the enforcement agencies and other ministries; (2) "miniscule" likelihood of winning such a case; and (3) the NDRC's practice of granting leniency or complete immunity to companies that admit their guilt, creating a race to confess among firms.[125]

- *Lack of transparency:* To date, the NDRC has not published the rationale for any of its investigations, penalties, or other determinations in the context of AML enforcement.[126] In the last year, MOFCOM and the SAIC have stepped up efforts to publish relevant decisions on their official websites.

Antitrust and Intellectual Property

In 2015, U.S. companies surveyed by AmCham China reported an overall improvement in the effectiveness of China's intellectual property rights (IPR) laws and regulations, but more than 75 percent rated China's IPR enforcement thereof as either ineffective (42 percent) or very ineffective (36 percent), as shown in Figure 7.[127] Likewise, 56 percent of European Chamber members rated China's IPR law enforcement as "inadequate." [*] [128]

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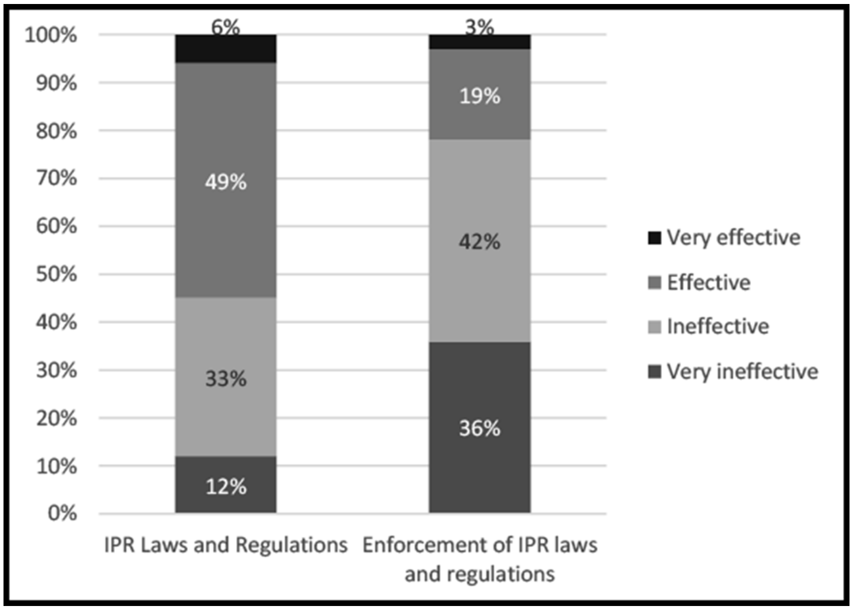
* Survey respondents could choose to describe enforcement as excellent, adequate, inadequate, or not applicable.

Figure 7: Effectiveness and Enforcement of China's IPR Laws and Regulations
(surveyed U.S. companies)



Source: American Chamber of Commerce in China, "2015 China Business Climate Survey Report," February 2015, 29.

U.S. companies are particularly concerned about the application of the AML in the field of IP. According to the U.S. Chamber of Commerce, the NDRC appears to have used the threat of AML investigations against at least two U.S. companies, InterDigital and Qualcomm (see Addendum II), to attempt to lower the licensing fees charged to would-be Chinese licensees, usually telecommunications and electronic equipment producers like Huawei, effectively giving these Chinese firms a competitive advantage in the domestic and global telecommunications markets.[129] Moreover, the NDRC appears to have imposed higher fines on alleged AML violations related to IP than other types of cases: typically, AML fines are a percentage of sales within China, but IP-related AML fines have been based on percentage of global sales revenue.[130]

The discrepancy between high fines for IP-related AML violations and low awards for IPR violations harms the ability of foreign companies to commercialize, license, or enforce patents or other IP rights in China.[131] According to a private database* of about 31,000 cases, average damages awarded in patent infringement cases in China range from $10,000 to $20,000.[132] These damages are considerably less than average damages in either Europe or the United States,† and "too low to compensate most innovations," ac-

* The Ciela database is maintained by Rouse, a global IP consultancy. The data come from judgments published by the major IP courts around China.

† By comparison, the overall median damages award in IP infringement cases in the United States between 1995 and 2013 was $5.5 million, and the median award in 2013 was $5.9 million. PricewaterhouseCoopers, "2014 Patent Litigation Study," July 2014, 6.

cording to Mark Cohen, senior counsel at the U.S. Patent and Trademark Office.[133] Fines lodged in China against foreign companies for alleged IP-related antitrust violations, on the other hand, average in the millions of dollars. As noted in the following text box, U.S. chipmaker Qualcomm was fined $975 million in February 2015 for its patent licensing practices—the highest antitrust penalty yet, registering more than 60,000 times the average damages awarded to foreign IP holders for patent infringement by Chinese companies.[134] In light of this disparity, prospective licensees in China are incentivized to continue infringing and risk an adverse Chinese judicial decision "while at the same time proactively launch[ing] a Chinese antimonopoly law case for even greater damages than royalties that are being asked of by the prospective licensor," casting further doubt on how much the Chinese government values a sound IP enforcement system, according to Mr. Cohen.[135]

The NDRC's Qualcomm Decision: Chipping Away at Patent Protection and Licenses

On November 25, 2013, Qualcomm—the world's largest smartphone chipmaker—disclosed it was being investigated under China's AML by the NDRC for price-related violations after several Chinese telecommunications firms alleged the company was overcharging Chinese mobile device makers on patent fees and boosting sales by bundling patent licenses with chip sales, among other alleged behaviors.[136] During the investigation, one AML regulator made several public remarks prejudging the outcome against Qualcomm, raising procedural irregularity concerns.[137]

On February 9, 2015, Qualcomm announced the NDRC's finding that the company exploited its dominant market position in several key telecommunications standard-essential patents (SEPs)—patents that are incorporated in setting technical standards, allowing for the interoperability of various technical devices—and chips to charge "unfairly high" royalty rates, tie wireless and nonwireless patents, and attach conditions to chip sales.[138] Qualcomm did not appeal the decision, and agreed to pay the $975 million fine levied by the NDRC, representing 3.7 percent of its total earnings in 2014 and 8 percent of its revenue from China sales in 2013.[139] In a press release, the company expressed disappointment with the results of the investigation.[140] The penalty levied on Qualcomm was the largest ever AML fine in China, though many telecommunications industry analysts described the fine as "modest," given the size of Qualcomm's China profits.[141]

In addition, the company agreed to implement a "rectification plan" to modify its business practices in China.[142] The key terms of the rectification plan include:

- Qualcomm will offer licenses to its current 3G and 4G Chinese SEPs separately from licenses to its other patents.

The NDRC's Qualcomm Decision: Chipping Away at Patent Protection and Licenses—*Continued*

- For 3G devices using Qualcomm's Chinese SEPs, the company will charge 5 percent in royalties; for 4G devices, the company will charge royalties of 3.5 percent. Both will use a royalty base of 65 percent of the selling price of the device, a lower figure than the wholesale price of the device ordinarily used by Qualcomm.
- Qualcomm agreed not to condition the sale of baseband chips on the chip customer signing a license agreement with terms considered unreasonable by the NDRC.

Four months after Qualcomm's historic settlement, the company announced a new JV with China's largest chip maker, Semiconductor Manufacturing International Corporation (S.M.I.C.), Huawei Technologies, and a Belgian microelectronics research center, reportedly to focus on R&D of new integrated circuit technology "to boost China's semiconductor capabilities." [143] According to a statement released by the companies, S.M.I.C. will have the rights to license the IP created by the new JV.[144] In an interview with Reuters, Harvard Business School professor Willy Shih assesses Qualcomm is taking this step to be able to remain competitive in China. He explained, "The logic is if they help S.M.I.C. manufacture Qualcomm chips in China that improves their ability to sell those chips there." [145]

The significance of the NDRC's Qualcomm decision lies foremost in its application to holders of SEPs: under the NDRC's interpretation, holding an SEP constitutes having a dominant market position, so licensing of technologies through SEPs may constitute monopolistic conduct.[146] Therefore, all SEP holders are potentially at risk of being investigated for imposing unreasonable and unfair licensing terms. New regulations issued by the SAIC in April 2015 target non-pricing IP-related antitrust violations (see discussion of the rules below). Without its own formal rules for IP-related antitrust violations, the NDRC may rely on the Qualcomm decision as a model for its IP-related AML enforcement, posing danger for U.S. companies going forward, particularly in R&D-intensive industries.

The conflict between IPR protection and AML enforcement over technology licensing and standards setting in China could intensify starting in August 2015, when the SAIC's new regulations on the use of IPR to eliminate or restrict competition—China's first comprehensive guidelines to regulate IP practices under the AML—went into effect. (Neither MOFCOM nor the NDRC is required to follow the rules, but they are expected to do so.) * The rules intend to "protect fair market competition and encourage innovation" by

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* Because the SAIC only has AML enforcement authority over conduct that is not related to pricing or to M&As, the rules do not address issues such as the charging of "unfairly high" royalties, which was the focus of the NDRC's Qualcomm investigation. Covington & Burling LLP, "China Issues Final IP/Antitrust Rules," April 21, 2015, 1–2.

prohibiting firms with a dominant * share of sales in a product or market from "abusing" their IPRs to eliminate or restrict competition.[147] The rules will regulate the following forms of abusive conduct, among others:

- Refusal to license IPRs that amount to "essential facilities"; †
- Imposing certain exclusivity restrictions;
- Imposing unjustified tying and bundling requirements;
- Attaching unreasonable trading conditions to an IP agreement;
- Engaging in discriminatory conduct; and
- Engaging in practices that are inconsistent with "fair, reasonable, and non-discriminatory" (FRAND) ‡ treatment in relation to the licensing of SEPs.[148]

These rules could have a significant impact on the licensing of IP in China, particularly by firms that account for a large share of sales in the technology market or hold patents that are essential to an industry standard—as several prominent U.S. tech firms do.[149] For one, the essential facilities doctrine—possibly the most controversial aspect of the regulations—states that refusal to license IP will violate the AML if the IPR holder is dominant, if the refusal to license "eliminate[s] or restrict[s] competition," and if the technology is "essential for production and business operations." § [150]

Application of the essential facilities doctrine has faced serious criticism ¶ in the U.S. Supreme Court because the doctrine fails to provide clear guidance as to what constitutes a facility, what makes a facility essential, and what constitutes a denial of access, while courts in Europe have applied this doctrine in a few exceptional and controversial decisions to facilities involving IP.[151] In the context of patent licensing, the essential facilities doctrine has never been used anywhere in the world.[152] In other countries, courts and agencies have found the application of the doctrine to

* According to the SAIC rules, the threshold for dominance is met for a company that (1) has a 50 percent or greater share of the relevant technology or product market, (2) together with one other company has a 66 percent or greater share of the market, or (3) together with two other companies has a 75 percent or greater share of the relevant market. Covington & Burling LLP, "China Issues Final IP/Antitrust Rules," April 21, 2015, 2.

† In general, the essential facilities doctrine prohibits anticompetitive conduct where a dominant firm prevents other competitors in the downstream market from acquiring and using certain essential facilities. The doctrine is traditionally applied in natural monopoly sectors such as railways, telecommunications, and electricity power generation and transmission. Michael Gu, "Brief Comments on China's First Anti-Monopoly Regulation in the IP Field," *AnJie Law Firm*, April 29, 2015, 3–4; Steve Harris, Mabel Lui, and Jingwen Zhu, "China's New Rules on Antitrust and Intellectual Property Intersected Issues," *Winston & Strawn LLP*, April 2015, 1.

‡ In the Qualcomm case, the NDRC decision did not explain an accepted approach for calculating FRAND royalties.

§ A dominant company is prohibited from refusing to license its IPRs on FRAND terms if (1) the IP is not "reasonably substitutable" and is essential for other business undertakings to compete in the relevant market; (2) refusal to license IP in the relevant market will adversely impact competition, innovation, and consumer interests; and (3) the obligation to license the IP will not cause unreasonable damage to the licensor. Michael Gu, "Brief Comments on China's First Anti-Monopoly Regulation in the IP Field," *AnJie Law Firm*, April 29, 2015, 4; Nicolas French et al., "A New Dawn? China Introduces First Antitrust Guidelines in Relation to Intellectual Property Rights," *Freshfields Bruckhaus Deringer*, April 2015, 3.

¶ In *Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004), the Court rejected the notion that Verizon (then AT&T) was obligated by the 1996 Telecommunications Act to share infrastructure elements with competitors under antitrust law. U.S. Department of Justice, *Hearings on Single-Firm Conduct*, testimony of R. Hewitt Pate, July 18, 2006.

IPR may substantially harm incentives to innovate, and by extension, technological advancement.[153] While IP-specific guidance on the SAIC's AML enforcement is a positive development, the lack of specific and objective criteria leaves companies "unable to reliably predict whether refusing to grant a license in particular circumstances or on particular terms or conditions may be considered to be 'not justified,' and thus a violation of the AML, potentially resulting in an order compelling it to grant a license under terms and conditions imposed by the court or agency."[154]

Likewise, the SEP rules on standards setting represent a departure from international norms. Typically, a standards-setting organization coordinates across its members to disclose patents that may be essential to a standard, and requests the disclosing member to commit to license those patents that are essential on a royalty-free basis or on FRAND terms.[155] In the United States and the EU, participation in standards setting is voluntary, and SEP holders are free to exclude some or all of their technology from the standards-setting process.[156] In contrast, the SAIC's new IP rules could be interpreted to apply to the licensing practices of any holder of SEPs, regardless of whether the SEP holder participated in the standards-setting organization or committed to license its patents on FRAND terms at all.[157] In the Chinese legal context, these provisions could be used to extract or impose better terms for licensees under FRAND, creating significant uncertainty for licensing in China.[158] Consequently, FRAND developments in China potentially will have global impact on FRAND rates: if China sets lower rates on patent licensing under FRAND terms, other jurisdictions will be inclined to follow.[159] For example, based on the FRAND principle, Qualcomm will likely be expected to extend lower license rates to licenses in other jurisdictions, given its commitment to do so in China under its rectification plan.[160] The SAIC's IP rules will directly affect AML cases allegedly involving IP abuse—including the SAIC's ongoing investigations into Microsoft and Tetra Pak.

The U.S. government response to this growing threat to IPR holders in China primarily has consisted of multitiered engagement. The U.S. Federal Trade Commission (FTC) has been particularly active in engaging China's enforcement agencies in rectifying the practice of threatening AML investigations or penalties to procure cheaper licensing fees for domestic companies. FTC and U.S. Department of Justice (DOJ) officials have held several high-level meetings with Chinese antitrust officials since the two countries signed a memorandum of understanding on July 27, 2011, to promote communication and cooperation among the agencies.[161] FTC Chairwoman Edith Ramirez and FTC Commissioner Maureen Ohlhausen have delivered speeches expressing "serious concern" that China's approach to the AML suggests "an enforcement policy focused on reducing royalty payments for local implementers as a matter of industrial policy, rather than protecting competition and long-run consumer welfare."[162] Likewise, China's antitrust enforcement activities in IP-intensive industries have attracted a stream of criticism from U.S. officials. Jack Lew, U.S. Secretary of the Treasury, reportedly raised U.S. concerns to China's Vice Premier Wang Yang in September 2014.[163] In December 2014, White House

National Security Council Spokesman Patrick Ventrell said, "The United States government is concerned that China is using numerous mechanisms, including anti-monopoly law, to lower the value of foreign-owned patents and benefit Chinese firms employing foreign technology," and President Barack Obama raised this issue with Chinese President Xi Jinping when they met in Beijing in November 2014.[164]

U.S. officials have also expressed concerns about China's AML enforcement in bilateral fora. At the 2014 S&ED, China said it recognized that its competition law enforcement should be fair, objective, transparent, and nondiscriminatory, and committed to provide any party under investigation with information about concerns with the conduct in question, as well as an effective opportunity to present evidence in its defense.[165] At the 2014 Joint Commission on Commerce and Trade (JCCT), China committed to increase the ability of non-Chinese counsel to attend meetings with the AML enforcement agencies, and to make more transparent penalty procedures and competition-based remedies.[166] In 2015, the ability of non-Chinese counsel to attend meetings with Chinese enforcers has improved significantly, according to FTC Commissioner Ohlhausen, with no reports of exclusion; but it is unclear "whether this improvement is a result of the JCCT commitment or reflects a broader recognition by China's AML enforcers that participation of counsel is an important and beneficial element of best competition enforcement practices."[167] Building on China's 2014 JCCT commitments, at the 2015 S&ED Chinese officials provided clarity on the scope of jurisdiction in administrative appeals and confirmed that all parties to AML proceedings are entitled to seek administrative consideration in accordance with Chinese laws.[168] While administrative appeals are permissible under Chinese law, no foreign enterprise has appealed an enforcement decision.

Reforms of China's Foreign Investment Framework

During the Third Plenum in November 2013, the CCP leadership indicated support for a wide range of structural and economic reforms that could potentially bring China's foreign investment rules closer to international standards. Incremental progress has been made in some of these areas within the boundaries of China's free trade zones (FTZs), while the forthcoming proposed foreign investment law (FIL) would lay the groundwork for streamlining government approvals and clarifying the regulatory environment. Overall, however, China's reform efforts have yet to substantially address core issues like foreign investment restrictions and preferential policies toward domestic industry.[169]

Draft Foreign Investment Law

In January 2015, MOFCOM and the NDRC jointly circulated a draft of the new FIL, which will abolish the three existing laws governing foreign investment in China when it goes into effect.*

*As a procedural matter, the adoption of the draft FIL would require the approval of the National People's Congress. Given the priority of the draft FIL in relation to the other pending legislation as well as the legislative process of the National People's Congress, it is unlikely the FIL will come into effect until 2018. Anna Elshafei, "China's Draft Foreign Investment Law Could Be a Game Changer?" *Miller Canfield*, June 8, 2015.

Some elements of the draft FIL reflect key principles of the U.S. model Bilateral Investment Treaty (BIT), including the use of a negative list to identify instances in which FDI is to be treated differently than domestic investment.[170] In its current form, the draft FIL would significantly improve the legal and regulatory regime for a majority of foreign investment in China by eliminating approval requirements in unrestricted sectors.[171] Other aspects of the draft FIL, however, threaten to expand the scope of foreign investments subject to the increased discretionary power of approval authorities. For example, FIEs in restricted sectors will still need foreign investment approval and will continue to face numerous market access barriers such as foreign equity caps, geographic limitations, and local hiring minimums, as well as the current MOFCOM review and approval process.[172]

Under the draft FIL, the definition of a "foreign investor" has been expanded to include instances where the person or entity with ultimate "control"* over the company making the investment is foreign, even if the company itself is domestic.[173] For example, a domestic, Chinese-owned company structured to allow foreign strategic investors to operate in a sector with foreign equity restrictions—also known as a variable-interest entity (VIE)—would be considered a foreign investor. The scope of MOFCOM's approval authority will also be expanded to cover offshore investments—any transaction outside of China that results in the de facto control of a Chinese entity by an FIE will be considered a foreign investment—marking a significant shift from the current practice, where only onshore investments are subject to MOFCOM approval.[174] This shift in focus from foreign equity to foreign control will allow Chinese authorities to treat VIEs, a prevalent investment structure used by foreign investors to access restricted sectors of China's economy, with increased scrutiny and administrative discretion.[175] The VIE structure is also used by some prominent Chinese companies, like Internet giants Alibaba and Baidu, to access foreign capital by listing on foreign stock exchanges while operating in China.[176]

The draft FIL offers China's first formal regulation on VIE structures; currently, the legal standing of VIEs is ambiguous, causing uncertainty among foreign investors.† As for preexisting VIEs in restricted or prohibited industries, MOFCOM offers three possible approaches: (1) the VIE can continue to operate under the same structure if it notifies MOFCOM it is controlled by Chinese investors; (2) the VIE can continue to operate under the same structure if MOFCOM verifies its Chinese-controlled status at the entity's re-

*The draft FIL defines "control" as follows: (1) directly or indirectly holding 50 percent or more of the shares, equity, property shares, voting rights, or other similar rights and interests of an enterprise; (2) despite holding less than 50 percent of the shares, equity, property shares, voting rights, or other similar rights and interests of an enterprise, (a) being entitled to directly or indirectly appoint at least half of the members of the board or a similar decision-making body, (b) being able to ensure that its nominees obtain at least half of the seats on the board or a similar decision-making body, or (c) being able to exert a material impact on the resolutions of the shareholders' meetings or the directors' meetings; or (3) being able to exert a decisive influence on such matters as the operations, finance, personnel, and technology of an enterprise through contracts, trusts, or other means. Joseph W.K. Chan, Ling Chen, and Calamus Huang, "China Set to Overhaul Foreign Investment Law," *Sidley Austin LLP*, February 26, 2015.

†For more information on the legal risks associated with VIEs, see Kevin Rosier, "The Risks of China's Internet Companies on U.S. Stock Exchanges," *U.S.-China Economic and Security Review Commission*, June 18, 2014.

quest; and (3) the VIE can apply to MOFCOM for foreign investment approval, and MOFCOM's approval decision would reference various factors, including the VIE's de facto controller in its approval decision.[177] As these guidelines suggest, preexisting VIEs in restricted or prohibited industries not controlled by Chinese investors are at risk of being denied investment approval or ultimately terminated.[178] For preexisting Chinese companies listed on U.S. stock exchanges utilizing the VIE structure, however, MOFCOM would have the discretion to determine de facto Chinese control and allow the entity to continue operations, even if the majority of shareholders are foreign.

National Security Review

Although the adoption of a negative list in the new FIL will likely be a positive development for FIEs, the national security review process proposed in the draft FIL and subsequently detailed in an April 2015 State Council announcement could worsen the foreign investment climate in China. Under the new negative list approach, the Foreign Investment Catalogue in use under the current regime will be abolished, though the negative list itself will still categorize sectors as either "prohibited" or "restricted."[179] Foreign investment in restricted sectors will be subject to a formal national security review, while foreign investors in unlisted industries will enjoy "pre-establishment national treatment": in lieu of applying for approval from MOFCOM as a prerequisite for market entry, FIEs would be able to establish businesses in China in the same way as domestic firms-namely, by applying directly to the SAIC.[180] Prior to the introduction of the review this year, foreign acquisitions of a controlling stake in Chinese companies in certain industries were subject to review under informal State Council regulations.[181]

The draft FIL broadens the scope of China's national security review to include "any foreign investment which damages or may damage the national security of China."[182] The review will be conducted by the NDRC and MOFCOM, and will take the following factors into consideration: (1) impact on national security, including China's capacity to provide essential goods and services to that end; (2) impact on the stability of the economy; (3) impact on basic social order; (4) impact on culture and social morality; (5) impact on Internet security; and (6) impact on sensitive technology for use in national defense.[183] Certain kinds of foreign investment, including investment into sensitive agricultural products, key natural resources and energy, strategic infrastructure, transport capabilities, technology and information technology, and investment near military facilities, will trigger review.[184] In effect, Chinese authorities will have broader discretion to review incoming foreign investments for perceived national security threats.

Three prominent U.S. business associations—the U.S. Chamber of Commerce, AmCham China, and AmCham in Shanghai—expressed their "deep concern" about the implications of China's "overly broad" definition of national security, which they describe as "heavily skewed in favor of protecting national interests that fall outside the widely accepted scope of essential national security concerns" and "likely to have a significant adverse impact on the flow of foreign investment into China." [185] Specifically, China's national security definition includes economic security criteria that raise "fundamental questions about whether future commitments by China to open its markets to foreign investment will produce the intended results," and "may also be inconsistent with principles of non-discrimination, fairness, and openness that are embodied in a high-standard BIT," at the risk of undermining ongoing U.S.-China BIT negotiations.[186]

Free Trade Zones

China's FTZs were designed to test reforms aimed at promoting further financial liberalization, reforming the foreign investment management system, and supporting outbound investment for potential application nationwide.* Some relevant financial reform measures have been carried out in the FTZs, but the promised liberalization has not materialized, much to the disappointment of foreign investors there.[187] One estimate shows that of the 12,600 companies registered in the Shanghai FTZ in its first year of operation, only 13.7 percent were FIEs.[188] Excluding Hong Kong and Taiwan companies, however, foreign companies comprised just 6 percent.[189]

The Shanghai FTZ, established in 2013, was specifically designed to test and accelerate national-level financial reforms including implementation of renminbi (RMB) capital account convertibility, market interest rates, and cross-border RMB handling. In 2015, Chinese Premier Li Keqiang approved the creation of three additional FTZs—in Guangdong, Tianjin, and Fujian—and subsequent expansion of the Shanghai FTZ to include Lujiazhai, the city's financial district.[190] According to Wang Shouwen, China's Assistant Minister of Commerce, the three new FTZs will play different strategic roles:

> *The one in Guangdong will focus on promoting the in-depth economic cooperation between the Chinese mainland, Hong Kong, and Macao, especially in the services sector. At the same time, the Guangdong FTZ shoulders the responsibility of upgrading China's manufacturing industry. The one in Tianjin will emphasize the joint development of Beijing, Tianjin, and Hebei. The one in Fujian deepens cross-Straits economic cooperation and will support the ["One Belt, One Road"] initiative*.[191]

All four FTZs adopted a unified negative list approach to foreign investment in April 2015.[192] Compared with the initial FTZ negative list promulgated in 2013, the 2015 FTZ negative list appears to feature many changes: the number of sectors restricted to foreign investment decreased from 190 in 2013 to 122 in 2015.[193] In practice, however, U.S. officials are concerned that China's negative list offer is not liberal enough to show a decisive commitment to "seriously and significantly" opening up to foreign investment.[194] Though the size of the FTZ negative list has been reduced, "many

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*More detailed discussion of China's FTZs and related reforms can be found in U.S.-China Economic and Security Review Commission, *Monthly Analysis of U.S.-China Trade Data*, May 5, 2015.

industries and sectors have been merely re-grouped," according to the European Chamber.[195] U.S. business groups believe the revisions reflect "a streamlining of the negative list with other national regulations guiding foreign investment rather than a significant liberalization of the investment environment."[196] The 2015 FTZ negative list largely maintains restrictions in certain sectors in which the United States maintains a competitive advantage with China, including publishing, news, Internet content, films, law practices, and banking and asset management.[197] Foreign investment remains prohibited in sectors including rare earth mining, air traffic control system management, postal enterprises, and radio and television broadcasters.[198] Foreign investment in industries including oil and natural gas exploration and development, general-purpose airplane design, manufacturing, maintenance, and rare earth smelting will be restricted to JVs with Chinese companies.[199] In a positive development, foreign investors can now set up e-commerce companies* in all four FTZs.[200]

U.S.-China Bilateral Investment Treaty

At the June 2015 S&ED, the United States and China reaffirmed their commitment to prioritize negotiation of a high-standard, mutually beneficial BIT that "embodies the principles of non-discrimination, fairness, openness, and transparency."[201] In September 2015, ahead of President Xi's visit to Washington, DC, BIT negotiations entered their 21st round since commencing in 2008, and the two parties exchanged "improved" negative lists.[202] U.S. Trade Representative Michael Froman said China's newest negative list is "better than its original" and "represents serious effort by senior Chinese leaders," but that BIT negotiations are "a substantial distance from the kind of high standard agreement necessary to achieve our mutual objectives."[203] Proponents argue the BIT presents an opportunity to address and ban Chinese investment practices that are out of line with international business and legal standards, including unclear regulatory and legal enforcement, forced technology transfer, preferential policies for SOEs, and long-standing market access barriers.[204] Moreover, for China, the BIT could serve to "force domestic reform" of the investment framework by imposing "external obligations."[205] Critics of the BIT worry that, given the experience of China's WTO accession, even a high-standard agreement will not be meaningfully enforceable as it conflicts with Beijing's stated development path.[206]

Implications for the United States

U.S. businesses play a critical role in China's economic development. As of 2014, cumulative U.S. FDI in China surpassed $65 billion, according to official U.S. data.[207] U.S. companies have not only contributed capital, but also advanced management practices, technological innovation, and access to global distribution channels

*Excluding any value-added technology, media, and telecommunications business, which remains restricted and subject to at least 50 percent Chinese ownership requirement in accordance with the Ministry of Industry and Information Technology's Telecommunications Catalogue.

for Chinese products and services.[208] As recently as 2010, FIEs* employed 15.9 percent of China's urban workforce and accounted for about 26 percent of China's industrial output.[209] In 2014, according to official Chinese data, FIEs in China produced 45.9 percent of China's exports, down from 58.2 percent in 2006.[210] FIEs in China also accounted for 46.4 percent of Chinese imports, meaning they imported components into China for use in final products.[211]

Despite these achievements, foreign investors in China are still operating under a separate and less favorable set of rules designed to give domestic competitors an advantage. In addition to rising labor costs, surveyed foreign businesses also cite market access limitations and unclear and inconsistent enforcement of laws and regulations as the main challenges to establishing and operating businesses in China.[212] Recent threats of regulatory campaigns have also appeared to discriminate against FIEs in China, further contributing to the perception of a less welcoming operating environment.

While the laws governing foreign investment and forthcoming changes to the foreign investment framework are publicly touted as relaxing restrictions as China pursues its economic reform goals, in reality these policy changes expose U.S. companies in some of the United States' strongest export sectors—especially R&D-intensive industries—to increased regulatory scrutiny and administrative discretion. For example, although the number of sectors restricted or prohibited under China's updated Foreign Investment Catalogue has decreased, restrictions in industries that traditionally face heavy controls remain largely intact, while several new constraints (e.g., restrictions on foreign investment in auto manufacturing and medical institutions) have been introduced. Likewise, despite claiming to promote fair market competition, China's AML enforcement authorities appear to have used the threat of investigations to coerce FIEs into making concessions, giving Chinese competitors an advantage domestically and abroad. China's commitments in the draft FIL and FTZs to liberalize foreign investment rules by adopting a simplified negative list are overshadowed by the potentially discriminatory national security review procedures being tested for implementation nationwide, as well as by a new series of security-related laws.

In response to these threats, the U.S. government continues to raise concerns about China's investment restrictions and discriminatory policies at the highest levels, including in bilateral fora such as the JCCT and the S&ED.[213] Regarding China's AML enforcement, U.S. officials from the FTC and DOJ have consistently engaged in consultation, training, and exchanges with Chinese antitrust officials. One FTC commissioner testified that Chinese enforcers have responded seriously to U.S. government engagement, signaling improvement in their approach to AML enforcement—for example, at the 2014 JCCT, U.S. official engagement resulted in Chinese commitments of increased ability of counsel to attend meetings with the AML enforcement agencies, more transparent penalty

* Includes Sino-foreign contractual JVs, Sino-foreign equity JVs, and foreign-owned enterprises.

procedures, and competition-based remedies.[214] China's commitments at the JCCT and S&ED have not fundamentally allayed concerns about its competition policy enforcement, leading some experts to suggest that a number of current U.S. laws could be amended to better target procedural shortcomings and uneven enforcement.[215]

Foreign business groups have also been active in bringing attention to discriminatory policies and lobbying the Chinese government for much-needed regulatory clarity—for example, after detailed reports on China's competition policy were published by such groups, China's AML enforcement activity sharply declined. Experts at the Commission's January 2015 hearing testified that united efforts from government officials, business groups and industry associations, and expert practitioners are the most effective recourse for pushing China on liberalization.

Hopes for expanded bilateral investment continue to hinge on China's implementation of its reform commitments in a transparent and nondiscriminatory way. The U.S. government emphasizes the need for China to open new sectors to foreign investment, increase transparency, and improve the enforcement of existing laws to protect investors' rights.[216] If implemented, China's Third Plenum initiatives, FTZ reforms, and revised FIL could lead to improvements in the overall investment climate.

Conclusions

- U.S. companies continue to invest in China despite an increasing number of challenges on the ground and declining profitability. Chinese government measures, policies, and practices contributing to the deteriorating foreign investment climate include inconsistent and unclear legal and regulatory enforcement, increasing Chinese protectionism, and other preferential policies benefitting domestic companies.
- Across industries, market access barriers continue to top the list of Chinese government measures that limit the ability and willingness of U.S. companies to invest in China. As a means to protect its domestic companies and industries, China restricts foreign investment in sectors in which the United States maintains competitive advantage, including research and development-intensive and value-added information services sectors.
- Fluctuations in China's foreign investment restrictions reflect a pattern whereby the government welcomes foreign direct investment into sectors deemed strategic for China's national economic development in order to extract technology, intellectual property, and know-how from foreign firms. However, after domestic industry is deemed sufficiently developed, policies welcoming investment are gradually withdrawn and new policies restricting investment are put in place to free up market space for domestic firms and push out foreign firms.
- China's Anti-Monopoly Law enforcement agencies—the Ministry of Commerce, the National Development and Reform Commission, and the State Administration of Industry and Commerce—have failed to treat identical or similar violations of the law

equally, resulting in more leniency toward state-owned enterprises, more rigorous enforcement against foreign companies, and substantially varied penalties imposed on companies in similar circumstances, regardless of nationality of the controlling shareholder. The enforcement practices of the National Development and Reform Commission in particular are lacking in transparency, consistency, and fairness.

- The imbalance in expectations between domestic and foreign firms for reporting mergers and acquisitions to China's Ministry of Commerce in accordance with the Anti-Monopoly Law puts foreign-invested enterprises at a disadvantage by unfairly and disproportionately exposing them to increased scrutiny, regulatory uncertainty, approval delays, and associated costs.
- Chinese Anti-Monopoly Law enforcers' legal interpretations of monopolistic abuse of intellectual property by "dominant" firms could have a significant impact on the licensing of intellectual property in China, particularly by firms that account for a large share of sales in the technology market or hold patents that are essential to an industry standard—as several prominent U.S. tech firms do.
- China's commitments to seriously and significantly open up to foreign investment are overshadowed by new measures that reinforce longstanding market access barriers and discriminatory treatment toward foreign investors.
- Some aspects of China's proposed foreign investment law—such as streamlined approval processes and the negative list approach—are encouraging, and signal a move toward fulfilling economic reform goals set forth in the Third Plenum and converging with international investment practices. Yet, some troubling provisions remain, including a broadly discretionary and expanded national security review mechanism and targeting of companies, commonly foreign, using particular investment structures to access the market.

Addendum I: M&As Rejected or Conditionally Approved by MOFCOM*

Date Announced	**Industry**	**Parties**	**Remedy**	**Case Duration**
November 2008	Beverage Manufacturing	InBev, Anheuser-Busch	Conditionally approved	70 days
March 2009	*Beverage Manufacturing*	*Coca-Cola, Huiyuan*	*Rejected: MOFCOM asserted the proposed acquisition would enable Coca-Cola to leverage its dominant position in the carbonated soft drinks market to dominate the juice market, raising entry barriers and limiting the ability of small- and medium-sized juice companies to compete.*	*182 days*
April 2009	Chemical Manufacturing	Mitsubishi Rayon, Lucite	Conditionally approved	124 days
September 2009	Auto/Equipment Manufacturing	General Motors, Delphi	Conditionally approved	42 days
September 2009	Pharmaceuticals	Pfizer, Wyeth	Conditionally approved	113 days
October 2009	Battery Manufacturing	Panasonic, Sanyo	Conditionally approved	283 days
August 2010	Healthcare	Novartis, Alcon	Conditionally approved	116 days
June 2011	Chemicals/Fertilizer	Uralkali, Silvinit	Conditionally approved	81 days
October 2011	Textile Machine Manufacturing/Private Equity	Alpha V, Savio	Conditionally approved	110 days
November 2011	*Energy*	*General Electric, Shenhua (formation of a JV)*	*Conditionally approved*	*212 days*
December 2011	Computing Components	Seagate, Samsung	Conditionally approved	208 days

*Italicized rows denote a proposed transaction involving both domestic and foreign-invested entities; all other listed transactions involve only foreign-invested entities.

Addendum I: M&As Rejected or Conditionally Approved by MOFCOM *—*Continued*

Date Announced	Industry	Parties	Remedy	Case Duration
February 2012	*Chemical Manufacturing*	*Henkel Hong Kong, Tiande (formation of a JV)*	*Conditionally approved*	*186 days*
March 2012	Electronics Components	Western Digital, Hitachi	Conditionally approved	336 days
May 2012	Mobile Phone Manufacturing	Google, Motorola Mobility	Conditionally approved	233 days
April 2013	Natural Resources/Mining	Glencore, Xstrata	Conditionally approved	381 days
April 2013	Agricultural Products	Marubeni, Gavilon	Conditionally approved	308 days
August 2013	Medical Devices	Baxter, Gambro	Conditionally approved	221 days
August 2013	Electronics Components	Mediatek, Mstar	Conditionally approved	417 days
January 2014	Biotechnology	Termo Fisher, Life Technologies	Conditionally approved	196 days
April 2014	IT/Software/Mobile Equipment Manufacturing	Microsoft, Nokia	Conditionally approved	208 days
May 2014	Mobile Device Manufacturing	Merck kGaA, AZ Electronic Materials	Conditionally approved	106 days
June 2014	Transportation Shipping	Maersk, MSC, CMA CGM	Rejected: MOFCOM rejected plans by three leading European shipping companies to form a shipping alliance that would allow the companies to share ships and port facilities, noting the three companies already held a 46.7 percent market share in the Asia-Europe container shipping line market.	273 days

* Italicized rows denote a proposed transaction involving both domestic and foreign-invested entities; all other listed transactions involve only foreign-invested entities.

Addendum I: M&As Rejected or Conditionally Approved by MOFCOM*—*Continued*

Date Announced	Industry	Parties	Remedy	Case Duration
July 2014	*Battery Manufacturing*	*Primearth EV Energy, Toyota Motor China Investment, Toyota Tsusho, Hunan Corun New Energy, Changshu Sinogy Venture Capital (formation of a JV)*	*Conditionally approved*	*184 days*

*Italicized rows denote a proposed transaction involving both domestic and foreign-invested entities; all other listed transactions involve only foreign-invested entities.

Source: Adapted from US-China Business Council, "Update: Competition Policy & Enforcement in China," May 2015, 11–17.

Addendum II: Pricing Investigations Conducted by the NDRC and Provincial Development and Reform Commissions, 2008–2015 [*]

Completed Cases [36 known cases involving approximately 269 entities or associations, of which 71 are foreign]				
Date Announced	**Industry**	**Location/Agency**	**Companies Involved**	**Description**
March 2010	Rice Noodle Manufacturing	Guangxi Price Bureau	Juezhihe, Xianyige, Liuzhou Brothers, Yongcai, and other rice noodle manufacturers	Starting in 2010, 18 rice noodle manufacturers colluded to discuss profit sharing and business integration and to set market prices in violation of the Price Law and the AML. The bureau fined the three leading companies $14,648 apiece, and ordered fines ranging from $4,394 to $11,718 for others according to their behaviors.
August 2010	Paper Making	Zhejiang Price Bureau	Fuyang Paper Manufacturing Industry Association	In 2010, the association held meetings with member companies to discuss the sales price for white paperboard. The bureau ruled this behavior violated the Price Law and the AML, and fined the association $73,437.
November 2010	Household Products	Hubei Price Bureau	Wuchang Salt Company	In July and August 2010, the company required distributors to purchase both salt and Huolierba detergent powder. The bureau announced the company had violated two articles of the AML, but the company had voluntarily returned illegal revenue to distributors.

[*] Italicized cells indicate the involvement of a foreign-invested enterprise.

Addendum II: Pricing Investigations Conducted by the NDRC and Provincial Development and Reform Commissions, 2008–2015 *—*Continued*

Completed Cases [36 known cases involving approximately 269 entities or associations, of which 71 are foreign]				
Date Announced	**Industry**	**Location/Agency**	**Companies Involved**	**Description**
May 2011	Household Products	Shanghai/NDRC	*Unilever*	In March 2011, Unilever released information to the media that it might raise detergent and soap prices because of raw materials costs, causing "panic buying" in customers. The NDRC ruled the behavior violated the Price Law, ordered Unilever to cancel the price hike, and fined the group $307,978.
November 2011	Pharmaceuticals	Shandong/NDRC	Weifang Shuntong, Huaxin	The NDRC found the companies had signed an exclusive distribution agreement with the only two domestic producers of a key raw material commonly used in high blood pressure treatments, thus eliminating competition. The NDRC found these behaviors violated the AML and the Price Law, and fined Weifang Shuntong $1.1 million and Huaxin $23,505 under the AML.
February 2012	Chemicals	Hubei/NDRC	Hubei Yihua Group	The NDRC and its Hubei branch found Yihua had worked with other companies to fix prices, and subsequently imposed those prices on its customers, causing the price of sodium hydrosulphite to increase by 300 percent in 2011. The authorities fined Yihua $1.6 million for violation of the AML.

March 2012	Sea Sand	Guangdong Price Bureau	Guangdong Sea Sand Association and its members	Several companies took steps to set and manipulate resource fees for mining sea sand under the umbrella of the association in violation of the AML. Three members of the association were collectively fined $120,565, and others were issued warnings.
January 2013	LCD Panels	Nationwide	*Samsung, LG, Chimei, AUO, Chunghwa Picture Tubes (CPT), HannStar Display Corporation*	The NDRC found these six foreign LCD manufacturers met repeatedly between 2001 and 2006 to exchange information on the LCD panel market and set or manipulate LCD panel prices in China in violation of the Price Law. The NDRC ordered the parties to return the overcharged funds to Chinese television enterprises ($27.6 million), confiscated other illegal gains ($5.9 million), and fined the companies $23.1 million. The NDRC also ordered the companies to take other corrective measures.
February 2013	Liquor (*baijiu*)	Guizhou Price Bureau	Kweichow Moutai Group	The bureau found Moutai had sought to fix the minimum resale price to third-party distributors since 2012, taking punitive measures against those who did not implement the price, in violation of the AML as a resale price maintenance agreement. The bureau fined the company $39.6 million, or 1 percent of the relevant sales revenue in the previous year.

* Italicized cells indicate the involvement of a foreign-invested enterprise.

Addendum II: Pricing Investigations Conducted by the NDRC and Provincial Development and Reform Commissions, 2008–2015 *—*Continued*

Completed Cases
[36 known cases involving approximately 269 entities or associations, of which 71 are foreign]

Date Announced	Industry	Location/Agency	Companies Involved	Description
February 2013	Liquor (*baijiu*)	Sichuan DRC	Wuliangye Group	The Sichuan DRC found Wuliangye signed agreements with over 3,200 dealers from 2009 to 2013 to limit the lowest resale price for its products, taking punitive measures against those who did not implement the price, in violation of the AML. The DRC fined Wuliangye $32.4 million, or 1 percent of the relevant sales revenue in the previous year.
July 2013	Insurance	Xinjiang	Xinjiang Insurance Industry Association and 15 branches of national property insurance group companies	Six insurance companies were punished for horizontal monopoly agreements; it is unclear whether the other nine companies have yet been punished.
August 2013	Gold Jewelry	Shanghai Price Bureau	Shanghai Laofengxiang, Yuyan Plaza	The Shanghai Price Bureau ruled that the company and other gold jewelry stores sought to set retail prices under the umbrella of the Shanghai Gold & Jewelry Trade Association in violation of the AML. The bureau fined the association $81,743 and the five stores a total of $1.6 million, or 1 percent of their previous year's sales.

August 2013	Concrete Manufacturing	Jiangsu Price Bureau	Nanjing Concrete Industry Association and 37 concrete manufacturers	After an August 2013 investigation, the bureau found the association and 37 companies engaged in anticompetitive pricing violations, and imposed a collective $6.2 million fine on all parties. The association and one other company refused to follow the administrative decision, and were ordered by the Nanjing Intermediate Court on December 8, 2014, to pay the fine. Four other firms filed administrative lawsuits against the bureau's decision, but were rejected.
August 2013	Milk Powder	Nationwide	*Biostime, Mead Johnson Nutrition, Dumex, Abbott, Friesland Campina, Wyeth, Fonterra, Beingmate, Meiji*	The NDRC found nine milk powder companies guilty of fixing resale prices for distributors and retailers in violation of the AML. The NDRC fined six of these producers a total of $109.3 million, with fines ranging from 3 to 6 percent of the previous year's revenue.
September 2013	Tourism	Hainan Price Bureau	Sanya Platinum Crystal Crafts, Crystal Source, Good Royal Crystal	The bureau ruled that these three companies formed a cartel, holding coordination meetings and signing a formal agreement in June 2012 to fix prices, commission rates, and market share for crystal products in violation of the AML. Sanya and Crystal Source were fined $588,134 (4 percent of the previous year's revenue) and $220,550 (2 percent of the previous year's revenue), respectively, for monopoly agreement, with additional fines for concealing, transferring, or destroying financial evidence. Good Royal was exempt from punishment for cooperating with authorities.

* Italicized cells indicate the involvement of a foreign-invested enterprise.

Addendum II: Pricing Investigations Conducted by the NDRC and Provincial Development and Reform Commissions, 2008–2015 *—*Continued*

Completed Cases [36 known cases involving approximately 269 entities or associations, of which 71 are foreign]				
Date Announced	**Industry**	**Location/Agency**	**Companies Involved**	**Description**
September 2013	River Sand	Guangdong Price Bureau	Two domestic river sand companies	The two companies, owned by the same individual, held a 75 percent share of the local sand mining and processing market. The companies were accused of hoarding large amounts of sand, leading to a price increase of up to 54.5 percent over two years. The bureau fined the companies 2 percent of their previous year's sales revenue (approximately $86,000).
September 2013	Milk Processing	Qinghai Price Bureau	Qinghai pasteurized milk producer	The bureau found the company to have a monopoly in the local market, which it exploited to increase the sales price by 267 percent, constituting excessive pricing. The company voluntarily committed to correct the pricing and not raise prices for four months; the bureau subsequently terminated the investigation.
September 2013	Tourism	Hainan, Yunnan Price Bureaus	Tourist shops selling crystal and spirulina products including Sanya Dijia Trade and Development Company, Sanya Zhongyu Crystal Company, and Lijiang Kangnuo Biological Development Company [1]	Tourist-oriented shops selling crystal products and spirulina were accused of using discounts on artificially inflated prices for these products to lure in customers. Local pricing agencies found these practices violated the Price Law, and fined each shop $49,011.

September 2013	Tourism	Yunnan DRC	Eight travel agencies in Yunnan, including the Lijiang branch of Ctrip, under the guidance of the Lijiang Tourism Association Travel Agency Division	The Yunnan DRC ruled that eight travel agencies, operating under the umbrella of the Lijiang Tourism Association's Travel Agency Division, signed agreements in 2008 and 2010 to set prices for tour groups, sharing $37.1 million in profits over two years, in violation of the AML as a price monopoly agreement. The agency was fined $81,685, and the travel agencies were collectively fined $547,291, or 5 percent of the previous year's revenue.
September 2013	Tourism	Hainan Price Bureau	Travel agencies in Hainan, including Hainan Haikou Civil Tourism Agency, the Yangguang Chunjing Travel A5 Tian Tour Group, and the Hainan Tongxing Tianxia Travel Agency	The bureau ruled that several travel agencies used bait-and-switch tactics to lure customers, pricing tours at or below cost to attract tourists and then charging high commissions from shopping activities organized by the tour groups. The bureau ruled that such behavior violates the Price Law, and fined each agency $49,011.
December 2013	Insurance	Hunan Price Bureau	Hunan Loudi City Insurance Industry Association and 12 domestic insurance-related companies	The association organized companies to set prices for new car insurance discount rates, divided up the market, and engaged in other anticompetitive behaviors in violation of the AML. The bureau fined the association and six of the companies $361,746. The other five companies were exempt from penalties for cooperating with authorities.

* Italicized cells indicate the involvement of a foreign-invested enterprise.

Addendum II: Pricing Investigations Conducted by the NDRC and Provincial Development and Reform Commissions, 2008–2015 *—*Continued*

Completed Cases
[36 known cases involving approximately 269 entities or associations, of which 71 are foreign]

Date Announced	Industry	Location/Agency	Companies Involved	Description
February 2014	Banking	Nationwide	Domestic commercial banks (unnamed)	Chinese banks were accused of imposing arbitrary charges and fees on customers. In February 2014, the NDRC announced it had ordered 64 branches of different banks to return $66.5 million in fees from those charges, and imposed fines of $67.7 million.
May 2014	Telecommunications	Nationwide	*InterDigital*	The company was accused of abuse of market dominance, charging discriminative high-price patent license fees for China's communications equipment manufacturers, and issuing bundled licenses for nonstandard essential patents and standard essential patents. In June 2014, the NDRC announced the investigation was suspended.
May 2014	Vision Care	Nationwide	*Essilor, Zeiss, Nikon, Bausch & Lomb, Johnson & Johnson, Hoya, Weicon*	Seven manufacturers of eyeglasses and contact lenses were accused of setting minimum resale prices and running promotions that effectively served as resale price maintenance arrangements. The NDRC found their actions in violation of the AML and fined five manufacturers a total of more than $3 million, with rates of either 1 or 2 percent of the previous year's sales.

July 2014	Brick Manufacturing	Hainan	Five domestic manufacturers of aerated bricks	In October 2012, five manufacturers of bricks with holes to allow airflow established without authorization an industry association to harmonize sales price; supervision and control; and statistics for production, sales, and shipments. The five companies agreed upon and coordinated price increases and signed monopoly agreements to divide sales. Three companies were fined $85,879, or 1 percent of the previous year's sales, and the others were exempted for cooperation.
August 2014	Automotive	Nationwide	*Hitachi, Denso, Aisan, Mitsubishi Electric, Mitsuba, Yazaki, Furukawa Electric, and Sumitomo Electric; (separate case) Nachi-Fujikoshi, NSK, JTEKT, and NTN*	The NDRC announced that eight auto parts manufacturers and four bearings manufacturers had held frequent consultations to set and influence pricing of vehicles, auto parts, and bearings. Fines for companies that did not cooperate were $135.1 million for the seven auto parts companies and $65.5 million for three bearings companies, ranging between 4 and 8 percent of each company's previous year's sales.
August 2014	Automotive	Hubei Price Bureau	*Four Mercedes-Benz dealerships*	The bureau announced that four dealerships had overcharged customers for the predelivery inspection of purchased automobiles, and had colluded to set prices. The bureau fined the dealerships a collective total of $264,666.

* Italicized cells indicate the involvement of a foreign-invested enterprise.

Addendum II: Pricing Investigations Conducted by the NDRC and Provincial Development and Reform Commissions, 2008–2015 *—*Continued*

Completed Cases [36 known cases involving approximately 269 entities or associations, of which 71 are foreign]				
Date Announced	**Industry**	**Location/Agency**	**Companies Involved**	**Description**
September 2014	Insurance	Zhejiang	Zhejiang Insurance Industry Association and 23 property insurance companies	The NDRC announced the association and 23 companies held frequent consultations to set and influence discount rates of new vehicles and unified commercial commissions for auto insurance agencies in violation of the AML, fining the association $81,457 and the companies a total of $18 million, or 1 percent of the previous year's sales revenue. Fines were waived or reduced for three companies that cooperated with investigating authorities.
September 2014	Cement	Jilin Price Bureau	Three domestic cement companies: Yatai, Northern, and Jidong	The bureau announced the companies had held several consultations to agree to set cement price and implementation policies in violation of the AML, and fined Yatai and Jidong 2 percent of their 2012 sales revenues, and fined Northern 1 percent of its 2012 sales revenue. Collectively, fines totaled $18,636.

September 2014	Automotive	Shanghai Price Bureau	*Chrysler China Automotive Sales Company; (separate case) three Chrysler Shanghai dealerships*	The bureau found Chrysler and its three dealerships engaged in concluding and implementing price monopoly agreements by signing dealership agreements containing resale price maintenance terms. Chrysler was fined approximately $5 million; the three dealers were collectively fined more than $300,000.
September 2014	Automotive	Hubei Price Bureau	*FAW-Audi Sales, and ten Audi dealers in Hubei*	The bureau announced the company and ten dealers had reached monopoly agreements to set and influence vehicle sale and maintenance prices in violation of the AML. The bureau fined FAW-Audi Sales $40.4 million, or 6 percent of its previous year's sales revenue, and fined eight of the dealers a total of $4.9 million: seven were fined 1 to 2 percent of the previous year's sales revenue; one was fined 0.5 percent of its previous year's sales revenue; and two were exempted from penalties.
February 2015	Telecommunications	Nationwide	*Qualcomm*	The NDRC fined Qualcomm $971.7 million, or 8 percent of its sales revenue in China in 2013, for violation of the AML. The NDRC argued Qualcomm holds a dominant market position in several key telecommunications standard-essential patents and in chips, and had used that position to charge high royalty rates, tie wireless and nonwireless patents, and attach conditions to chip sales.

* Italicized cells indicate the involvement of a foreign-invested enterprise.

Addendum II: Pricing Investigations Conducted by the NDRC and Provincial Development and Reform Commissions, 2008–2015 *—*Continued*

Completed Cases
[36 known cases involving approximately 269 entities or associations, of which 71 are foreign]

Date Announced	Industry	Location/Agency	Companies Involved	Description
April 2015	Automotive	Jiangsu Price Bureau	*Mercedes-Benz and its dealers in Nanjing, Wuxi, and Suzhou*	The bureau announced Mercedes-Benz reached a monopoly agreement with its dealers in Jiangsu Province by enforcing minimum prices for dealers to charge for its products, and implemented fixed-price agreements for part of the components in violation of the AML. The bureau fined Mercedes-Benz $56.4 million, or 1 percent of its sales revenue of the previous year. The dealers were fined $1.27 million in total.
September 2015	Automotive	Guangdong Price Bureau	*Dongfeng Nissan and 17 of its car dealerships in Guangzhou*	The bureau announced in September that Dongfeng Nissan and its 17 dealers in Guangdong Province carried out price control through its sales and service agreements. The bureau fined Dongfeng Nissan $19.7 billion (RMB 123.3 billion), and collectively fined the dealerships $3.1 billion (RMB 19.1 billion).

Ongoing Cases
[nine known cases involving at least 70 entities or associations, of which at least 12 are foreign]

Date Announced	Industry	Location/Agency	Companies Involved	Description
November 2011	Telecommunications	n/a	China Mobile, China Unicom	Alleged abuse of market dominance through price discrimination

August 2012	E-Commerce	n/a	360 Buy, Gome, Suning	Alleged illegal and fraudulent behavior while engaging in low-cost competition
March 2013	Cement	n/a	Cement companies nationwide	Alleged supply restrictions
July 2013	Pharmaceuticals	n/a	*GlaxoSmithKline, Merck, Astellas, Novartis, Beohringer Ingelheim, Baxter International, Fresenius, UCB, and others*	Alleged unfair import pricing (33 companies); internal cost structure (transfer pricing) (27 companies)
August 2013	Automobile	n/a	*Imported cars and domestic auto JVs (no specific companies named)*	Alleged excessive pricing
April 2014	Pharmaceuticals	n/a	Nine unnamed pharmaceutical companies across six provinces, including Jiangsu, Anhui, Zhejiang, Hebei, Liaoning, and Shanghai	Alleged monopolistic pricing practices
July 2014	Automobile	n/a	*Luxury car makers, including Mercedes-Benz, Audi, Toyota, Land Rover, and others*	Alleged abuse of dominant market position; imposition of horizontal and vertical restraints on competition (fines not yet announced)
August 2014	Express Delivery	n/a	Domestic express delivery companies in Chongqing and Xiangtan, Hunan	Alleged illegal pricing behavior, including collusion

* Italicized cells indicate the involvement of a foreign-invested enterprise.

Addendum II: Pricing Investigations Conducted by the NDRC and Provincial Development and Reform Commissions, 2008–2015 [*]—*Continued*

Ongoing Cases [nine known cases involving at least 70 entities or associations, of which at least 12 are foreign]				
Date Announced	**Industry**	**Location/Agency**	**Companies Involved**	**Description**
August 2014	Real Estate	n/a	Real estate brokers in Tianjin (no specific companies named)	Alleged monopolistic pricing practices

[*] Italicized cells indicate the involvement of a foreign-invested enterprise.

[1] At least three individual companies were named in the penalty decision, but the total number of shops operating in violation of the AML was not published. China's National Development and Reform Commission, "Case Involving a Group Illegally Manipulating Market Prices in Tourism Thoroughly Investigated," September 29, 2013. Staff translation.

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Addendum III: Monopoly Investigations Conducted by the SAIC and its Provincial Branches, 2008–Present *

Completed Cases [21 known cases involving approximately 78 enterprises or associations, none of which is foreign]				
Date Announced	**Industry**	**Location/Agency**	**Companies Involved**	**Description**
August 2010	Concrete	Jiangsu Administration of Industry and Commerce (AIC)	Lianyungang Construction Material and Machinery Association and 16 member companies	The Jiangsu AIC found the association and 16 member companies signed an illegal monopoly agreement prohibiting all involved from independently signing contracts with buyers. The AIC confiscated illegal profits of more than $20,046, and fined five participants in the cartel a combined total of $77,950.
April 2011	Liquefied Petroleum Gas (LPG)	Jiangxi AIC	Taihe County Huawei LPG Station and six other gas companies	The Jiangxi AIC found the LPG Station signed an agreement with six other LPG companies in 2008 to monopolize and divide up the market in violation of the AML, and confiscated illegal gains of $31,665. The AIC also fined Taihe County Huawei LPG Station $20,063.
January 2012	Secondhand Automobiles	Henan/SAIC	11 secondhand car dealerships in Anyang, Henan	The SAIC ruled that the group of three secondhand auto dealerships formed a cartel and signed an agreement to set a uniform price and market share in 2007. By 2009, the cartel expanded to include 11 dealerships in violation of the AML. The SAIC confiscated $232,691 in illegal profits and imposed a collective fine of $42,005 on the participants.

* Italicized cells indicate the involvement of a foreign-invested enterprise.

Addendum III: Monopoly Investigations Conducted by the SAIC and its Provincial Branches, 2008–Present*—*Continued*

Completed Cases
[21 known cases involving approximately 78 enterprises or associations, none of which is foreign]

Date Announced	Industry	Location/Agency	Companies Involved	Description
August 2012	Cement	Liaoning AIC	Liaoning Construction Material Industry Association and 12 member companies	The association's cement committee and 12 member companies signed agreements in 2010 to monopolize the market, control production, and set market share. The Liaoning AIC ruled their behavior constituted an illegal monopoly agreement under the AML and fined the association and the 12 member companies $2.6 million collectively.
November 2012	Insurance	Hunan/SAIC	Yongzhou Insurance Association and ten member companies	The SAIC found the association and 12 insurance companies signed an agreement in 2011 establishing a new car insurance service center, which served as a window for setting up consumer purchases of new car insurance. The SAIC judged the agreement to be an illegal monopoly agreement, and fined the ten insurance companies $64,194, and the 12 member companies a total of $155,990.
December 2012	Insurance	Hunan/SAIC	Zhangjiajie Insurance Association and eight member companies	The SAIC found the association and eight insurance companies signed agreements in 2010 to establish a new car insurance service center as a window for consumer purchases of new car insurance, constituting an illegal monopoly agreement. The SAIC fined the association $64,192.

December 2012	Insurance	Hunan/SAIC	Changde Insurance Association and nine member companies	The SAIC ruled the association and nine insurance companies signed agreements in 2006 to establish a new car insurance service center as a window for consumer purchase of new car insurance, constituting an illegal monopoly agreement. The association was fined $72,216.
December 2012	Insurance	Hunan/SAIC	Chenzhou Insurance Association and 14 member companies	The SAIC found the association and ten insurance companies signed an agreement in 2007 to establish a new car insurance service center as a window for consumer purchases of new car insurance. The SAIC fined the association $72,216.
December 2012	Concrete	Zhejiang AIC	Jiangshan Tiger Product Concrete, Jiangshan Yongcheng Concrete, and Jiangshan Hengjiang Product Concrete	The Zhejiang AIC ruled the three companies made an oral agreement in 2009 to divide up the city's concrete market, set prices, and eliminate competition, constituting an illegal monopoly agreement. The AIC fined the three companies a total of $189,367.
March 2013	Construction Equipment	Zhejiang AIC	Cixi Construction and Engineering Testing Association, Cixi Building and Engineering Quality Supervision Station Energy Office, and three companies	The Zhejiang AIC found the parties signed an agreement in 2010 to divide market share and set ground rules for competition. The AIC suspended the investigation in 2012 based on submissions from the parties, and closed the investigation in March 2013 without punishments.

* Italicized cells indicate the involvement of a foreign-invested enterprise.

Addendum III: Monopoly Investigations Conducted by the SAIC and its Provincial Branches, 2008–Present*—*Continued*

Completed Cases
[21 known cases involving approximately 78 enterprises or associations, none of which is foreign]

Date Announced	Industry	Location/Agency	Companies Involved	Description
March 2013	Bricks/Ceramics	Sichuan AIC	Yibin Building Material Industry Association Brick Committee, three of its member companies, and one individual	The Sichuan AIC ruled the three member companies of the committee signed a series of agreements in 2009 designed to limit the output of bricks in the market and control market share, constituting an illegal monopoly agreement. The companies were fined a total of $161,093, and an involved individual was fined $9,666.
April 2013	Tourism	Yunnan AIC	Xishuangbanna Tourism Association, Xishuangbanna Travel Agency Association	The Yunnan AIC found the tourism association launched a platform in 2003 and convinced more than 80 other groups to sign on, effectively promoting specific tours to specific stops with punitive actions for those who deviated. Concurrently, the travel agency association and 24 travel agencies signed agreements to set prices and itineraries for travel. The AIC fined each association $64,859.
July 2013	Civilian Blasting	Guizhou/Anshun AIC	Qianzhong Civilian Blasting Equipment Operating Company	The AIC found a local subsidiary of the company was guilty of abuse of market dominance and excessive prices, and fined the company $20,715.

December 2013	Water Supply Engineering	Guangdong AIC	Huizhou Daya Bay Yiyuan Purified Water	The AIC found Yiyuan used its strong market position to require local real estate companies to sign agreements bundling water supply with other services, constituting a violation of the AML. The AIC required the company to halt operations, turn over illegal gains of $142,056, and pay a fine of 2 percent of its previous year's revenue, or $396,434.
June 2014	Sports and Entertainment	Beijing AIC	Shankai Sports International	The company—the authorized vendor of package tours to the 2014 FIFA World Cup in Brazil for China, Hong Kong, and Macau—was accused of bundling various products and services, and requiring customers to purchase set bundles, in violation of a March 2011 agreement with Beijing China Travel Service Company. The Beijing AIC suspended the investigation in June 2014, stating that Shankai admitted its violations and took undisclosed steps to address concerns. In January 2015, the SAIC announced its decision to terminate the investigation.
July 2014	Fireworks	Inner Mongolia AIC	Six fireworks companies in Chifeng, Inner Mongolia	The six companies that were designated locally as the sole wholesalers for various products were accused of abusing their dominant market position by requiring distributors to apply for fireworks purchases, among other requirements, or see their purchasing quotas cut. Four of the companies also signed an illegal monopoly agreement. The AIC fined the six companies $94,580 total.

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Addendum III: Monopoly Investigations Conducted by the SAIC and its Provincial Branches, 2008–Present *—*Continued*

Completed Cases
[21 known cases involving approximately 78 enterprises or associations, none of which is foreign]

Date Announced	Industry	Location/Agency	Companies Involved	Description
October 2014	Sand and Gravel Mining	Chongqing AIC	Four quarry operators in Wuxi County, Chongqing	The quarry operators were accused of setting a verbal monopoly agreement in order to divide the sand and gravel sales required to construct the local portion of the Fengxi Highway. The AIC imposed fines of $65,440 on the operators.
October 2014	Tobacco	Jiangsu AIC	Pizhou Subsidiary of Xuzhou Tobacco Company	The head of the subsidiary was accused of abusing the company's dominant market position to unfairly determine supply allotted to different retailers without reasonable cause. The AIC fined the individual $281,394, or 1 percent of the sales revenue made from selling cigarettes under limited supply conditions.
November 2014	Natural Gas	Chongqing AIC	Chongqing Gas Group	The company overcharged its customers for natural gas using fee rates that were inflated. The AIC ruled the activity constituted abuse of market dominance in violation of the AML. Because the company cooperated, the AIC lightened its punishment, resulting in a fine of $291,500, or 1 percent of its 2010 sales revenue.

December 2014	Concrete	Zhejiang AIC	Zhejiang Shangyu Concrete Association and eight member companies	The association and eight member companies were determined to be using monopoly agreements to divide local market share, in violation of the AML. The AIC fined the association $1,611 and imposed fines ranging from $1,611 to $64,477 on the eight firms.
February 2015	Water Supply	Hainan AIC	Hainan Dongfang Water Company	The company was accused of abusing its market dominance to impose conditions on new users when providing water supplying services, in violation of the AML. The AIC confiscated illegal gains of $6,148 and fined the company $94,683, or 2 percent of its sales revenue in the previous year.
July 2013	Food and Beverage Packaging	n/a	*Tetra Pak*	Alleged abuse of market dominance
July 2014	Information technology	n/a	*Microsoft*	Alleged abuse of market dominance

* Italicized cells indicate the involvement of a foreign-invested enterprise.

Source: US-China Business Council, "Update: Competition Policy & Enforcement in China," May 2015, 27–33; Zhang Xingxiang, "China's Anti-Monopoly Law Enforcement: A Quest for Transparency, Consistency and Fairness," *Indiana University Research Center for Chinese Politics and Business* Working Paper #37, April 2015, Appendix II, 6–11; Zhong Lun Law Firm Antitrust Practice Group, *Competition Law Bulletin* Issue 8 (April 2015), 2.

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SECTION 3: CHINA'S STATE-LED MARKET REFORM AND COMPETITIVENESS AGENDA

Introduction

Soviet-style, top-down planning remains a hallmark of China's economic and political system. Five-Year Plans (FYP)* continue to guide China's economic policy by outlining the Chinese government's priorities and signaling to central and local officials and industries the areas for future government support. The FYPs are followed by a cascade of sub-plans at the national, ministerial, provincial, and county level that attempt to translate these priorities into region- or industry-specific targets, policy strategies, and evaluation mechanisms.[1] While the past six FYPs successfully mobilized resources to spur three decades of double-digit economic growth, the large-scale infrastructure investment and export-led economic growth model they promoted is weakening. China's slowing economic growth combined with concerns over a deteriorating quality of life are threatening the Chinese Communist Party's (CCP) ability to deliver prosperity—the basis of its legitimacy since the Tiananmen Square Massacre of 1989.

To preserve CCP power, the newly installed CCP General Secretary and President Xi Jinping outlined an ambitious economic reform agenda at the Third Plenary Session of the CCP's 18th Central Committee (the Third Plenum)† in November 2013. The Chinese government is using or attempting to use centrally directed reforms to fulfill its stated goals to sustain economic growth, improve capital allocation and industry efficiency through state-set market incentives, and ensure a higher quality of life for its citizens. While these reforms aim to make China's economy more efficient, the Chinese government does not mean to give up control; rather, the intent is for the state to retain a central role in the economy.

This agenda requires significant political commitment to overcome entrenched interests—such as China's powerful state-owned enterprises (SOE) and its bloated, export-dependent industries—that doomed reforms under the 11th (2006–2010) and 12th (2011–2015) FYPs.[2] The 13th (2016–2020) FYP, to be released in March

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* The National Development and Reform Commission coordinates the drafting process with input from State Council ministries, oversight by the Chinese Communist Party Politburo, and final ratification by the National People's Congress. Subordinate plans are devised for each province and for specific sectors of the economy. Katherine Koleski and Joseph Casey, "Backgrounder: China's 12th Five-Year Plan," *U.S.-China Economic and Security Review Commission*, June 24, 2011; U.S.-China Economic and Security Review Commission, *Hearing on China Ahead of the 13th Five-Year Plan: Competitiveness and Market Reform*, written testimony of Oliver K. Melton, April 22, 2015, 1–7; and Sebastian Heilmann and Oliver Melton, "The Reinvention of Development Planning in China, 1993–2012," *Modern China* 39:6 (August 2013): 580–628.

† For an in-depth analysis of the Third Plenum's proposed economic reforms, see Nargiza Salidjanova and Iacob Koch-Weser, "Third Plenum Economic Reform Proposals: A Scorecard," *U.S.-China Economic and Security Review Commission*, November 19, 2013.

2016, will build upon the Third Plenum agenda to accelerate reforms and transition China's economy toward greater domestic consumption and higher-value-added manufacturing. However, current market conditions and the government's actions have called into question China's commitment to reforms. In response to slowing economic growth and higher market volatility this year, senior leadership is increasingly stalling or rolling back reforms and returning to investment and export-led economic growth.

This section carries on the Commission's long examination of China's industrial policies and assesses the likelihood President Xi's agenda in sustaining economic growth will succeed.* Building upon expert testimony received at the Commission's hearing on April 22, 2015, and additional research throughout the year, this section examines the status of the Chinese government's reforms and explores their impact on the competitiveness of U.S. companies and the U.S. economy.

China's Economic Challenges

Traditional drivers of China's economic growth—fixed asset investment, exports, and cheap labor—are becoming less relevant.[3] At the 2015 National People's Congress (NPC), Premier Li Keqiang reiterated this concern, describing China's economic growth as "unbalanced, uncoordinated, and unsustainable."[4] Minister of Finance Lou Jiwei warned that China faces a 50 percent chance of sliding into a middle-income trap in the next five to ten years.[5] This middle-income trap would ensnare the Chinese economy in a cycle of low growth because its growing wages are unable to compete against low-cost countries, and high-value-added manufacturing is not yet fully developed. The 11th and 12th FYPs largely failed at reorienting China's economy away from unsustainable sources of growth.[6] Witnesses at the Commission's April hearing outlined the challenges the Chinese government is facing:[7]

- *Smaller returns from fixed asset investments:* State-led economic planning has directed cheap capital to SOEs, large-scale infrastructure projects, and state-designated industries. This allocation of capital has contributed to industrial overcapacity and enormous growth in local government and SOE debt.
- *Lower labor productivity gains:* Higher wages, an emerging labor shortage, and lack of labor mobility are eroding China's

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*For additional information on China's industrial policies, see U.S.-China Economic and Security Review Commission, *2014 Annual Report to Congress*, November 2014, 99–111; U.S.-China Economic and Security Review Commission, *2013 Annual Report to Congress*, November 2013, 113–152; U.S.-China Economic and Security Review Commission, *2012 Annual Report to Congress*, November 2012, 47–81, 393–423; U.S.-China Economic and Security Review Commission, *2011 Annual Report to Congress*, November 2011, 40–50, 70–106; U.S.-China Economic and Security Review Commission, *2010 Annual Report to Congress*, November 2010, 187–190, 199–210; U.S.-China Economic and Security Review Commission, *2009 Annual Report to Congress*, November 2009, 56–89; U.S.-China Economic and Security Review Commission, *2008 Annual Report to Congress*, November 2008, 69–82; U.S.-China Economic and Security Review Commission, *2007 Annual Report to Congress*, November 2007, 48–62; U.S.-China Economic and Security Review Commission, *2006 Annual Report to Congress*, November 2006, 30–32, 34–35, 167–181; U.S.-China Economic and Security Review Commission, *2005 Annual Report to Congress*, November 2005, 27–45, 67–75; U.S.-China Economic and Security Review Commission, *2004 Annual Report to Congress*, November 2004, 49–54, 177–192; and U.S.-China Economic and Security Review Commission, *2002 Annual Report to Congress*, November 2002, 43–44, 47–50.

labor productivity. China's residency permit system, or *hukou*,* tightly controls labor mobility and employment opportunities for all its citizens.[8] The absolute number of working-age people in China peaked in 2012, so cheap labor is no longer as readily available.[9] This shortage and the annual 14 percent average wage hikes from 2000 to 2013 have increased overall labor costs.[10] Growing competition from countries (such as Vietnam) with lower labor costs is squeezing profit margins for low-end manufacturing.[11] Moreover, low-end manufacturing is not creating the types of jobs demanded by China's growing number of university graduates.[12]

- *Dwindling contribution of exports to gross domestic product (GDP):* China's National Bureau of Statistics found the contribution of exports of goods and services to GDP has shrunk from 8 percent in 2008 to 3 percent in 2014.[13] Slower global growth is not able to absorb ever more Chinese exports, necessitating the expansion of domestic consumption as a new engine of economic growth.† In addition, higher labor costs are raising the price of Chinese exports, further weakening global demand for them.[14] In the first eight months of 2015, China's global exports dropped 1.5 percent year-on-year, signaling contraction.[15] Despite the slowing growth of China's exports, the U.S. trade deficit in goods with China grew 9.7 percent over last year to reach $237.3 billion in the first eight months of 2015.[16]
- *Severe environmental degradation:* Official reports found that 20 percent of China's arable land, more than 60 percent of its underground water, and 33 percent of its surface water are polluted.[17] The World Bank and the State Council's Development Research Center estimated the costs of this environmental degradation reached approximately 10 percent of GDP in 2008, representing a significant drag on the economy.‡ Furthermore, air pollution contributed to 17 percent of all deaths, or 1.6 million people, in China between April 2014 and March 2015, according to estimates by the U.S.-based research nonprofit Berkeley Earth.[18] In early March, *Under the Dome*, an independent documentary—produced by Chai Jing, previously an investigative reporter for the official government network China Central Television (CCTV)—about the gravity of China's

*The hukou establishes eligibility for employment opportunities, compensation, education, and access to government services for all Chinese citizens based on the status of one's parents and place of birth. Since the hukou is tied to a citizen's place of birth, the holder of a given hukou can only receive government services and benefits where the citizen is registered, particularly disadvantaging the 270 million rural residents who have migrated to cities. For more information on the hukou, see U.S.-China Economic and Security Review Commission, Chapter 2, Section 5, "China's Five-Year Plans and Technology Development and Transfers to China," in *2011 Annual Report to Congress*, November 2011, 88–106.

†In July 2015, the International Monetary Fund (IMF) revised its global economic forecasts downward as global economic growth slowed 0.8 percent below expectations in the first quarter of 2015. In October 2015, the IMF lowered its global growth expectations 0.2 percent below its July 2015 projections. International Monetary Fund, "World Economic Outlook," July 2015, 1; International Monetary Fund, "World Economic Outlook," October 2015, 1.

‡These figures incorporate the environmental externalities of pollution-related health damages, property damages, soil erosion, deforestation, fisheries loss, biodiversity loss, water pollution, and watershed degradation. World Bank and Development Research Center of the State Council of the People's Republic of China, *China 2030: Building a Modern, Harmonious, and Creative Society*, 2013, 39, 233.

air pollution was released online and seen by more than 200 million people in China before it was taken down by government censors.[19] Reflecting this rising public awareness, the rate of reported environmental protests more than tripled from just 47 incidents in 2013 to 152 incidents in 2014, based on figures from the U.S. government's Open Source Center.*

China's New Normal

At the Third Plenum, President Xi and Premier Li announced an ambitious economic reform agenda they claimed would allow the "market to play a decisive role in allocating resources."[20] The Third Plenum established a 60-point reform blueprint that broadly seeks to liberalize the financial sector; realign fiscal authority; accelerate urbanization; relax requirements on inbound and outbound foreign direct investment and restrictions on market access in finance, education, culture, and medical care; increase the efficiency and competitiveness of SOEs; and protect the environment.[21] As China registered its slowest economic growth in 24 years, China's senior leadership began to promote the "new normal" principle that focuses on slower economic growth. This principle also attempts to shift the drivers of economic growth toward innovation and high technology.[22] (For additional discussion of the "new normal," see Chapter 1, Section 1, "Year in Review: Economics and Trade."). President Xi and Premier Li are likely to seize upon the 13th FYP to push through their objectives.

While the Third Plenum agenda and promotion of the "new normal" principle largely repeat the objectives of the 11th and 12th FYPs, they are designed to signal a strong political commitment to address the underlying structural problems that previously delayed economic reform.[23] The establishment of a new Central Leading Group on Comprehensively Deepening Reform led by President Xi at the Third Plenum appears to strengthen high-level control over the content and pace of these reforms.[24] In addition, over the last two years, President Xi has weakened political opposition that hindered reform under the 12th FYP. Shortly after taking office in 2012, he launched an anticorruption drive that conducted at least 77,606 investigations and disciplined 102,168 officials by the end of 2014.† This campaign has attempted to uproot vested interests within the CCP and SOEs, while simultaneously eliminating potential political threats to President Xi's leadership.[25]

Assessing the Progress of China's Reforms

State intervention remains a cornerstone of China's economic policy, despite announcements of market-oriented reforms. Eswar S. Prasad, professor of trade policy at Cornell University, cautioned in his testimony to the Commission that these market-oriented reforms will differ from Western notions of free market because they

* The Open Source Center data on unrest are based on domestic and international media reports. Since unrest is largely unreported in rural areas and censored by local governments, these figures underestimate the scale of overall unrest. Open Source Center, "Reported Civil Disturbances in 2014," September 1, 2015. ID: CHN2015090102912195.

† In 2014 alone, the Central Commission for Discipline Inspection disciplined 71,748 cadres and conducted 53,085 investigations. Shujie Leng and David Wertime, "China's Anti-Corruption Campaign Ensnares Tens of Thousands More," *Foreign Policy*, January 9, 2015.

will occur "in a manner consistent with a dominant role for the state."[26] However, slowing economic growth and rising unemployment have increased public unrest and weakened senior leadership's resolve to implement needed reforms, leading the government to once again stall or roll back reforms while resuscitating old levers of economic growth.* David Shambaugh, director of George Washington University's China Policy Program, noted this tension in August 2015, arguing, "The leadership is so paralyzed and preoccupied by even a modest downturn that it reacts with the same old fiscal tools of investment and pump-priming."[27]

Through its announced state-led reforms, the Chinese government is seeking to ensure the permanent rule of the CCP by improving domestic consumption, capital allocation, industry competitiveness, and quality of life (see Table 1). First, the Chinese government is seeking to boost domestic consumption as a new driver of economic growth through expansion of the social safety net, urbanization, hukou reform, and support for the service sector. Second, fiscal and financial reforms are aimed at improving allocation of capital and resources. Third, the Chinese government is seeking to enhance China's industrial competitiveness by pursuing SOE reform, higher-value-added manufacturing, and innovation. Finally, the Chinese government set a goal of ensuring a higher quality of life for its citizens by providing a livable environment for its population. These reforms will require significant political commitment and financial capital to succeed (see the text box, "China's Ability to Finance Its Reform Agenda"). The rest of the section outlines the steps undertaken by the government to address these four key priorities, assesses the progress of these reforms, and evaluates the potential implications for the United States.

Table 1: China's Reform Priorities

Priorities	**Reforms**
Domestic Consumption	• Expanding urbanization, the social safety net, and hukou reform • Building a strong service sector
Capital Allocation	• Restructuring local government debt • Opening China's bank-driven financial sector • Loosening capital controls while maintaining strong state control
Industry Competitiveness	• Reforming SOEs • Increasing higher-value-added manufacturing • Enhancing indigenous innovation • Reducing industrial overcapacity
Quality of Life	• Increasing energy conservation and environmental preservation

Source: Compiled by Commission staff.

*For additional information on unrest in China, see U.S.-China Economic and Security Review Commission, Chapter 2, Section 3, "China's Domestic Stability," in *2014 Annual Report to Congress*, November 2014, 347–407.

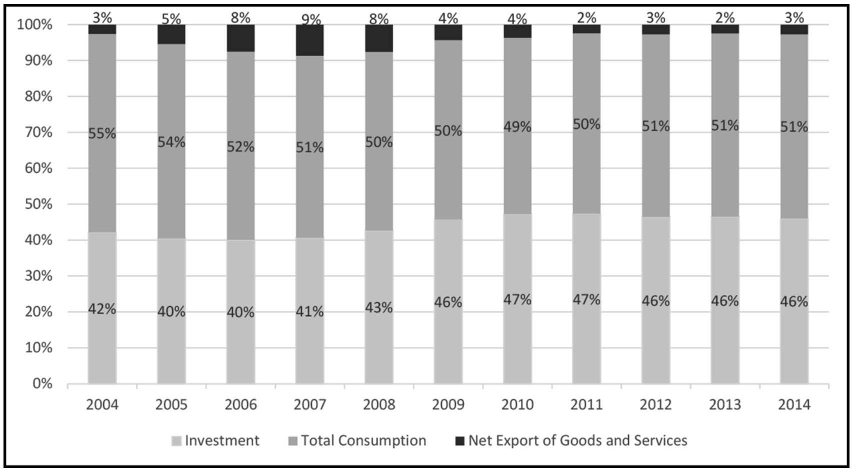
China's Ability to Finance Its Reform Agenda

Estimated costs for urbanization and environmental clean-up and protection alone total $8.3 trillion (renminbi [RMB] 65 trillion).[28] Yet China's government, particularly local governments, is increasingly indebted and unable to take on significant additional financial obligations (see "Restructuring Local Government Debt," later in this section, for more information).[29] According to the global management consulting firm McKinsey & Company, since 2007 and the rollout of its $586 billion (RMB 4 trillion) stimulus program in 2009, China has accumulated $20.8 trillion of new debt, accounting for more than a third of global growth in debt.[30] Oliver Melton, an analyst for the U.S. Department of State, testifying in his personal capacity, noted that under the 12th FYP "debt-fueled investment in industry, real estate, and infrastructure remained a major source of growth, and has started to slow only in the face of substantial excess capacity and a mounting debt repayment burden for firms and local governments."[31] McKinsey & Company estimated that China's total debt reached 282 percent of GDP by the end of the first half of 2014 compared with 269 percent in the United States.[32] According to the global investment banking firm Goldman Sachs, China's debt-to-GDP ratio grew from 153 percent in 2008 to approximately 230 percent in 2013, representing the largest debt buildup in the world in absolute terms.[33] While China's strong credit and significant foreign exchange reserves would be able to support existing debt obligations, the enormous growth of debt raises concerns about China's ability to finance its ambitious and costly reforms.[34]

Domestic Consumption

In the 11th, 12th, and likely 13th FYPs, the Chinese government has sought to increase the consumption power of Chinese households by expanding the social safety net, increasing urbanization, reforming the hukou, and opening the service sector to competition from private domestic and foreign firms.[35] Higher domestic consumption will offset the eroding returns on fixed asset investment and leverage the market power of the world's second-largest economy. In 2014, China's domestic consumption totaled 51.2 percent of GDP (see Figure 1).[36] Although domestic consumption has grown roughly two-fold from $2.5 trillion (RMB 15.8 trillion) in 2008 to $5.2 trillion (RMB 32.8 trillion) in 2014, investment in fixed assets grew even more following the global financial crisis, increasing from 41 percent of GDP expenditures in 2007 to 46 percent in 2014.[37] In his testimony to the Commission, Nicholas Consonery, director of Asia at the political risk consulting firm Eurasia Group, noted the composition of GDP under the 12th FYP has shifted moderately toward consumption but has "not materially changed," indicating fundamental problems remain unaddressed.[38]

Figure 1: GDP by Expenditure, 2004–2014



Source: National Bureau of Statistics of the People's Republic of China via CEIC database.

Expanding Urbanization, the Social Safety Net, and Hukou Reform

Over the last three decades, an estimated 270 million rural residents moved to Chinese cities, enabling China's double-digit economic growth by boosting consumption and shifting labor into manufacturing and services.[39] The Chinese government is seeking to repeat this success by moving an additional 100 million people, or approximately 6 percent of its population, to cities by 2020.[40] This migration should significantly raise incomes of rural migrants (the income gap between urban and rural residents currently stands at more than 3:1) and enhance productivity.[41] McKinsey & Company forecasts consumption by urban Chinese households will increase from $1.6 trillion (RMB 10 trillion) in 2012 to nearly $4.3 trillion (RMB 27 trillion) in 2022.[42] While China's economic growth has decelerated in part due to a slowdown in fixed asset investments, "consumption growth remained steady," according to the International Monetary Fund (IMF).[43] Andy Rothman, an investment strategist for Matthews Asia, highlighted the continued strength of Chinese consumption with double-digit year-on-year economic growth of retail sales, real estate sales, and express parcel deliveries in July at 10.4 percent, 21 percent, and 47 percent, respectively.[44] However, further productivity and domestic consumption gains are hindered by the hukou residency system. Although nearly 54 percent of China's population resides in cities, under the hukou system only 36 percent of China's population has access to urban healthcare, housing, employment, and education opportunities.[45]

As part of the 12th FYP, the Chinese government expanded the social safety net by raising provincial and city-set minimum wages, providing low-cost housing, increasing rural and urban healthcare coverage, strengthening the pension system, and creating more educational opportunities in rural areas.[46] As the government assumes responsibility for long-term costs of healthcare, retirement, and education, Chinese citizens are expected to save less and consume more. In his testimony before the Commission, Stephen Roach, senior fellow and senior lecturer at Yale University, noted the Third Plenum addressed the significant funding shortfall for social services under the 12th FYP, and the 13th FYP is likely to provide additional provisions for China's social safety net.[47] In late August 2015, the State Council announced it will allow up to $96 billion (RMB 600 billion) of its pension funds * to be invested in the stock market, in part to prop up the stock market and offset a roughly $16 billion (RMB 100 billion) depreciation of its pension funds over the last two decades.[48] (For a discussion of China's stock market collapse and the government's response, see Chapter 1, Section 1, "Year in Review: Economics and Trade.") Beyond expanding social services, the Chinese government is promoting higher-value-added manufacturing and encouraging urbanization to raise wages and spark consumption.

In March 2014, the Chinese government released the National Plan on New Urbanization (2014–2020), which outlines plans to (1) move an additional 100 million rural residents to cities in central and western provinces, (2) develop affordable housing for 100 million current urban residents, (3) improve access to public services and social security by expanding urban hukou registration for 100 million rural migrants currently residing in cities,† and (4) enhance the environmental sustainability of cities by 2020.[49] The government hopes this migration will unleash additional economic growth by creating a new consumer base and working class.[50] In July 2015, Guangdong Province published guidelines to grant local hukou registration to approximately 13 million migrant workers in the province by 2020; however, this reform affects only 37 percent of the estimated 35 million migrant workers, and maintains restrictions on migration to its major cities of Guangzhou and Shenzhen.[51] Similarly, strict controls on migration to China's megacities such as Beijing or Shanghai will remain in place, limiting access to the most lucrative employment and educational opportunities.[52]

The continued rise in urbanization will require major investments in transportation, public utilities, healthcare facilities, and environmental infrastructure. While returns on fixed asset investments are shrinking in China, the central government is attempting to redirect its significant capital resources and construction capabilities toward more sustainable, profitable investments—such as hospitals and urban transportation—that will soften the transition to long-term, consumption-led growth. In 2014, China's Ministry of Finance estimated this transition will cost $6.8 trillion (RMB 42 trillion), involving funding from municipal bond markets, local government revenue channels, and public-private partnerships.[53] In April 2014, the State Council widened the potential sources of funding for these projects by pledging to open 80 major public infrastructure projects to private and foreign investment.[54] The scale

* At the end of 2014, pension funds were worth $560 billion (RMB 3.5 trillion). Hou Limei, "China to Invest 2 Trillion Pension Funds in Stocks and Other Assets," *CRIEnglish*, August 28, 2015.

† Collectively, these three policies are known as the "three 100 million people." *People's Daily*, "Government Work Report: The 'Three 100 Million People' Principles Expound New-Type Urbanization," March 5, 2014. Staff translation.

and number of these proposed projects creates new opportunities for both domestic and, potentially, foreign firms, including:

- *Transportation:* Additional roads, railways, airports, and urban transit systems are needed to connect the millions of people within cities and the surrounding areas with their homes, work, and schools. For example, in 2014, only 22 of the 150 Chinese cities with over one million people had urban rail transit systems.[55] To expand urban transit systems to 50 cities by 2020, the total investment in these systems will surpass $320 billion over the next five years, according to estimates by the market research firm China Research and Intelligence.[56] Additionally, China is augmenting its general aviation infrastructure to meet expected growth in air travel demand.* In 2015, China led global airport construction, with 56 ongoing projects worth nearly $60 billion in investment.[57]

- *Healthcare:* China's rapidly aging population is demanding access to better-quality healthcare.† Accounting for this major demographic transition, McKinsey & Company estimated China's healthcare spending will increase from $357 billion in 2011 to $1 trillion in 2020.[58] In the pharmaceutical industry, the National Bureau of Asian Research projected China's over-the-counter and branded generic pharmaceutical market will grow from $23 billion in 2010 to $369 billion in 2020.[59]

- *Housing:* Approximately 62 million urban Chinese residents live in substandard housing,‡ and an estimated 14 million low-income households are financially strained by housing costs, creating enormous demand for affordable housing, according to McKinsey & Company.[60] McKinsey & Company also estimates that further rural-to-urban migration could increase the number of low-income urban households by an additional 56 million by 2025.[61] To fill this gap, the Chinese government built an estimated 13.4 million housing units from 2012 to 2014, and its National Plan on New Urbanization (2014–2020) outlines plans to build affordable housing for 100 million current urban residents.[62]

Building a Strong Service Sector to Meet Demand and Create Jobs

Greater urbanization, higher wages, and an aging population are increasing demand for the service sector in areas such as healthcare and retail. In 2014, according to China's National Bureau of Statistics, services accounted for 48.2 percent § of GDP and rose to

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* For analysis on China's aerospace industry, see Roger Cliff, Chad J.R. Ohlandt, and David Yang, "Ready for Takeoff: China's Advancing Aerospace Industry," prepared for the U.S.-China Economic and Security Review Commission, March 1, 2011.

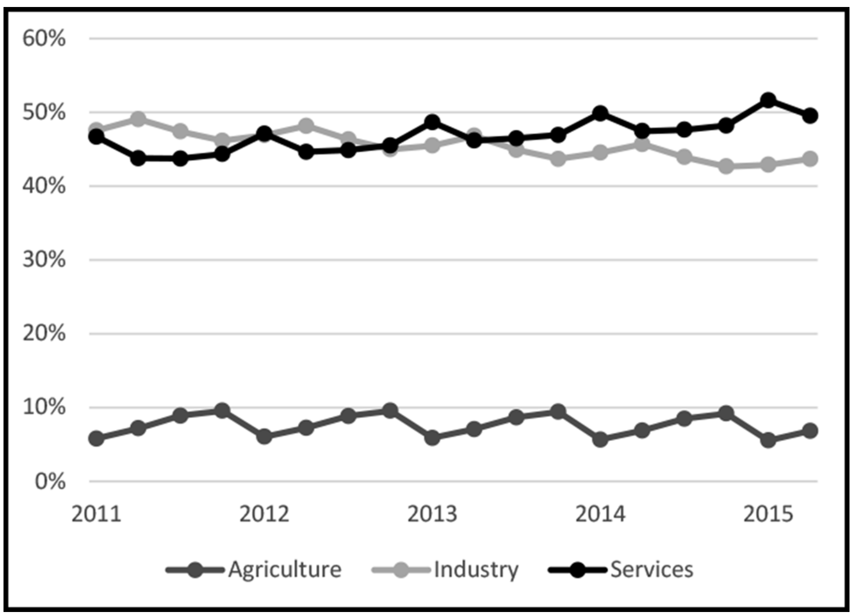
† For an in-depth background on China's healthcare industry, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 3, "China's Health Care Industry, Drug Safety, and Market Access for U.S. Medical Goods and Services," in *2014 Annual Report to Congress*, November 2014, 127–182.

‡ Substandard housing is defined as dwellings that lack durability, sufficient living space, access to safe water, sanitation, and security against eviction. Jonathan Woetzel et al., "A Blueprint for Addressing the Global Affordable Housing Challenge," *McKinsey & Company*, October 2014, 27.

§ Research by Rhodium Group and the Center for Strategic and International Studies (CSIS) suggests flaws in official accounting methods underestimated the size of China's service sector.

50.2 percent of GDP in the first half of 2015 (see Figure 2).[63] In his testimony before the Commission, Dr. Roach argued the development of China's service sector could provide higher-paying jobs for China's recent college graduates and meet growing public demand for retail, healthcare, tourism, and public services. He calculated that services employ 30 percent more workers per unit of GDP than manufacturing or construction, creating more jobs despite slower growth.[64] In addition, research by Bloomberg found an annual shift of 1 percent of GDP from the energy-intensive heavy industry to the service sector over the next five years would decrease emissions by about 8 percent relative to the no-reform baseline scenario, meeting China's environmental reform priorities.[65]

Figure 2: Service Sector Composing Greater Share of GDP, 2011–2015H1
(Quarterly)



Source: National Bureau of Statistics of the People's Republic of China via CEIC database.

To accelerate service sector growth, the Third Plenum pledged to open a number of largely state-dominated service sectors, such as financial services, education, healthcare, e-commerce, and logistics, to competition from private domestic and foreign firms.[66] Progress, however, has been slow. Mr. Consonery said in his testimony that "each sector will have a distinct story about how the government balances the need for new investments against the desire to protect

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The Rhodium-CSIS recalculation of China's 2008 GDP revises the value of the service sector upward by 22.2 percentage points and finds the services share of GDP was already larger than the manufacturing share in 2009. Dan Rosen and Beibei Bao, "Broken Abacus? A More Accurate Gauge of China's Economy," *Center for Strategic and International Studies*, September 2015, 158–160.

local firms." He remarked that "sectors that see greater openings will be those where the government sees continued need for foreign expertise, and those that have been classified as 'market competitive' and where Beijing is more interested in reducing the state's role," but in strategic sectors such as finance, resistance from vested interest groups will remain substantial.[67]

In August 2013, the State Council created the Shanghai Free Trade Zone (FTZ) to serve as a pilot program for national implementation of financial sector reforms and opening China's service industries to foreign investment.[68] In December 2014, Premier Li announced the expansion of the Shanghai FTZ area and creation of three new FTZs in Tianjin municipality, Guangdong Province, and Fujian Province.[69] While some restrictions are being lifted gradually, significant limitations still remain.[70] As of April 2015, the negative list,* which designates the sectors restricted or prohibited to foreign investment, has only been trimmed down to 119 sectors from the initial 190.[71] Furthermore, the U.S.-China Business Council found the 2015 *Catalogue for the Guidance of Foreign Investment Industries*, which guides national foreign investment policies, removed few restrictions and ownership caps on priority areas for foreign companies in areas such as agriculture, automotive, and banking.[72] (For more information on China's treatment of foreign investment, see Chapter 1, Section 2, "Foreign Investment Climate in China.")

Capital Allocation

China's fiscal system has saddled local governments with high levels of debt that is increasingly costly to pay off. Without fiscal reform, local governments will be challenged in financing China's other reform objectives, such as urbanization, expansion of social and healthcare benefits, and infrastructure projects (see the text box, "China's Ability to Finance Its Reform Agenda" earlier in this section). A 2015 World Bank report analyzed the status of China's financial reform and found distorted incentives, poor governance structures, and pervasive implicit government guarantees have exacerbated China's inefficient allocation of financial resources.[73] Subsequently, the World Bank redacted the section on China's financial reform, allegedly due to Chinese government interference.[74] Significant reforms are needed to realign lending incentives, introduce risk and market competition, and reduce the role of the government within the financial sector. However, the Chinese government's continued intervention in the market weakens the impact of these stated reforms.

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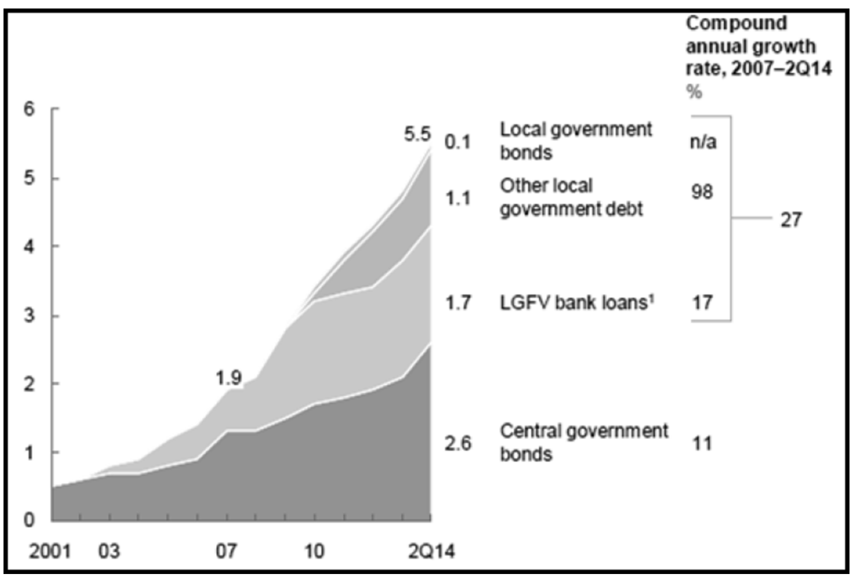
* China traditionally has used purchasing catalogues such as the annual *Catalogue for the Guidance of Foreign Investment Industries* to designate the products, services, and investments approved for market access. Sectors not listed in the catalogs are restricted from foreign competition. In contrast, a negative list designates only those sectors that face market access restrictions; sectors not listed are considered open. The use of a negative list represents a shift toward a more widely used global approach.

Restructuring Local Government Debt

China's fiscal system* allocates only 53 percent of tax revenue to local governments, while placing on local governments the responsibility for funding 85 percent of centrally mandated programs.[75] Prevented from issuing bonds as U.S. municipalities do, local governments in China largely rely on land-use sales, commonly seized from local farmers at below-market prices,† and off-balance-sheet local government financing vehicles (LGFV), which use land and other government assets as collateral to raise funds for major infrastructure and real estate projects.[76] The 2009 stimulus program exacerbated the debt crisis as the central government encouraged local governments to take on substantial high-cost LGFV debt to finance infrastructure projects. According to McKinsey & Company, LGFV debt nearly tripled from $600 billion in 2007 to $1.7 trillion by the second quarter of 2014, accounting for 58.6 percent of total local government debt (see Figure 3).[77] With falling land prices and lower growth in tax revenues from slower economic growth, it is becoming more difficult for local governments, particularly those in poorer provinces, to service these debts.[78]

Figure 3: Outstanding Balance of China's Government Debt by Source
(US$ trillions; constant exchange rate, 2013)



Note (1): LGFV refers to local government financing vehicles.
Source: McKinsey Global Institute, "Debt and (Not Much) Deleveraging," February 2015, 81.

* China's fiscal system determines tax revenue allocation and funding responsibilities for central and local governments. For additional information on China's fiscal system and local government challenges, see Iacob Koch-Weser, "China Fiscal Policy Revamp Faces Hurdles," *U.S.-China Economic and Security Review Commission*, September 30, 2014.

† These land seizures are a leading cause of domestic unrest in China. For additional information, see U.S.-China Economic and Security Review Commission, Chapter 2, Section 3, "China's Domestic Stability," in *2014 Annual Report to Congress*, November 2014, 352.

In 2014, the State Council outlined its fiscal restructuring plan to reduce the risk of local government default and create more affordable revenue sources by taking steps to calculate the magnitude of debt, rein in lending, remove the heavy debt burden, and introduce new sources of local government revenue.[79] However, fiscal reforms have been subject to numerous reversals as the central government struggles to maintain employment and growth. An analysis on the status of reforms finds that:

- *The magnitude of local government debt is unknown:* In 2013, the National Audit Office assessed the scale of local debt and found local government debt and liabilities totaled $2.9 trillion (RMB 17.9 trillion), with nearly half in costly LGFVs.[80] Private estimates highlight the unreliability of these government figures. McKinsey & Company estimated total local government debt at $2.9 trillion at the end of the first half of 2014.[81] BCA, an independent investment research house, estimated $3.2 trillion (RMB 20 trillion) at the end of 2014,[82] and Goldman Sachs estimated LGFV debt alone reached $3.4 trillion (RMB 21 trillion) by the end of 2014.[83] To address this ambiguity, China's Ministry of Finance required provincial governments to update their debt figures by January 2015. Implementation, however, has been exceedingly difficult because provincial governments are incentivized to overstate their debt figures to qualify for better loan concession and a higher bank debt ceiling. The subsequent inability of provincial governments to submit revised figures by a March 2015 deadline led the Ministry of Finance, National Development and Reform Commission (NDRC), People's Bank of China (PBOC), and China Banking Regulatory Commission (CBRC) to establish a centrally controlled audit system that will rely less on local government figures.[84] This system assigned the NDRC to audit enterprise debt and LGFV debt, the PBOC and CBRC to jointly audit bank loans and short-term commercial debt, and local governments to audit payments and accounts payable for buy-transfer projects * and project financing.[85]
- *Local government borrowing continues:* In October 2014, the Chinese government outlawed the expansion of LGFV borrowing to rein in runaway local debt.[86] But in May 2015 the central government reversed course in the face of faltering economic growth and rising unemployment.[87] The State Council reopened LGVFs' access to short- and medium-term bond markets and relaxed previous restrictions on LGFV-financed infrastructure spending. That same month, the Ministry of Finance, PBOC, and CBRC explicitly required financial institutions to extend existing loans for insolvent infrastructure projects that were started before January 2015, resuming the very lending practices reforms were meant to reverse.[88] According to Deut-

* Buy-transfer is a type of financing model used in China for public infrastructure projects. Investors bid for government projects then the winning investor provides the financing and constructs the project. Once complete, the government pays for the cost of construction as agreed upon in the contract through installment payments. Liu Hongyong and Deng Li, "Study on the BT Financing Model of Non-business Public Building in the Post-Disaster Reconstruction—Case Study of Guangyuan," *Proceedings of 2011 International Symposium—Geospatial Information Technology & Disaster Prevention and Reduction*, May 2011.

sche Bank economists Zhang Zhiwei and Audrey Shi, this policy change represented "a 180-degree reversal of the fiscal policy from tightening to loosening." [89]

- *Central intervention ensures debt-for-bonds swap succeeds:* To prevent defaults and reduce the burden of repayments, the Ministry of Finance in March 2015 issued a $161 billion (RMB 1 trillion) quota to convert roughly half of the nearly $296 billion (RMB 1.85 trillion) of local governments' high-risk debt due this year into lower-yielding, longer-maturity municipal bonds.[90] Expected purchasers of these new bonds—primarily state-owned commercial banks—delayed the launch of the pilot program until the PBOC intervened to offer more favorable terms, such as higher yield rates and access to low-interest loans.[91] According to the central government, state banks will buy 70–80 percent of these local government bonds.[92] In April 2015, the State Council widened the pool of purchasers by permitting its nearly $200 billion (RMB 1.24 trillion) national state-security fund to invest up to 20 percent of its portfolio in local government debt and corporate bonds.[93] In May 2015, Jiangsu Province sold $8.4 billion (RMB 52.2 billion) worth of bonds, the first provincial government in China to do so. The provinces of Hebei, Shandong, Hubei, and Guangxi, as well as the Chongqing and Tianjin municipalities, have followed suit.[94] In June 2015, the Chinese government doubled the bond quota to turn over the rest of the local government debt due this year.[95] While these policies significantly reduced local government financing costs, Barry Naughton, professor of economics at the University of California, San Diego, cautioned that because the costs for reckless borrowing were negligible and central intervention reaffirmed central government backing for bonds, "the debt swap failed to achieve its most essential objectives as market-oriented reform." [96]

- *New sources of local government revenue introduced:* The Chinese government is attempting to create more transparent and affordable revenue streams by increasing the amount of central proceeds reallocated to local authorities, reinstituting the provincial bond issuance system * in 2014, and restructuring the tax system.[97] The Chinese government is in various stages of rolling out value-added, resource, and property taxes.[98]

    - *Value-added tax:* The State Administration of Taxation and Ministry of Finance are in the process of phasing out the "business tax" † that disadvantages the service sector, and expect to fully replace it with a value-added tax (VAT) ‡ by the end of 2015.[99] This transition in part spurred the growth of newly registered businesses by 46 percent in 2014, according to the written testimony of Dali

* The local government bond issuance was outlawed in 1994 after local governments built up enormous debt in the early 1990s.

† Business tax is calculated based on the gross revenue of a business.

‡ VAT is calculated based on the difference between a good's price before taxes and its cost of production.

Yang, professor of political science at the University of Chicago.[100]

- *Resource tax:* The Ministry of Finance has also been rolling out a resource tax based on prices rather than volumes, raising costs of these resources for producers and consumers from virtually nonexistent levels.[101] The Ministry of Finance imposed a 2–10 percent tax on coal in October 2014, increased its fuel-consumption tax for the first time in five years in November 2014, and expanded the resource tax structure for rare earths and metals in May 2015.[102] According to Dr. Yang, these taxes create new revenue streams while curbing resource use. The increase of China's fuel-consumption tax raises revenue, marking the largest growth in tax revenue this year.[103] These taxes also keep the costs of fuel high—despite the significant drop in oil prices over the last year—and discourage additional consumption.[104]

- *Property tax:* In 2011, Chongqing and Shanghai municipalities launched pilot property tax programs, but these programs generated low levels of revenue due to lax enforcement and widespread exemptions.[105] Despite these issues, in March 2015, the Ministry of Land and Resources launched a nationwide property registration system that sets the stage for a nationwide property tax and expanded crackdown on official corruption.[106] Jia Kang, director of the Ministry of Finance's Research Institute on Fiscal Science, expects that the property tax will be implemented in 2017, but Dr. Yang remains skeptical, citing a history of inaction on property tax reform and the recent failures of the Chongqing and Shanghai pilot programs.[107]

Opening China's Bank-Driven Financial Sector

China's financial system is "repressed, unbalanced, costly to maintain, and potentially unstable," according to a joint report released in 2013 by the World Bank and the State Council's Development Research Center.[108] State-set interest rates, tight regulations on capital flows, and de facto state control of 95 percent of commercial bank assets have led to politically driven capital allocation and a burgeoning shadow banking* sector.[109] High levels of savings by the Chinese public and extremely low interest rates offered to depositors have created approximately $21.5 trillion of cheap capital for China's state-dominated banking sector. These banks lend to SOEs over more efficient private firms based on the implicit government guarantees on SOE debt and explicit government pressure on state-owned banks to lend to their government cousins.[110] Small- and medium-sized enterprises (SME) receive only 20 percent of bank lending despite holding 65 percent of patents and contributing 70 percent of employment, 60 percent of GDP, and 50 percent

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* Shadow banking is lending—to include wealth management products, credit guarantees, entrusted loans, and peer-to-peer lending—that occurs outside of the official banking system. For more information on China's shadow banking sector, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 3, "Governance and Accountability in China's Financial System," in *2013 Annual Report to Congress*, November 2013, 113–152.

of tax revenue.[111] This inefficient allocation of capital has contributed to "wasteful investments, excess capacity, and weaker loan capacities," forcing SMEs to seek credit in the unofficial shadow banking sector.[112]

To address these issues, the Chinese government is taking small steps toward loosening its interest rate controls, increasing competition in the banking sector, reducing moral hazard, and enhancing capital convertibility. Thus far, financial reforms have made the most headway, but policymakers have begun to reassert control in light of the market volatility these reforms create.[113] Anemic economic growth in 2015 led the PBOC to ease financial constraints by lowering interest rates five times in 2015.[114] The PBOC also cut reserve requirements four times in 2015.[115]

At the same time, the Chinese government supported the rapid growth of its stock markets to accelerate economic growth. According to BCA, the financial sector accounted for close to 30 percent of GDP growth this year compared with only 10 percent previously—driven primarily by the growth of equity trading in the stock market.[116] The subsequent collapse of the stock market this summer despite significant government intervention has shaken the faith of investors in the Chinese government's ability to manage the economy. (For a discussion of China's stock market and the government's response, see Chapter 1, Section 1, "Year in Review: Economics and Trade.")

Initial Steps toward Market-Set Interest Rates and Opening Banking Sector to Competition

The Chinese government is slowly loosening control over interest rates and opening the state-controlled banking sector to new entrants. Reforms have:

- *Partially deregulated interest rates:* In November 2014, the PBOC lowered the benchmark interest rate, but permitted banks to offer deposit rates up to 20 percent above the benchmark, allowing banks to compete for depositors within a set range.[117] In August 2015, the PBOC further loosened interest rates by allowing banks to set savings rates for deposits that are longer than a year and offer short-term deposit rates up to 150 percent above the benchmark.[118] According to Le Xia and Jinyue Dong, economists from the Spanish-based multinational banking firm Banco Bilbao Vizcaya Argentaria S.A., these reforms will foster competition between banks for depositors and borrowers; banks are increasing returns for ordinary depositors to attract them, but will need to offset these higher costs by seeking higher returns from their loans. In addition, Dr. Xia and Dr. Dong found "the lift of the deposit rate cap also means that the PBOC will lose one of its important monetary policy tools."[119] The PBOC previously leveraged its ability to cut interest rates to channel China's cheap capital toward government priorities such as financing SOEs and to spur investment-led economic growth.[120]

- *Loosened market access restrictions for Chinese firms in banking:* In January 2015, China launched its first fully online private bank. Several Chinese Internet companies, including

JD.com, Alibaba, and Tencent, have since entered the financial service industry.[121] This entry of new competitors into the previously state-controlled sector could foster additional competition between banks for depositors interested in higher returns, and between borrowers for banks' capital, thus encouraging the flow of capital to higher-return private firms.

Steps to Reduce Moral Hazard

The Chinese government is making small changes to alter the perception that it will bail out any company in danger of default. In May 2015, the PBOC introduced a deposit insurance program and set upper limits on insurance coverage for bank deposits at $80,000 (RMB 500,000) to introduce risk and erode the view that all deposits at state-owned banks are implicitly guaranteed by the Chinese government.[122] In addition, over the past year, the government has allowed the domestic bond market to experience its first defaults.[123] In April 2015, the Chinese government stood by while state-owned Baoding Tianwei Group Co. defaulted on its $13.8 million interest payment.* Nor did the government prevent the $1 billion default of Kaisa Group Holdings Ltd. later that month, marking the first defaults in the offshore bond market.[124] More defaults are likely as overcapacity, particularly in the property sector, squeezes profitability and cash flows.[125] Although limited defaults have been tolerated, the Chinese government's strong history of intervention and recent steps to prop up the stock market demonstrate that the government is unlikely to allow more substantial losses or defaults.

Loosening Capital Account Controls but Maintaining Strong State Control

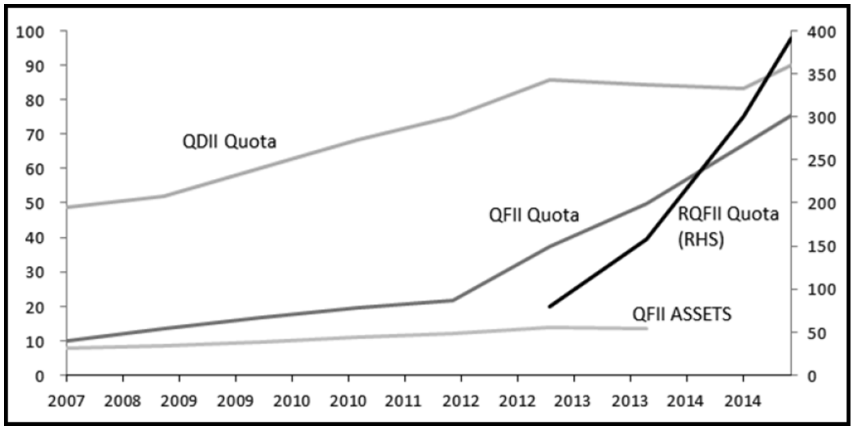
Over the last two decades, the Chinese government has gradually loosened its tight capital controls to allow greater flow of RMB across borders. These small steps serve to promote the RMB as an international currency and set the stage for China's emergence as a key player in the global financial markets.[126] Since 2010, the China Securities Regulatory Commission and State Administration of Foreign Exchange have incrementally expanded the Qualified Domestic Institutional Investor (QDII) and Qualified Foreign Institutional Investor (QFII) schemes † that allow greater capital flows while maintaining government control through quotas, approvals, and ceilings (see Figure 4).[127] The QFII scheme remains underutilized; however, signaling that though controls are loosening, additional reforms are necessary to entice greater foreign investment.[128]

* For more information about the April 2015 defaults, see U.S.-China Economic and Security Review Commission, *Monthly Analysis of U.S.-China Trade Data*, May 5, 2015, 7–9.

† For background on the QDII and QFII schemes, see Nargiza Salidjanova, "The RMB's Long Road to Internationalization," *U.S.-China Economic and Security Review Commission*, September 22, 2014.

Figure 4: Quotas for the Qualified Domestic and Foreign Institutional Investors, 2007–2014

(RMB billions [LHS]; number [RHS])



Source: Sean Miner, "Equity Series Part 6: The Equity Market's Role in Cross-Border Capital Flows," *China Economic Watch* (*Peterson Institute for International Economics* blog), July 23, 2015.

In November 2014, the Shanghai-Hong Kong Stock Connect opened, allowing for greater usage of the RMB across previously closed borders and removing the arbitrage gaps between the two stock markets.[129] (For a discussion of the Shanghai-Hong Kong Stock Connect, see Chapter 3, Section 4, "Hong Kong.") China has also expanded offshore RMB trading centers beyond Hong Kong and Taiwan to a number of international financial centers, such as Frankfurt, London, and Singapore.[130] In July 2015, the London Metal Exchange, the world's largest trading venue for metals, announced it would accept the RMB as collateral for trades on its platform by banks and brokers.[131] That same month, the PBOC announced that central banks, sovereign wealth funds, and international financial institutions will have immediate open access to China's interbank debt market worth $6.1 trillion.[132] The RMB became the fourth-most-active currency for global payments in August 2015, according to data from the Society for Worldwide Interbank Financial Telecommunications, the global leader in processing payments.[133]

Despite these limited steps forward, PBOC Governor Zhou Xiaochuan noted in April 2015 that the Chinese government will maintain control over cross-border financial transactions, external debt, short-term capital flows, and temporary capital control measures.[134] In June 2015, U.S.-based stock market index provider MSCI yet again delayed the inclusion of China's "A" shares into its Emerging Markets Index, citing the continued use of opaque and unequal investment quotas and concerns regarding the recognition of foreign ownership under Chinese law.[135] The IMF extended the current special drawing rights (SDR) basket of currencies until September 30, 2016, and will decide on whether to add the RMB to the composition of its SDR basket by the end of this year.[136] The IMF's decision to include the RMB would legitimize China's managed convertibility approach.[137] (For a discussion of China's exchange rate management, see Chapter 1, Section 1, "Year in Review: Economics and Trade.")

Industry Competitiveness

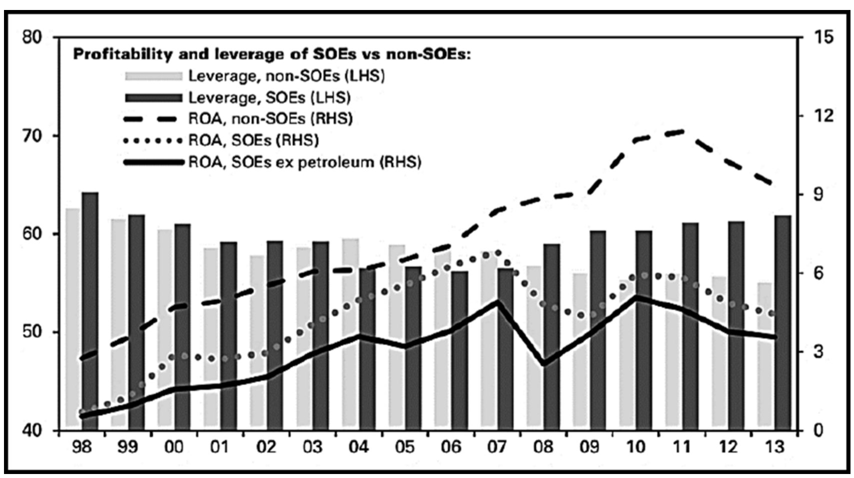
China's old industrial model created bloated, export-dependent industries, inefficient SOEs, and severe overcapacity. The 2008 stimulus exacerbated these issues. Reforms are seeking to revitalize China's industrial sector and boost innovation by restructuring SOEs, moving up the value-added chain, and minimizing overcapacity.

Reforming State-Owned Enterprises

Although they are less profitable than private Chinese companies, SOEs remain an important driver of economic growth due to preferential government treatment and subsidies.[138] Lack of competition, high operating costs, overstaffing, significant debt, and cronyism continue to erode SOEs' productivity and global competitiveness. A 2015 Goldman Sachs study found the return on assets (ROA) gap between private Chinese firms and SOEs widened in 75 percent of the 36 sectors surveyed, while the debt-to-equity ratio for SOEs increased faster than for private Chinese firms for 70 percent of the 36 sectors surveyed (see Figure 5).[139]

Figure 5: SOEs Are Less Profitable and More Indebted than Private Chinese Firms

(percentage points [LHS]; ROA, percentage points [RHS])



Source: Yu Song et al., "Harnessing Global Capital to Drive the Next Phase of China's Growth," *Goldman Sachs*, February 2015, 27.

The dominance of SOEs in core strategic industries and the authority of SOE executives within the government hierarchy have created strong vested interests and endemic corruption.[140] President Xi's aggressive anticorruption drive that detained at least 124 high-level SOE officials has weakened but not fully eliminated resistance to reform.[141] Last year, reforms of the state sector stalled largely due to resistance from SOEs and struggles for control between the Ministry of Finance and the State-Owned Assets Supervision and Administration Commission of the State Council.[142] The anticipated announcement of other major reforms in March this year was also pushed back until September.[143]

In September 2015, the State Council and Central Committee of the CCP jointly released the *Guiding Opinion on Deepening the Reform of State-Owned Enterprises*.[144] These guidelines cemented the commitments the Chinese government has already made this year to improve SOEs' productivity and global competitiveness through mixed ownership and consolidation, but offered few concrete steps forward.[145] Andrew Batson, the China Research Director at the economics and market research firm Gavekal Dragonomics, described the guidelines as "an ungainly mishmash of bureaucratic compromises that sets no clear goals and is riven by internal contradictions."[146] Gordon Orr, senior advisor to McKinsey China, summed up the guidelines as "we still want to do what we said we were going to do before but haven't yet done."[147] Concurrently, these guidelines build upon President Xi's earlier calls for greater CCP leadership within SOEs, the very driver of inefficiency and cronyism.[148] As Dr. Prasad explained, SOE reforms do not "intend to upend state control of key enterprises but, rather, subject them to greater market discipline."[149] Announced reforms seek to:

- *Reinforce the CCP and state control over SOEs:* The guidelines specifically reinforce the importance of CCP control within SOE management and personnel, placing it at odds with the push for mixed ownership.[150] Zhang Yi, head of the State-Owned Assets Supervision and Administration Commission, emphasized the CCP's central role, stating, "In the process of deepening reforms of state-owned enterprises, the leadership of the party can only be strengthened, not weakened."[151]

- *Separate SOEs into commercial and public interest enterprises:* In his testimony before the Commission, Mr. Consonery argued that with SOE restructuring, the Chinese government is "doubling down and intensifying support for and control over some sectors, while opening others to more market competition and even foreign competition."[152] The guidelines further clarified this distinction, stating that the Chinese government will separate SOEs into commercial and public interest enterprises (without providing any detail on which sectors or firms would be commercial or public interest).[153] Commercial SOEs will seek to maximize profits and incorporate both mixed-ownership and greater market competition; for strategically important SOEs, the state will maintain a controlling share. In contrast, public interest SOEs will remain wholly state-owned with a focus on delivering quality, efficient, and reasonably priced products and services to the Chinese public.[154]

- *Increase private capital while preserving state control:* The Chinese government is continuing to increase the amount of non-state investment—private equity, social welfare funds, and private enterprises—in local and central SOEs' ownership structure by expanding mixed-ownership of SOEs.[155] Mixed-ownership enterprises, with various combinations of state and private controls, already comprise 40 percent of China's industrial economy, and expansion of this ownership model would seek to increase technology transfer and managerial expertise and enhance productivity.[156] Marshall Meyer, emeritus professor of management at the University of Pennsylvania Wharton School of Business, explained that in practice, mixed ownership often means cross-ownership among SOEs.[157] In March 2015, the oil refiner Sinopec sold a 30 percent stake in its sales arm to 25 non-Sinopec entities, mainly SOEs and SOE subsidiaries.* In June 2015, the Bank of Communications announced it will sell minority stakes to private investors.[158] In addition, over 20 provinces have announced plans to list or sell off the assets of up to 70 percent of their provincially owned SOEs by 2017.[159] In May 2015, Shandong Province announced it will transfer equity shares in 471 of its provincially owned SOEs to its pension fund in order to pressure the companies to maximize profits and provide sufficient capital for its retirement fund.† In September 2015, Jiangxi Province sold a 47 percent stake in its local SOE Jiangxi Salt to other SOEs and SOE subsidiaries.‡ However, Dr. Meyer cautioned that "no matter how many shares are privately-owned, the decision lies with the state," limiting the ability of non-state shareholders to influence corporate decision making.[160]

- *Create global players through megamergers:* The State Council is seeking to capitalize on economies of scale and ample funding resources by consolidating (and in some cases reconsolidating) central SOEs into global competitors. This consolidation is a reversal of reforms in the 1990s that sought to increase SOE efficiency through managed competition.[161] According to the German-based think tank Mercator Institute for China Studies (MERICS), the Chinese government is using megamergers to reduce overcapacities, enhance SOEs' international competitiveness, increase state control and oversight of SOE operations, and rectify the fierce price wars among Chinese SOEs in the global market.[162] As one Chinese government official said, "They're [SOEs] increasingly fighting amongst each other. . . . That has led to lots of waste and ineffi-

* Six SOEs and 11 state-controlled asset management companies account for 16 of the 25 shareholders and control 20.2 percent of the 30 percent stake offered by Sinopec. Some of these state-controlled shareholders include Citic Securities, China Life Insurance Company, Bank of China, Cinda Asset Management, and China Post Life Insurance. Xinhua (English edition), "China to Tighten Supervision of State Assets," May 26, 2015; Shirley Yam, "Sinopec Offers Master Class in SOE Mixed Ownership Reform," *South China Morning Post*, September 20, 2014 (Updated April 28, 2015); and Neil Gough, "Sinopec Stake Sale Leaves Investors Unimpressed," *New York Times*, September 15, 2014.

† This pension fund will act as a shareholder with profits invested by the National Council for Social Security Fund. Shi Rui, "In First, Shandong Has SOEs Hand Over Stakes to Its Social Security Fund," *Caixin* (English edition), May 20, 2015.

‡ These shareholders include: Cinda Asset Management Company (controlled by China's Ministry of Finance) at 22.8 percent, Zhongxinjian Merchants Investment (owned jointly by central SOE China Merchants Group and the Chinese government's quasi-military, quasi-commercial Xinjiang Production and Construction Corps) at 9.1 percent, Ximen ITG Group (owned by the Xiamen municipal government) at 7.6 percent, and Jianggangshan Investment (the private equity arm of the municipal SOE Beijing Automotive Industry Corporation) at 7.6 percent. Jiangxi Province's State-Owned Assets Supervision and Administration Commission retains 46.9 percent, and Jiangxi Salt management has 5.9 percent. David Keohane, "SOE You Think You Can Reform? Mixed-Ownership Edition," *Financial Times*, September 28, 2015.

ciency." [163] In April 2015, official Chinese media announced the government will consolidate the existing 112 centrally controlled SOEs into 40 large SOE conglomerates under the oversight of 16 ministries and authorities.[164] For example, the merger between China North Railway and China South Railway in December 2014 combined the world's largest railway contractors in terms of sales. Their collective market capitalization totaled approximately $130 billion—far ahead of its main competitors: the German firm Siemens AG with $84.2 billion and French firm Alstom SA at $8.7 billion.[165] Similarly, major mergers of China Power Investment with State Nuclear Power Technology and China Huafu Trade and Development Group with China National Cereals, Oils and Foodstuffs Corporation are creating firms as large as their leading global competitors.[166] While consolidation will increase economies of scale, it merely reinforces SOEs' dominance of the state in key sectors of the economy. The guidelines provided little direction on how the Chinese government will manage these mega conglomerates, reflecting internal divides on how to balance its desire to supervise these merged firms while achieving more market-oriented operations.[167] The Ministry of Finance has advocated for Singapore's Temasek model of governance, where the state collects dividends and operates as an asset manager allowing SOEs to largely operate unfettered, while the State-Owned Assets Supervision and Administration Commission prefers to maintain strong managerial oversight.[168]

Increasing Higher-Value-Added Manufacturing

Chinese manufacturing is moving up the value-added chain, driven by fierce domestic and international competition, higher labor costs, and government incentives.[169] To accelerate its shift, China implemented an indigenous innovation policy in 2006 * and established "strategic emerging industries" under the 12th FYP (see Table 2 for a list of these sectors). Strong state-directed subsidies for renewable energy—a strategic emerging industry—allowed China to achieve global dominance in the solar and wind sectors † in less than a decade.[170] Testifying before the Commission in his personal capacity, Mr. Melton, cautioned that despite producing successful Chinese companies and new technologies, such state-directed policies exacerbate corruption, misallocate resources, and distort the market.[171]

The 2015 NPC Government Work Report, which reviewed last year's accomplishments and established tasks for 2015, announced two new initiatives, "Made in China 2025" and "Internet Plus," to accelerate China's transition to higher-value-added manufacturing (for additional discussion of the Internet Plus initiative, see Chapter 1, Section 4, "Commercial Cyber Espionage and Barriers to Dig-

* The indigenous innovation policy was first introduced in the National Medium- and Long-Term Program for Science and Technology Development (2006–2020) and later incorporated into the 12th FYP. Although the Chinese government no longer uses the term "indigenous innovation" after pressure from the United States to roll back those policies, its current innovation policy continues to reflect the spirit of indigenous innovation.

† For in-depth coverage of China's wind and solar policies, see Iacob Koch-Weser and Ethan Meick, "China's Wind and Solar Sectors: Trends in Deployment, Manufacturing, and Energy Policy," *U.S.-China Economic and Security Review Commission*, March 9, 2015.

ital Trade in China"). These initiatives focus on innovation and upgrading key emerging industries, including high-end equipment, integrated circuits, biomedicines, cloud computing, mobile Internet, and e-commerce—sectors in which the United States currently enjoys technological advantages.[172]

Dr. Prasad has warned that while U.S. companies in industries such as finance or insurance could leverage their "technological forte" to gain a foothold in the Chinese market, the Chinese government has made clear it will demand that foreign firms transfer technology and corporate governance know-how in exchange for market access.[173] Eurasia Group noted that in the high-value-added sectors outlined as priorities by the Chinese government, "foreign firms are likely to face a tougher competitive landscape in the coming years as the need for foreign know-how decreases."[174] In August 2015, 19 U.S. technology and industry associations submitted a letter to President Barack Obama regarding China's adverse policies toward U.S. information technology (IT) and communications firms.[175] For example, the letter highlighted China's new program that attempts "to acquire or indigenize U.S. semiconductor technology," a sector where U.S. multinational firms account for 11 of the top 20 global semiconductor suppliers and made up nearly 51 percent of the global market in 2014.* Such policies are seeking to dislodge established U.S. market leaders and replace them with domestic firms, to the detriment of U.S. businesses and workers.

Made in China 2025

In May 2015, the State Council released the Made in China 2025 action plan that outlines a ten-year strategy to build intelligent manufacturing capabilities, enhance innovation, and upgrade ten key sectors. These sectors are: (1) energy saving and new energy vehicles, (2) next-generation IT, (3) biotechnology, (4) new materials, (5) aerospace, (6) ocean engineering and high-tech ships, (7) railway, (8) robotics, (9) power equipment, and (10) agricultural machinery.[176] Many of these sectors are not new, and merely redouble government support for long-held strategic interests (see Table 2). In June 2015, the State Council announced that to support this plan, it will be creating a leading group headed by Vice Premier Ma Kai.[177] To build intelligent manufacturing capabilities and support the development of these ten sectors, Citigroup estimates China will invest $1.3 trillion (RMB 8 trillion) in the next few years, while the consultancy PRC Macro forecasts funding will increase between $64 billion (RMB 400 billion) and $128 billion (RMB 800 billion) by the fall of 2016.[178]

*For an overview of the semiconductor industry, see U.S.-China Economic and Security Review Commission, *Monthly Analysis of U.S.-China Trade Data*, August 5, 2015, 10–14; American Chamber of Commerce in China et al., "Letter to President Barack Obama," August 11, 2015.

Table 2: China's Key Industries

Made in China 2025 (2015)	**Strategic Emerging Industries (2010)**	**Strategic Industries (2006)**	**Heavyweight Industries (2006)**
(1) Clean energy vehicles (2) Next-generation IT (3) Biotechnology (4) New materials (5) Aerospace (6) Ocean engineering and high-tech ships (7) Railway (8) Robotics (9) Power equipment (10) Agricultural machinery	(1) Clean energy technologies (2) Next-generation IT (3) Biotechnology (4) High-end equipment manufacturing (5) Alternative energy (6) New materials (7) Clean energy vehicles	(1) Armaments (2) Power generation and distribution (3) Oil and petrochemicals (4) Telecommunications (5) Coal (6) Civil aviation (7) Shipping	(1) Machinery (2) Automobiles (3) IT (4) Construction (5) Iron, steel, and nonferrous metals

Source: State Council of the People's Republic of China, *Made in China 2025*, May 8, 2015; U.S.-China Economic and Security Review Commission, *Hearing on China's Five-Year Plan, Indigenous Innovation and Technology Transfers, and Outsourcing*, written testimony of Willy C. Shih, June 15, 2011; U.S.-China Economic and Security Review Commission, *Hearing on the Extent of the Government's Control of China's Economy, and Implications for the United States*, written testimony of George T. Haley, May 24–25, 2007; and U.S.-China Economic and Security Review Commission, Chapter 1, Section 1, "The Relationship's Current Status and Significant Changes during 2007," *2007 Annual Report to Congress*, November 2007, 38–39.

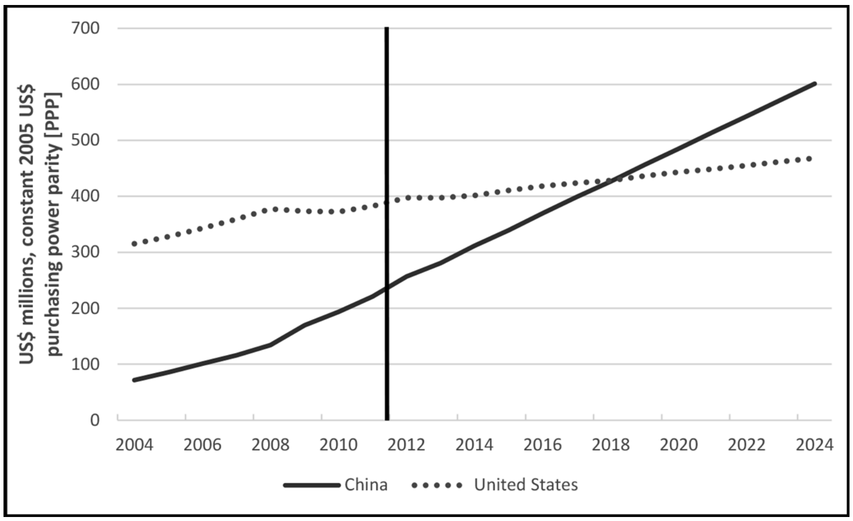
While the plan seeks to strengthen China's industrial base with automation and technological efficiency, it continues China's state-directed innovation policy with the establishment of 15 manufacturing innovation centers in the next five years, and an additional 25 by 2025.[179] Of concern to U.S. companies is the plan's goal of raising domestic localization of core components and materials for sectors such as railway, home appliances, aerospace, telecommunications, and power generation to 40 percent by 2020 and to 70 percent by 2025.[180] The presence of these absolutist requirements supports the view that China may be violating fair and equal treatment for domestic and foreign firms under the World Trade Organization (WTO).

Enhancing Indigenous Innovation

The Chinese government has accelerated efforts to become a global center of innovation through its indigenous innovation policy. This policy is designed to ensure its future global competitiveness and technological edge. Created under the auspices of the 12th FYP, China's indigenous innovation policy has centered on research and development (R&D) funding, high-technology industrial clusters, and market creation. According to Mr. Melton, these policies seek to address its perceived shortcomings: "low R&D expenditure by firms, lack of marketable technologies from research institutes, insufficient financial resources for small technology firms, and the uneven performance of China's firms abroad."[181] In his opinion, these shortcomings reflect China's legal and institutional failures rather than a need for greater government intervention; therefore, "less nationalistic innovation policies would have the same—or greater—economic value at a much lower cost and fewer distortions in the economy." [182]

Over the past decade, China's overall R&D spending increased an average of 23 percent per year, making it the world's second-largest investor in R&D after the United States since 2011.[183] Spending on R&D as a share of GDP reached 2.1 percent in 2014 and is expected to grow at the same rate in 2015.[184] In comparison, Batelle, a nonprofit R&D organization, projected that the combined public and private spending on R&D in the United States would reach 2.8 percent of GDP in 2014.[185] While the United States is currently the world's largest investor in R&D, the Organization for Economic Co-operation and Development (OECD) expects China will outspend the United States by 2019 (see Figure 6).[186]

Figure 6: Current and Projected R&D Spending by China and the United States, 2004–2024



Note: These figures are based on gross domestic expenditure on R&D. Trends are projected after 2012 based on linear growth from U.S. and Chinese data since 2000.
Source: Organization for Economic Co-operation and Development, "Science, Technology, and Industry Outlook 2014," November 12, 2014, 58.

The Chinese government has set up hundreds of high-technology industrial clusters similar to Silicon Valley and uses a variety of tools to attract and expand foreign high-technology firms' R&D operations in China in order to encourage technology transfer and create synergies with domestic firms.[187] These incentives include tax rebates, customs duty and VAT exemptions, or refunds for R&D purchases.[188] Chinese firms such as telecommunications firms Huawei and ZTE have successfully leveraged these foreign partnerships to build technological capability and gain access to external markets.[189] The Chinese government also created new markets to encourage innovation in designated sectors. For example, under the 12th FYP, the NDRC expanded feed-in tariffs, renewable portfolio standards, and capacity targets to incentivize renewable energy production.[190]

Despite China becoming one of the largest R&D investors and leading applicants for patents in the world, Gary Jefferson, professor of international trade and finance at Brandeis University, argues that China's transformation is due less to a fundamental shift in innovation capability than it is to forces unrelated to innovation, such as increased filing for placeholder patents.* A comparison of the quality of China's innovation capability through proxies such as the number of triadic patents † and total citations of papers with the United States finds that China lags far behind (see Figure 7).[191] According to testimony from Xiaolan Fu, professor and director of the Technology and Management for Development Center at Oxford University, state-led innovation in sectors such as solar and semiconductors has created a strong production capacity rather than the more profitable technology or innovation capacity.[192] Mr. Melton found China's state-led industrial plan approach to innovation produced meaningless patents, excess capacity, and aggressive protectionist policies.[193] Jost Wübbeke, research associate at MERICS, further cautioned that China's innovation system remains plagued by inefficient allocation of funding, weak quality management, and plagiarism.[194]

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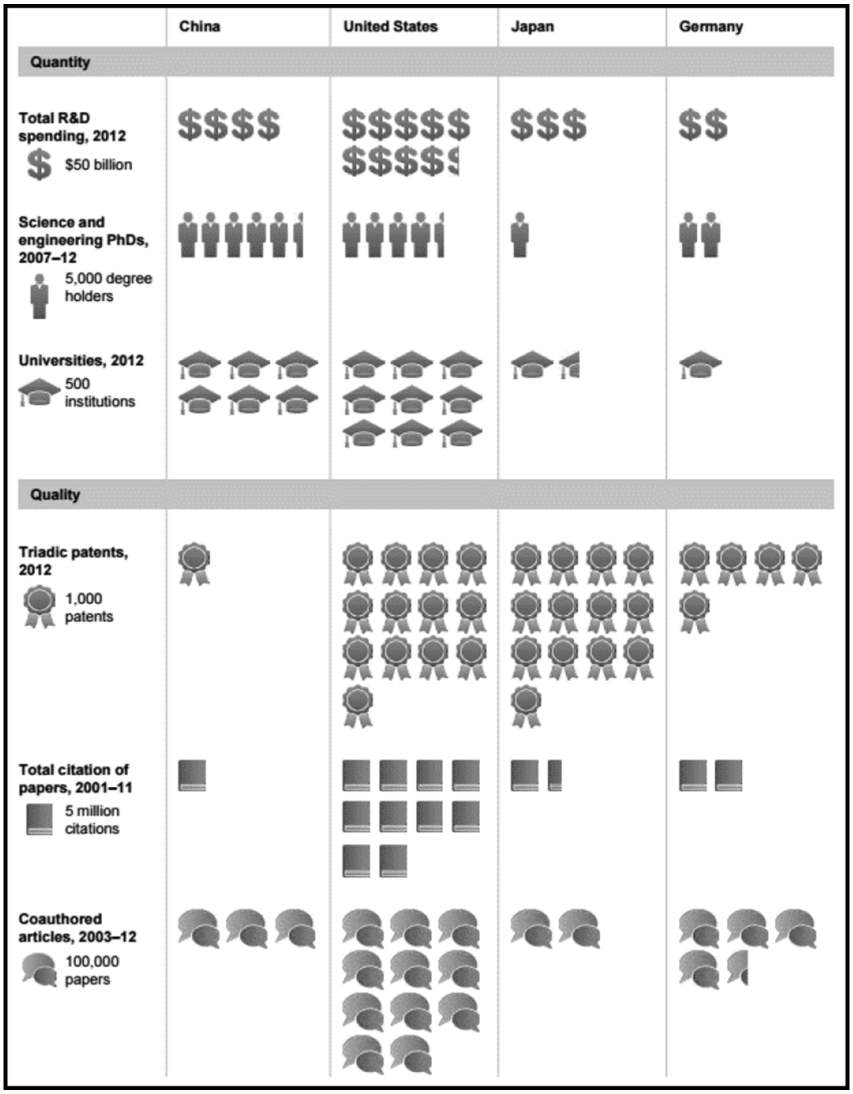
* Placeholder patents are provisional utility patents that are filed more for strategic value to extend the duration of a patent, reduce up-front costs, and provide the firm more time for more ground-breaking developments than to secure intellectual property rights. Gary Jefferson, "A Great Wall of Patents: What Is behind China's Recent Patent Explosion?" *Working Paper*, January 30, 2006; Albert G.Z. Hu, Zhang Peng, and Zhao Lijing, "China's Patenting Surge from 2007 to 2011: More Innovation or Just More Patents?" *Working Paper*, 2014; Gary Jefferson, Carl Marks Professor of International Trade and Finance, Brandeis University, discussion with the Commission, April 15, 2015; for more information on patent placeholder strategy, see John T. McNelis, "A Power Patent Strategy ... Provisionally," *Fenwick & West*, February 26, 2004; and for more information on China's utility model patent practices and procedures, see Thomas T. Moga, "China's Utility Model Patent System: Innovation Driver or Deterrent," *U.S. Chamber of Commerce*, November 2012.

† Triadic patents are patents that are simultaneously filed at the European Patent Office, U.S. Patent and Trademark Office, and the Japan Patent Office, and are considered a strong indicator of high-quality patents. These types of patents require lengthy processing in exchange for protection in three of the world's largest markets.

Figure 7: Comparison of China's Innovation Capability with the United States, Japan, and Germany



Note: The number of coauthored articles refers to the number of papers coauthored with foreign academics.
Source: McKinsey Global Institute, "The China Effect on Global Innovation," July 2015, 19.

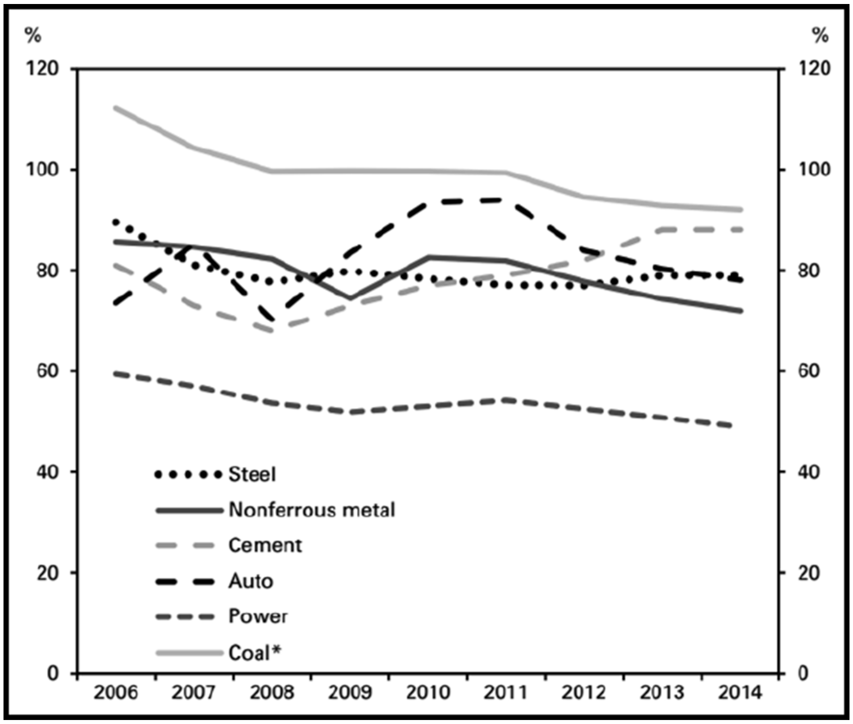
Although they benefited from establishing over 1,200 R&D centers in China, in recent years U.S. businesses started to protest China's domestic procurement requirements, forced technology transfer policies, opaque standards-setting processes, and intellectual property theft.[195] In May 2015, the U.S.-China Business Council criticized local governments for favoring Chinese products in government procurement at the expense of U.S. firms. This practice persists despite China's commitment to join the WTO Government Procurement Agreement, as well as repeated promises from senior Chinese leaders to eliminate the policy.[196] (For more information on China's investment climate, see Chapter 1, Section 2, "Foreign Investment Climate in China"; for more information on cyber theft, see Chapter 1, Section 4, "Commercial Cyber Espionage and Barriers to Digital Trade in China.")

Reducing Industrial Overcapacity

While housing, commercial real estate, and large infrastructure projects have contributed to job creation in the past two decades, China's subsidies to these sectors have created pervasive overcapacity in related sectors, particularly steel and cement (see Figure 8).[197] In 2013, the Ministry of Industry and Information Technology identified more than 1,400 companies in 19 industries that need to reduce their capacity.[198] For instance, an additional $60 billion in annual demand is needed to absorb China's excess supply of steel.[199] Where oversupply in a market economy would cause firms to reduce production in order to minimize losses, continued subsidies in China have created cascading oversupply.[200] This excess production has artificially lowered global prices below production costs and significantly reduced the industry's profitability.[201] In April 2015, industry estimates found nearly three-quarters of China's iron ore mines were unprofitable.[202] Rather than letting them close, the State Council reduced the iron ore resource tax from 80 percent to 40 percent to shore up struggling producers, thus exacerbating excess global production.[203] In the steel sector, government subsidies have allowed Chinese steel firms to sell at below production costs despite falling prices, putting U.S. competitors at a disadvantage.[204] While China's steel policies have bolstered domestic employment, they have also contributed to the decline in employment levels and profitability of steel firms in the United States* and other countries, resulting in antidumping and countervailing duty investigations.[205]

*For analysis on the steel industry, see U.S.-China Economic and Security Review Commission, *Monthly Analysis of U.S.-China Trade Data*, September 3, 2015, 8–10.

Figure 8: China's Capacity Utilization Rates in Selected Sectors



Note 1: Capacity utilization is the operating rate of a firm measured by the (actual output—potential output)/potential output. The gap between the sectors' rate and full utilization (100 percent) indicates a slump in demand.

Note 2: Coal industry utilization rate is shown as over 100 percent in past years because many coal mines' production was over their respective designed production capacity.

Source: Yu Song et al., "Harnessing Global Capital to Drive the Next Phase of China's Growth," *Goldman Sachs*, February 2015, 10.

The overcapacity issue remained largely unaddressed under former President Hu Jintao (2002–2012), but President Xi and Premier Li have publicly stated their desire to consolidate the industries by closing outdated facilities and creating new markets to soak up excess supply. In his 2015 NPC Work Report, Premier Li noted the closing of outdated facilities in 15 industries, but overcapacity persists.[206] Continued local and central support for domestic industries—including lowering the iron ore tax in April 2015—have limited the effort's overall effectiveness.[207]

The Chinese government is also attempting to spark new demand for its overcapacity through urbanization and exports to emerging economies. Urbanization is providing an important domestic market for fixed asset investments in housing, transportation, and other sectors.[208] The anticipated massive infrastructure projects in rail and ports emerging from the "One Belt, One Road"* initiative and the creation of the Asian Infrastructure Development

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*President Xi's One Belt, One Road initiative seeks to facilitate access to natural resources and encourage economic development in China's poorer western provinces. This initiative is composed of a land-based road through Central Asia and a maritime counterpart that will run through Southeast Asia and the Indian Ocean to Africa and the Mediterranean Sea.

Bank and New Development Bank could spur new demand for the excess iron, steel, and cement capacity.[209] As Guo Wensan, chairman of Anhui Conch Cement, noted, "The Silk Road initiative gives the cement industry a great opportunity to expand overseas." [210] (For additional discussion of the One Belt, One Road initiative, see Chapter 3, Section 1, "China and Central Asia," and Chapter 3, Section 2, "China and Southeast Asia.")

Quality of Life

The Chinese government is attempting to improve the quality of life for its citizens by meeting public demands for greater prosperity and a safe, healthy environment. Urbanization, hukou reform, higher-value-added manufacturing, and innovation initiatives are attempting to increase wages and employment opportunities for the country's citizens. At the same time, the Chinese government is seeking to address its severe environmental degradation.

Increasing Energy Conservation and Environmental Protection

At the March 2015 NPC meeting, Premier Li acknowledged the seriousness of air, water, and land pollution in China, describing it as a "blight on people's quality of life." [211] Public anger over hazardous levels of air pollution in 2013 forced the Chinese government to redouble its efforts.* In the last two years, the Chinese government has pursued a multipronged approach, including:

- *Government spending:* The Chinese government spent approximately $32.5 billion (RMB 203.3 billion) last year to build over 1,400 air monitoring stations, subsidize the purchase of energy-efficient vehicles, construct nearly 8,813 miles (14,100 kilometers) of pipelines to urban sewage water treatment facilities, and implement air pollution mitigation efforts in the Beijing-Tianjin-Hebei region.† In its 2015 budget, the Chinese government allocated $21.9 billion (RMB 137 billion) for energy conservation and environmental protection, including $14.1 billion (RMB 88.2 billion) to address air pollution and subsidize emissions reductions, $2.8 billion (RMB 17.6 billion) in subsidies for forest protection, and $4.9 billion (RMB 30.9 billion) to return cultivated land to forest.‡ An April 2015 report by more than 40 leading Chinese financial policy and regulation experts and government officials estimated that an annual investment of at least $320 billion (RMB 2 trillion) § in

* For more information on environment-related unrest, see U.S.-China Economic and Security Review Commission, Chapter 2, Section 3, "China's Domestic Stability," in *2014 Annual Report to Congress*, November 2014, 357–358.

† The central government spent approximately $5.5 billion (RMB 34.5 billion) while transfer payments to local governments totaled roughly $27 billion (RMB 168.8 billion). China's Ministry of Finance, *Report on the Implementation of the Central and Local Budgets for 2014 and on the Draft Central and Local Budgets for 2015* (Third Session of the 12th National People's Congress, Beijing, China, March 5, 2015), 12.

‡ The central government appropriated $4.7 billion (RMB 29.1 billion) and set aside $17.3 billion (RMB 107.9 billion) in special transfer payments. China's Ministry of Finance, *Report on the Implementation of the Central and Local Budgets for 2014 and on the Draft Central and Local Budgets for 2015* (Third Session of the 12th National People's Congress, Beijing, China, March 5, 2015), 25–26.

§ A further breakdown of investment needs anticipates $128 billion (RMB 800 billion) in environmental protection, $80 billion (RMB 500 billion) to clean energy, $80 billion (RMB 500 billion) to clean transportation, and $32 billion (RMB 200 billion) to energy efficiency. People's Bank of China and UN Environment Program, *Establishing China's Green Financial System: Report of the Green Finance Task Force*, April 2015. 6.

environmental protection, energy efficiency, clean energy, and clean transportation is required over the next five years.* However, according to the same report, the Chinese government will only be able to fund between 10 and 15 percent or around $48 billion (RMB 300 billion) of this needed annual investment due in part to slowing growth rates of fiscal revenue. Private capital will need to contribute the remaining 85 to 90 percent, estimated at $272 billion (RMB 1.7 trillion).[212]

- *Emissions and water quality targets:* At the March 2015 NPC meeting, Premier Li established additional reduction targets in chemical oxygen demand † and emissions of sulfur dioxide, ammonia nitrogen, and nitrous oxides.[213] China is also expanding its seven pilot carbon trading emissions projects under the 12th FYP to launch a national carbon trading market,‡ expected to be the world's largest carbon offset market, in 2017.[214] Similar adjustments are being made to improve the quality of water in Chinese cities. In 2011, around half of the 634 Chinese rivers, lakes, and reservoirs tested met drinking standards, and in April 2015, the government announced it would increase the amount of drinkable water for cities to 93 percent by 2020.[215] In June 2015, the Chinese government released its Intended Nationally Determined Contributions to combat climate change, in which it pledged by 2030 to both cut carbon dioxide emissions per unit of GDP by 60–65 percent of the 2005 level and expand the share in its non-fossil fuels for primary energy consumption from about 11 percent in 2014 to 20 percent.[216]
- *Stronger regulations and harsher penalties:* In January 2015, new environmental regulations came into effect with harsher penalties and more stringent emissions caps.[217] Five months later, after nearly two years of delays, the State Council released a draft law on environmental taxes that would penalize heavily polluting industries, such as coal and steel, with taxes on water and air pollution.[218] In Hebei Province, which is one of China's most polluted provinces and responsible for a significant portion of Beijing's air pollution, the provincial government in 2014 spent an estimated $1 billion on environmental protection, and is seeking to close small factories while forcing larger firms to adhere to regulations and upgrade equipment.[219] Already, steel facilities in Tangshan, China's largest steel-producing city, are either closing or undergoing upgrades to meet these regulations.[220]

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*This estimate is based on the 12th FYP Environmental Protection Plan and the Ministry of Environmental Protection (final investment expected to exceed RMB 5 trillion under the 12th FYP); 2014 Plan on Water Pollution Prevention (RMB 2 trillion expected); 2014 Plan on Air Pollution Prevention and Control (RMB 1.7 trillion expected); *China Railway Annual Report* (RMB 800 billion allocated in 2014); Renewable Energy Policy Network (RMB 350 billion invested in 2013); and Bloomberg's estimate of renewable energy investment (RMB 420 billion invested in 2012). People's Bank of China and U.N. Environment Program, *Establishing China's Green Financial System: Report of the Green Finance Task Force*, April 2015. 5.

†Chemical oxygen demand indirectly measures water quality by determining the amount of oxygen-consuming capacity of organic and inorganic matter in the water. U.S. Environmental Protection Agency, *Terminology Services*.

‡The national carbon trading market was initially scheduled to begin in 2015. For additional analysis on China's cap-and-trade system, see U.S.-China Economic and Security Review Commission, *Monthly Analysis of U.S.-China Trade Data*, October 6, 2015, 4–5.

- *Environmental targets within CCP and Chinese government promotion structure:* In May 2015, the Chinese government attempted to strengthen the importance of its environmental targets in the evaluation and promotion process for local government officials, who were previously judged almost entirely on their ability to generate economic growth.[221] In August 2015, the State Council and the CCP Central Committee tightened accountability for CCP and government officials, restricting promotion based on achieving environmental targets and enacting retrospective punishment for environment harm. But Wang Yi, director of the Institute of Policy Management at the Chinese Academy of Science, cautioned that data collection and verification of environmental harm remains limited.[222]
- *Public interest lawsuits:* In October 2014, Taizhou City Environmental Protection Association * sued local factories for contaminating waterways, leading to a $25.6 million (RMB 160 million) settlement, the largest environmental fine ever awarded in China.[223] In May 2015, China's Supreme People's Procuratorate announced it would expand such public interest lawsuits into a two-year pilot program.[224] While these steps create new opportunities, Scott Wilson, professor at The University of the South, found that state-backed nongovernmental organizations are crowding out grassroots participation and reasserting government control at the expense of public accountability.[225] Elizabeth Economy, senior fellow and director of Asia Studies at the Council on Foreign Relations, also cautioned that President Xi's clampdown on civil society organizations and the Internet along with its proposed Overseas NGO Management Law † could significantly limit the ability of these organizations to push forward reform.[226]
- *Support for the development of the clean technology industry:* The International Energy Agency estimated China spent more than $80 billion in new renewables-generating capacity in 2014—more than the United States and European Union combined.[227] The Made in China 2025 action plan reaffirmed strong support for clean technology and green manufacturing through an increase in R&D spending, creation of thousands of green demonstration factories, reinforcement of energy intensity targets, and designation of clean energy vehicles as a key sector.[228]

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* Taizhou City Environmental Protection Association is a local government-backed civil society organization, officially known as a government-organized nongovernmental organization. Taizhou City Environmental Protection Association's chairman is the local head of Taizhou's environmental protection bureau. Such types of organizations allow the Chinese government to tacitly control civil society organizations and protect its interests while providing a venue for expressing public outrage and holding firms accountable. Edward Wong, "Fines Total $26 Million for Polluters in China," *New York Times*, December 31, 2014; Scott Wilson, "Mixed Verdict on Chinese Environmental Public Interest Lawsuits," *Diplomat* (Tokyo), July 20, 2015; and Jennifer YJ Hsu and Reza Hasmath, "The Local Corporatist State and NGO Relations in China," *Journal of Contemporary China* 23:87 (2014): 516–534.

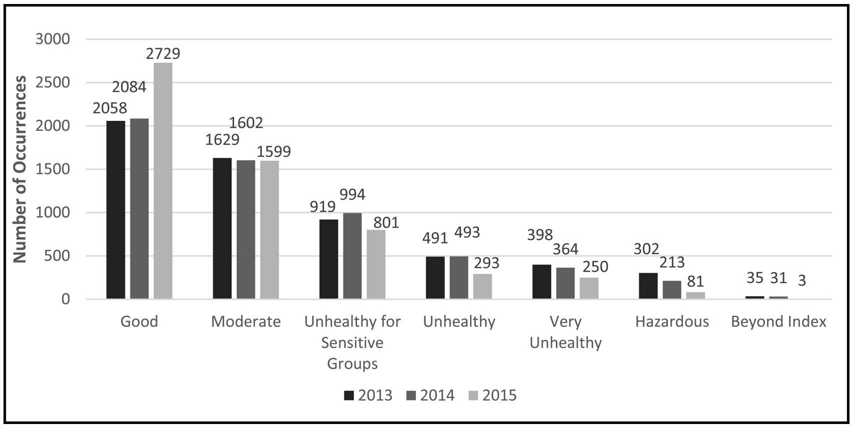
† This proposed law would further tighten restrictions on foreign nongovernmental organizations, such as foreign charities and international development organizations operating in China, and preclude Chinese nongovernmental organizations from accepting foreign funding. Stephen Noakes and Victoria Brownlee, "The Pacific Implementation of China's Proposed NGO Law," *Diplomat* (Tokyo), July 10, 2015.

Despite robust public spending and success in meeting most of its environmental targets, the Chinese government's efforts overall have fallen short in addressing the severity of existing environmental degradation.* Fundamental issues such as fragmented enforcement, conflicting legislation that can override the environmental protection law, lack of capacity, and competition between economic growth objectives and environmental protection interests remain largely unaddressed (see the text box, "Tianjin Chemical Explosion," for a recent example of these systemic challenges).[229] Research by the environmental activist organization Greenpeace found that although China's strict pollution controls lowered particulate matter (PM2.5) † levels in the 189 cities analyzed in the study an average of 16 percent for the first half of 2015 compared with the same period last year, China's average annual PM2.5 level is five times the World Health Organization's recommended levels.[230] A comparison of hourly PM2.5 levels from the U.S. Embassy in Beijing for the first eight months of the last three years similarly found improvements in the overall air quality in Beijing, though hazardous levels of air pollution still remain (see Figure 9).[231] Zhai Qing, China's Deputy Minister of Environmental Protection, noted the gravity of the pollution problem, stating, "Emissions will have to fall another 30–50 percent below current levels if we are to see noticeable changes in environmental quality." [232]

* China is on track to meet its 12th FYP targets to include meeting its 16 percent reduction in energy intensity, 17 percent reduction in carbon intensity from 2010, 11.4 percent composition of non-fossil fuel in primary energy, and 21.7 percent forest coverage. China has been able to meet these targets through a command-control approach of shutting down inefficient and polluting factories, but this approach is becoming less effective as the most egregious violators have already been shuttered and Chinese households become a larger share of energy consumption. For additional analysis of China's energy and environmental policy implementation under the 12th FYP, see Ranping Song et al., "Assessing Implementation of China's Climate Policies in the 12th 5-Year Period," *World Resources Institute, Working Paper*, September 2015; Damien Ma, "Rebalancing China's Energy Strategy," *Paulson Papers on Energy and Environment* (Paulson Institute), January 2015, 10, 19–20.

† PM2.5 is made up of metal, organic chemical, acid, soil or dust, and allergen particulates measuring 2.5 micrometers or smaller in diameter. Excessive exposure to PM2.5 aggravates existing heart and lung disease and is linked to higher incidences of heart attacks, asthma attacks, and bronchitis. U.S. Environmental Protection Agency, *Basic Information*. *www3.epa.gov/pm/designations/basicinfo.htm*.

Figure 9: Hourly PM2.5 Data Finds Improvement in Beijing's Air Pollution Levels, January–August 2013–2015



Note: The data are hourly and cover January 1–August 31 of each year. The classification of these data is based on the U.S. Environmental Protection Agency's *Guideline for Reporting of Daily Air Quality-Air Quality Index*.
Source: U.S. Department of State, U.S. Embassy in Beijing, *Historical Data*.

Tianjin Chemical Explosion

In August 2015, massive chemical explosions in Tianjin killed more than 100 people, injured nearly 700 people, and destroyed more than 17,000 homes.[233] Excessive levels of cyanide—up to 277 times normal levels, according to the Tianjin Environment Protection Bureau—have contaminated the area and placed the city's groundwater and the Bohai Sea at risk.[234] Already, reports of thousands of dead fish washing up on shore near the blast site have heightened public concern.[235] The volume and types of chemicals released and the scale of the damage represent both a major manmade industrial and environmental disaster and a significant test for the Xi Administration's handling of political malfeasance and public outcry.

Investigations by the Chinese government into the explosion have unveiled that the company responsible, Rui Hai International Logistics, leveraged its political connections to improperly obtain licenses and skirt existing safety regulations.[236] Zhang Ming, a political scientist at Renmin University, said, "It was a man-made disaster that could have been prevented, and it has exposed a range of systemic problems, from the lack of regulation for handling hazardous chemicals to the collusion of business and corrupt officials."[237] The Supreme People's Procuratorate is investigating ten officials and port executives for their involvement and dereliction of duty.[238]

Tianjin Chemical Explosion—*Continued*

This explosion is an example of the depth of corruption and pervasive safety violations that remain in China today.[239] Each year more than 68,000 people die in industrial accidents, according to official statistics.[240] Inspections conducted at 124 sites that handle toxic chemicals in Beijing shortly after the explosion found 70 percent contained "hazards," highlighting the depth and pervasiveness of safety violations.[241]

Given strong public outcry and the seriousness of environmental degradation, demand for environmental technologies is likely to grow, creating a potential new market for U.S. environmental services companies. From 2004 to 2014, sectors related to energy efficiency, emissions reduction and monitoring, and environmental remediation experienced 20 percent annual growth, and the Chinese government's recent efforts and increases in spending will only accelerate this growth.[242] A 2015 Goldman Sachs report forecasts enormous opportunities for domestic and foreign firms in soil remediation, solid and hazardous waste management, wastewater treatment, clean energy, and pollution monitoring equipment.[243] For example, the report predicts China's spending on soil remediation will reach $109.6 billion (RMB 685 billion) from 2016 to 2020 (a 585 percent increase over current levels) and wastewater treatment will total $304 billion (RMB 1.9 trillion) over the next five years, creating significant new market opportunities.[244] These investments could also benefit the United States, where pollutants from China are eroding emissions reductions on the West Coast.[245]

Implications for the United States

China's status as the world's most populous nation, second-largest economy, top trading nation, and largest manufacturer means its economic reform agenda, even if partially implemented, will redefine the global competitive landscape. China's focus on services and technology may create one of the world's largest consumer markets, which could generate enormous benefits for the United States. If high market access barriers to U.S. investors and preferential government policies for domestic companies continue, they will prevent U.S. firms from competing on a level playing field. As an example, U.S. technology firms such as Google and Facebook are shut out of China's domestic market while facing growing competition from Chinese state-supported firms such as Baidu and Renren in global markets.[246] In addition, the government has been reluctant to relinquish control of key sectors of the economy and has rolled back reforms in politically sensitive areas, which bodes ill for the progress of the reform agenda and could prevent U.S. companies from participating.

With consumer spending expected to increase approximately $10.9 trillion in the next decade, China's service sector could create up to $6 trillion of new market opportunities for U.S. firms, according to one estimate.[247] Service sectors such as film, express delivery, environmental technologies, and IT are experiencing double-digit growth in China.[248] China is already the world's largest express delivery market in terms of workload and the largest e-commerce market* with over 600 million users; it is also the world's second-largest market for film.[249] Access to China's market could benefit the U.S. service sector—which in 2014 comprised 80 percent of the U.S. economy, employed 80 percent of the U.S. workforce, and accounted for 30 percent of U.S. exports.[250] Dr. Roach argued in his testimony before the Commission that China's service sector is a huge opportunity for the United States, "provided we can bargain effectively for market access." [251] In spite of limited market access in many industries, U.S. service exports to China have grown in the last five years from $17.1 billion in 2009 to $42.5 billion in 2014.[252] In the first half of 2015, U.S. service exports to China grew 9.4 percent over the same period last year to reach $22.3 billion.[253]

But strict market entry criteria, opaque regulations, China-specific technical standards, and state-set pricing are increasing costs for U.S. companies to compete in the Chinese market. The Office of the U.S. Trade Representative identified market access challenges for U.S. banking, film, express delivery, and several other service sectors.[254] U.S. financial firms continue to face quotas, approvals, and ceilings that restrain their growth in China's capital markets. As a result, foreign firms accounted for less than 2 percent of China's nearly $6 trillion (RMB 36.8 trillion) debt market in April 2015, and less than 5 percent of China's $8.2 trillion stock market as of August 2015.[255] U.S. multinationals FedEx Corporation and United Parcel Service (UPS) lost access to China's express package delivery market in 2009 following a revision to China's Postal Law, and did not regain it until August 2014.† Furthermore, U.S. IT and communications firms encounter onerous cyber regulations and standards as well as extensive censorship of Internet content and social media that limit U.S. digital service exports (see Chapter 1, Section 4, "Commercial Cyber Espionage and Barriers to Digital Trade in China," for analysis of China's barriers to digital trade). Such restrictions cap U.S. export growth, to the detriment of U.S. businesses and workers.

The U.S. government has challenged China's market restrictions at the WTO with mixed success. For example, in June 2015—after a favorable 2012 WTO ruling—foreign payment processors such as Visa and MasterCard earned the right to compete against China's state-owned Union Pay. This ruling promised to open a market that last year reached $6.8 trillion (RMB 42 trillion) in retail sales.[256] However, after implementing changes to comply with the WTO ruling, the PBOC instituted a China-specific technical standard different from the international payments standard, forcing MasterCard and Visa to redesign their credit cards, and yet again delaying their entry into the market.[257] In July 2015, the U.S. government again raised the issue to the WTO Dispute Settlement Body.[258]

* For more information on China's e-commerce industry, see U.S.-China Economic and Security Review Commission, *Monthly Analysis of U.S.-China Trade Data*, July 7, 2015, 5–10.

† For more information on China's express delivery services sector, see U.S.-China Economic and Security Review Commission, *Monthly Analysis of U.S.-China Trade Data*, September 4, 2014, 8–10.

The Chinese government is leveraging market access to force U.S. businesses to transfer technology and know-how to Chinese competitors in order to replace foreign businesses with domestic firms.[259] In its 2014 Report to Congress, the Office of the U.S. Trade Representative reported "longstanding concerns" about China's technology transfer policies that have been largely "unaddressed."[260] For example, in September 2014, the CBRC issued requirements for foreign IT and communication firms to turn over proprietary software codes and encryption keys for market access.[261] In April 2015, the CBRC temporarily suspended the rules, but as James Zimmerman, chairman of the American Chamber of Commerce in China, cautioned, "These [rules] were suspended but that doesn't mean it's over yet."[262] Four months later, the CBRC revived these regulations, highlighting the continued pressure China is placing on U.S. firms.[263]

Subsidies and other forms of government support create unfair competitive advantages for Chinese firms at the expense of their foreign competitors. Under the 12th FYP, extensive subsidies for solar and wind manufacturers enabled Chinese firms to dump their products in the global market. In response, U.S. competitors petitioned the U.S. Department of Commerce to impose tariffs beginning in 2012, and even higher tariffs in 2015.[264] State-supported national champions, such as Huawei and China Railway Construction Company, have also benefited from preferential loans to successfully dislodge established industry leaders and take over the global market.[265]

Proposed reforms to SOEs incorporate market drivers while reaffirming CCP control. The recent SOE consolidations attempt to build national brands to compete with established international competitors.[266] For example, the recent merger between China Huafu Trade and Development Group and China National Cereals, Oils and Foodstuffs seeks to challenge established U.S. multinationals Archer Daniels Midland, Bunge Limited, and Cargill.[267] The proposed merger of China's oil SOEs would create the Chinese equivalent of U.S. multinational ExxonMobil in terms of size; similarly, the proposed deal between the Aluminum Corporation of China and China Power Investment Corporation would make it the world's largest aluminum producer by capacity.[268] In addition to strengthening the state's control, these mergers by themselves do not solve the existing overcapacity and inefficiency issues. Excess production has artificially lowered global prices below production costs and severely limited profitability in many key U.S. industries.[269] Alcoa, the largest U.S. aluminum producer, expects China will add more than 80 percent of new global capacity in 2015, in spite of falling global prices.[270] China's strong support for its steel industry is contributing to layoffs, factory closures, and financial losses in the U.S. steel industry.[271] In response, the U.S. Department of Commerce's International Trade Commission has pursued several antidumping investigations against China.[272]

Finally, the recently announced Made in China 2025 and Internet Plus initiatives target sectors in which the United States currently enjoys technological advantages, such as e-commerce and biotechnology. Both plans reinforce preferential support for domestic firms, effectively shutting U.S. firms out of the market. While

Chinese social media firms Baidu, RenRen, and Weibo enjoy unfettered access to the world's largest Internet market, U.S. firms such as Google, Facebook, and Twitter remain blocked. Boosted by strong government support, Chinese firms will seek to challenge U.S. firms in industries such as biotechnology, clean energy, e-commerce, railway, and robotics, both in China and abroad.

Conclusions

- President Xi Jinping and Premier Li Keqiang announced an ambitious reform agenda at the Third Plenary Session of the Chinese Communist Party's (CCP) 18th Central Committee (the Third Plenum) in November 2013 to transition China's economy toward consumption-led growth and allow the market to play a "decisive role." However, these reforms still reserve a dominant role for the Chinese government in the economy. As the economy slows and markets have shown volatility, the Chinese government is once again stalling or rolling back reforms while resuscitating old levers of economic growth—fixed asset investments and export-led growth—in order to boost economic growth and maintain employment.
- The Chinese government is calling for greater CCP leadership within state-owned enterprises, while simultaneously subjecting them to market forces such as competition, mixed ownership, and consolidation. These policies merely reinforce state-owned enterprises' special status and do little to level the playing field for private sector and foreign competitors.
- China's efforts to upgrade its industries and enhance innovation are largely state driven and target sectors in which the United States currently enjoys technological advantage. Recent policies clearly favor domestic Chinese firms, placing pressures on U.S. firms to transfer technology and shift production to China, to the detriment of U.S. businesses and workers.
- China's growing level of consumption, increasing rate of urbanization, opening of the service sector, and massive spending on the environment and clean technology are creating one of the world's largest markets. However, strict market entry criteria, opaque regulations, China-specific technical standards, state-set pricing, and preferential support for domestic firms are increasing the costs to compete in this market.
- While fiscal reforms have made progress in providing new sources of local government revenue such as bonds and new forms of taxes, the Chinese government abandoned its attempt to rein in local government debt after sluggish first and second quarter data in 2015. Instead, the Chinese government restarted local government lending and required financial institutions to continue supporting insolvent infrastructure projects. Central intervention to prop up the debt-for-bonds swap for local governments ensured the costs of local governments' borrowing were negligible.
- China's financial sector reforms have made the most headway with progress in the liberalization of interest rates, opening of

the banking sector, and loosening of capital controls. However, Chinese policymakers are uncomfortable with the market volatility these reforms create. This year, the Chinese government reaffirmed its role in managing capital accounts and reasserted state control over the stock market after it faced volatility beginning in June 2015.

- Public alarm over environmental degradation within China continues to rise. Robust public spending has contributed to enormous demand for technologies focused on energy efficiency, emissions reduction and monitoring, and environmental remediation, creating potential opportunities for U.S. environmental technology firms. China's environmental reforms could also benefit the U.S. environment through reduced emissions and pollution.
- China has achieved its enormous economic growth through investment and export-led policies that now must be coupled with greater domestic consumption to ensure a more balanced economy. CCP leaders could persevere in structural reforms, which—assuming the short-term dislocation is not too destabilizing—could confirm China as one of the world's great markets. If, however, the CCP draws back from such reforms as it has in the past, there is a possibility China could enter a period of low or stagnant growth, which affects its potential as a market and a producer. In either case, economic pressure on CCP leaders could lead to greater discrimination against foreign firms and investors or an enhancement of other practices, like technology theft, which will make China less attractive as a market for investment.

ENDNOTES FOR SECTION 3

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SECTION 4: COMMERCIAL CYBER ESPIONAGE AND BARRIERS TO DIGITAL TRADE IN CHINA

Introduction

China causes increasing harm to the U.S. economy and security through two deliberate policies targeting the United States: coordinated, government-backed theft of information from a variety of U.S.-based commercial enterprises and widespread restrictions on content, standards, and commercial opportunities for U.S. businesses. This section examines how hackers working for the Chinese government—or with the government's support and encouragement—have infiltrated the computer networks of U.S. agencies, contractors, and companies, and stolen their trade secrets, including patented material, manufacturing processes, and other proprietary information. The Chinese government has provided that purloined information to Chinese companies, including state-owned enterprises (SOEs).

The Chinese government also imposes heavy-handed censorship on Internet content and social media, which has driven from the Chinese market those U.S. companies unwilling to follow the authoritarian dictates of the government.* The Chinese government has also begun to censor material originating outside its borders by directing distributed denial of service (DDoS) attacks against U.S.-based information providers. In addition, Beijing has implemented discriminatory regulations and standards in China to limit the commercial opportunities for U.S. companies seeking to conduct legitimate business there.

The United States is ill prepared to defend itself from cyber espionage when its adversary is determined, centrally coordinated, and technically sophisticated, as is the Chinese Communist Party (CCP) and government. The design of the Internet—developed in the United States to facilitate open communication between academia and government, and eventually expanded to include commercial opportunities—leaves it particularly vulnerable to spies and thieves. As the largest and most web-dependent economy in the world, the United States is also the largest target for cyber espionage of commercial intellectual property (IP). "Well-resourced, advanced cyber threats that use sophisticated tactics, techniques and procedures are able to bypass [U.S.] conventional security deployments almost at-will," according to Jen Weedon, manager of threat intelligence at FireEye, Inc., a cybersecurity firm. "American

*The France-based watchdog group Reporters Without Borders ranked China 175 out of 180 countries in its 2014 worldwide *Index of Press Freedom*. Among the U.S.-based companies excluded or heavily censored by China are Google, Facebook, Twitter, and Instagram. For more on Chinese censorship, see Beina Xu, "Media Censorship in China," *Council on Foreign Relations*, April 7, 2015.

companies are being forced to fight a battle against adversaries possessing nation-state capabilities, which is not a fair fight." [1]

These activities by China's government were the subject of the Commission's June 15 *Hearing on Commercial Cyber Espionage and Barriers to Digital Trade in China*, held shortly after the Office of Personnel Management (OPM) revealed that its computer network experienced an intrusion apparently originating in China. This network breach resulted in the theft of personal information on more than 22 million federal employees, retirees, contractors, applicants for government jobs, and their contacts and families.* Some of the stolen files included SF–86 application forms, which contain detailed personal information of federal workers and contractors applying for security clearances.[2]

Cyber Espionage for Commercial and Strategic Advantage

The Cost and Extent of Chinese Cyber Espionage

The incidence of sophisticated cyber intrusions into U.S. government and private computer networks—particularly those involving "zero-day attacks" † and the exfiltration of large amounts of commercial data and personally identifiable information ‡—is on the increase. Cyber espionage for the purpose of commercial gains "presents one of the most significant economic and national security challenges facing the United States," according to Paul Tiao, a former Federal Bureau of Investigation (FBI) official who now is an attorney in private practice at Hunton & Williams in Washington, DC, and who testified before the Commission.[3] The economic cost of cyber crime and espionage is estimated at $375 billion to $575 billion annually worldwide, or between 15 percent and 20 percent of the value created by the Internet, according to a 2014 study by Intel Corporation's McAfee cybersecurity branch and the Center for Strategic and International Studies.[4] The study estimates that cyber attacks against targets in the United States could result in a permanent reduction of as many as 200,000 U.S. jobs due to lost business income and expenses to repair the damage. The cost of defending against such attacks is also increasing. The global market for cybersecurity products and services is estimated to be $77 billion in 2015—about the size of all the Federal Government's public information technology (IT) spending budget—with spending growing twice as fast as general spending on IT.[5]

The cost of individual cyber intrusions, which includes detection, repair, and remediation, has also been on the rise. A 2014 survey

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* For more information on China's cyber espionage and related activities, see U.S.-China Economic and Security Review Commission, *2012 Annual Report to Congress*, November 2012, and *2013 Annual Report to Congress*, November 2013.

† Zero-day attacks employ hacking techniques and malware tailored to a specific target rather than generic products available online, which can be detected through the use of commercially available cybersecurity software.

‡ Personally identifiable information can include name, Social Security number, passport number, driver's license number, taxpayer identification number, financial account or credit card number, banking information, address, date of birth, place of birth, religion, race, weight, activities, employment and medical information, education, fingerprints, retinal scan, voice signature, facial geometry, photographic image, and travel records. Erika McCallister, Tim Grance, and Karen Scarfone, *Guide to Protecting the Confidentiality of Personally Identifiable Information: Recommendations of the National Institute of Standards and Technology* (Special Publication 800–122), *National Institute of Standards and Technology*, *U.S. Department of Commerce*, April 2010.

of 59 large U.S. companies by the Ponemon Institute and Hewlett-Packard found the average annual cost of responding to commercial cyber attacks was $12.7 million, up 96 percent from the previous five years.[6] During this period, the number of attacks against the 59 firms was up 176 percent, with an average of 138 successful attacks each week. The average time taken to detect an attack was 170 days, with an average of 45 days spent resolving the damage. The costs included detection, data recovery, loss of information, and business disruption.[7]

The cost of a network breach can impact a company in a variety of ways, according to Mr. Tiao. They include:

- Loss of IP to a potential competitor that may be able to use it to develop and sell a competing product or to reduce research and development costs;
- Reduced incentives for technological innovation by targeted companies;
- Loss of confidential business-sensitive information that may, for example, be used by a company to underbid the victim for a lucrative contract or to undermine the victim's strategy in business negotiations;
- Opportunity costs in the form of service and employment disruptions, lost sales and revenues, and reduced trust and use of online commercial activities;
- Costs of securing networks, cyber insurance, and recovery from cyber attacks;
- Legal fees associated with breach-related litigation and government enforcement actions; and
- Reduced stock prices and reputational harm suffered by victim companies.[8]

Even companies that have not been victimized have substantial costs to subtract from their bottom lines, according to Mr. Tiao:

> *Prior to an incident taking place, large companies devote extensive financial, staff, and consultant resources to keeping information security policies up to date, implementing technical network security programs, developing and exercising breach response plans, participating in public-private and private-private cybersecurity information sharing arrangements, negotiating the information security terms of third-party vendor agreements, ensuring that those vendors maintain adequate information security, and purchasing cyber security insurance, and training employees.*[9]

Since at least 2009, China has directed "the single largest, most intensive foreign intelligence gathering effort since the Cold War," according to cybersecurity firm Medius Research.[10] The increased success rate for intrusions against U.S. companies is often attributed to the presence of government-run or government-sponsored teams of hackers—with China the primary culprit. The U.S. government is equating the struggle in cyberspace to a war directed against the U.S. economy, U.S. aerospace and weapons contractors, and the energy grid, among other public targets. Former Director of National Intelligence Mike McConnell warned in 2015 that "the United States is fighting a cyber war and we are losing." [11] At the Commission's June 15 hearing, witness Dennis F. Poindexter, a 30-year veteran of the U.S. Intelligence Community, noted that if, during the Cold War, "we had done nuclear deterrence the way we do cyber deterrence [against China], we'd all be speaking Russian now." [12]

Concern over the cyber theft of personally identifiable information and trade secrets has grown as massive intrusions into U.S. corporate and government computer networks have come to light. By most authoritative accounts, the largest benefactor of that transfer is China, whose government has adopted a strategy of exfiltrating large amounts of data from U.S. networks and sharing that information with Chinese competitors. "Out of the dozens of advanced cyber threat groups that we track, by far the most prevalent and focused are those that are engaging in commercial cyber espionage," testified Ms. Weedon during the Commission's June 15 hearing. According to Ms. Weedon, Chinese government hacker groups "continue to engage in widespread commercial data theft at staggering rates." [13]

In 2012, then director of the National Security Agency (NSA) General Keith Alexander said in a speech to a Colorado audience that cyber espionage represented "the biggest transfer of wealth in history." [14] In testimony before the Senate Armed Services Committee, Director of National Intelligence General James R. Clapper warned in February that, "[c]yber threats to U.S. national and economic security are increasing in frequency, scale, sophistication and severity of impact; [and] the ranges of cyber threat actors, methods of attack, targeted systems and victims are also expanding," [15] On April 1, 2015, President Barack Obama noted that "the increasing prevalence and severity of malicious cyber-enabled activities constitute an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States." [16] The President followed with a "declaration of a national emergency to deal with this threat." [17]

Mr. Poindexter describes the U.S. relationship with China as an escalating, multifaceted economic and "information war":

> *The Chinese use their intelligence services and military to collect information from the competition and feed that back into their companies. From a policy view, they steal information as a part of their national strategy to win an economic war. Their military owns some companies and what they don't own, the Central Committee controls. They win bids; they control their own commodity prices; they harass the competition as they did with Walmart and Rio Tinto. They steal intellectual property, which they then use to compete with the companies they steal it from. They leverage their surplus for political benefit and manipulate their currency valuation.*[18]

Not all China-based groups are the same, though, as Ms. Weedon noted:

They have different government sponsors, different targets, and varying degrees of state sponsorship or support. Some threat actors and groups that we track appear to be contractors. Certain individuals may moonlight on the side and operate for financial gain. In spite of these differences, though, the vast majority of China-based APT [Advanced Persistent Threat] groups that we track are engaged in massive theft of IP from global corporations, particularly those involved in what the Chinese government views as areas of strategic importance.*[19]

Ms. Weedon told the Commission that China's strategic emerging industries—high-tech sectors singled out by the Chinese government for development and special support in the 12th Five-Year Plan—act as "an almost to-do list" for China-based hackers.[20] During its work on behalf of Western and Japanese clients, FireEye identified 22 "separate groups of actors stealing information" from the strategic emerging industries. Table 1 correlates the strategic emerging industries with the number of known China-based hacking groups engaging in cyber theft of information in that industry, based on figures compiled by FireEye. (This list likely understates the extent of Chinese cyber spying on behalf of strategic emerging industries in China.)

Table 1: China's Strategic Emerging Industries

Strategic Emerging Industry	Number of China-Based APT Groups Targeting This Strategic Emerging Industry
Clean Energy Technology	3
Next-Generation IT	19
Biotechnology	6
High-End Equipment Manufacturing	22
Alternative Energy	7
New Materials	12
New Energy Vehicles	6

Source: U.S.-China Economic and Security Review Commission, *Hearing on Commercial Cyber Espionage and Barriers to Digital Trade in China*, testimony of Jen Weedon, June 15, 2015.

Other sectors targeted for infiltration by the Chinese government include electronics, telecommunications, robotics, data services, pharmaceuticals, mobile phone services, satellite communications and imagery, and business application software.[21]

* APT stands for Advanced Persistent Threat, a designation that indicates the hackers are using sophisticated techniques over a long period to extract large amounts of information. Mandiant, "APT1: Exposing One of China's Cyber Espionage Units," February 2013.

The U.S. government has recognized and documented the threat posed by cyber espionage and has singled out China as the cause. A 2009 study for the Commission by Northrup Grumman warned that Chinese hacking of U.S. networks "now comprises the single greatest threat to U.S. technology and has the potential to erode the United States' long-term position as a world leader in [science and technology], innovation, and competitiveness." [22] A 2011 report from the Office of the National Counterintelligence Executive acknowledged that "Chinese actors are the world's most active and persistent perpetrators of economic espionage." [23] FBI Director James B. Comey said that Chinese hackers are "at the top of the list" of international cyber spies: "They are extremely aggressive and widespread in their efforts to break into American systems to steal information that would benefit their industry. There are two kinds of big companies in the United States; there are those who've been hacked by the Chinese and those who don't know they've been hacked by the Chinese." [24]

Attributing Cyber Attacks to China

China routinely denies any official involvement in cyber espionage against U.S. government or U.S. corporate networks. Chinese authorities maintain that such accusations are "baseless," and "irresponsible, and unscientific," and choose instead to accuse the United States itself of cyber espionage.[25] China's official news agency, Xinhua, said that "while [the United States] has rarely made [a] direct response to widespread concerns over appalling revelations of its cyber spying programs, some of its people, out of ulterior motives, habitually scapegoat and demonize China, repeatedly leveling groundless allegations and accusations against China." [26]

Attributing individual computer network intrusions can require intensive forensic investigation and is not always conclusive. Cyber attacks can be routed through servers in multiple countries in an attempt to disguise their origin. "Cyber operations are extraterritorial," said Mr. Poindexter, "You can conduct operations from Russia that go through China and attack the United States. You can do the reverse. . . . Anybody can attack from anywhere because of virtualization of our computer systems." [27] And there is no international convention or agreement on what constitutes attribution.[28] Consequently, says one expert, "many states currently prefer to respond to such attacks using only passive computer security measures, at least until there is more information available about the origin and the intent of the attack." [29]

Nevertheless, according to Mr. Tiao, the U.S. government and private cybersecurity companies "are so much further along in our ability to establish attribution and to identify individuals and entities that are responsible for this sort of hacking activity than we were five years ago or four years ago." [30] Attribution can be accomplished when forensics experts find patterns in "tools, tactics and procedures" and link "intrusion sets" to hacker groups and even to individuals.[31]

U.S. companies that specialize in investigating cyber attacks and espionage trace many intrusions back to servers and hackers in China. In 2013, U.S. Internet security firm Mandiant said its hundreds of investigations showed that groups hacking into U.S. newspapers, government agencies, and companies "are based primarily in China and the Chinese government is aware of them." [32]

The U.S. government and cyber counterintelligence firms have grown more comfortable revealing their attribution methodology. For example, when the *New York Times* hired Mandiant to determine who hacked into its newsroom computer system to steal such sensitive data as the identities of reporters' confidential sources, the firm released a detailed report along with the methodology it used to trace the network intrusion back to the Chinese government.[33] In February 2013, Mandiant released a report tracing a major set of intrusions to a particular Chinese military intelligence unit housed in a 12-story building in Shanghai. Mandiant also published details of more than 3,000 domain names, Internet protocol addresses, encryption certificates, and malware programs of one digital spy network run by the People's Liberation Army (PLA), "Unit 61398," which Mandiant named "APT1." The unit "has systemically stolen hundreds of terabytes of data from at least 141 companies spanning 20 major industries," the Mandiant report said.[34] According to the firm, "Once APT1 has established access, they periodically revisit the victim's network over several months or years and steal broad categories of IP, including technology blueprints, proprietary manufacturing processes, test results, business plans, pricing documents, partnership agreements, and emails and contact lists from victim organizers' leadership." [35]

Recent Cyber Intrusions Originating in China

The improved ability of the U.S. government and cybersecurity firms to attribute cyber attacks paints a damning picture of China as an active perpetrator of cyber espionage. Table 2 summarizes select recent attacks.

Table 2: Recent Examples of Cyber Intrusions Originating in China

Recent Cyber Intrusions from China	Date Identified	Target	Source of Attack
PLA Espionage	May 2014	Six U.S. entities involved in nuclear power, metals, and solar power.	Five PLA officers indicted in May 2014
USPS Espionage	November 2014	Personal data of 800,000 employees of the U.S. Postal Service, including Social Security numbers and addresses.	China
Anthem Hack	February 2015	Social Security numbers and health information of 80 million Anthem users.	"Deep Panda" (according to CrowdStrike's analysis)
The Great Cannon Attack	April 2015	Chinese cyber weapon executed DDoS attacks against U.S. websites GitHub and GreatFire.	Chinese government (according to University of Toronto's Citizen Lab)

Table 2: Recent Examples of Cyber Intrusions Originating in China—*Continued*

Recent Cyber Intrusions from China	Date Identified	Target	Source of Attack
Mysterious Eagle Attack	April 2015	Journalists, dissidents, economic data, and military organizations that have a relation to China.	Chinese government (according to FireEye report)
OPM Hack	April 2015	Millions of sensitive and classified documents, as well as personally identifiable information of more than 22 million Americans.	China is officially the "leading suspect"
Engineering Universities Hacks	May 2015	Penn State University's engineering school, along with the school's 500 research partners. Other U.S. engineering schools hacked include Johns Hopkins University, Carnegie Mellon University, the University of California-Berkeley, and the Massachusetts Institute of Technology.	Chinese hackers (according to FireEye's analysis)
United Airlines Hack	July 2015	Personal and flight information of United Airlines passengers.	Same group as the OPM hack

Source: News reports and official U.S. documents; compiled by Commission staff.

PLA Hackers

A federal grand jury in May 2014 indicted five Chinese PLA officers for hacking and economic espionage directed at six U.S. entities involved in nuclear power, metals, and solar power.[36] According to the indictments, the five PLA officers belong to Unit 61398, the same network identified by Mandiant in 2013.[37] The May 2014 indictment was unusual for several reasons: it was a rare indictment brought under the economic espionage statute of a foreign state actor; it specifically identified individuals who are government employees, including their names, office addresses, and even their photographs and nicknames; and it identified the victims and described the attackers' methodologies. All five Chinese PLA officers are charged with 31 counts of computer fraud, identify theft, computer hacking, and trade secret theft. The espionage charge carries a penalty of up to 15 years in prison. The victims include Westinghouse Electric Company, U.S. subsidiaries of SolarWorld, United States Steel Corp., Allegheny Technologies, Inc., Alcoa, Inc., and the United Steelworkers Union.

At the time of the hack, Westinghouse was negotiating terms for construction of a nuclear power plant with a Chinese SOE. Allegheny was in a joint venture with a Chinese SOE while pursuing a trade complaint against the company, and Alcoa was also in a partnership with an SOE. The *Financial Times* reported in October 2015 that according to U.S. authorities three large Chinese SOEs—steelmaker Baosteel, aluminum manufacturer Chinalco, and SNPTC, a nuclear power company—gained an advantage over their U.S. competitors as a result of the PLA's cyber espionage.[38]

The U.S. Department of Justice promised more attempts at prosecutions and noted that, "state actors engaged in cyber espionage for economic advantage are not immune from the law just because they hack under the shadow of their country's flag." [39] The indictments will have a limited effect on the accused since China likely will not extradite the five for a trial in the United States.* However, by releasing details of the alleged crimes involving Chinese government employees, the Administration sought to highlight the role of the Chinese government in a practice that Beijing has repeatedly refused to acknowledge. In retaliation for the indictment, the Chinese government suspended bilateral talks with the United States on cyber spying. The diplomatic loss to the United States was minimal since the Chinese negotiators were unlikely to make concessions on a practice they insisted did not exist.

Chinese Hackers Breach U.S. Postal Service Network

Chinese government hackers are suspected of an intrusion into the U.S. Postal Service's (USPS) personnel database.[40] The breach was detected in September 2014. The loss included the names, Social Security numbers, addresses, dates of birth, dates of employment, emergency contacts, and other information of all 800,000 of the Postal Services' employees, from letter carriers to the postmaster general. Data on customers who contacted the Postal Service Customer Care Service by phone or e-mail were also obtained by the hackers. Randy Miskanic, the head of the USPS digital security testified before a House committee that the hack was "very sophisticated." [41] The revelation coincided with the visit of President Obama to Beijing for talks with CCP General Secretary and President Xi Jinping, which included a discussion about China's cyber spying. At the time, former NSA general counsel Steward A. Baker noted that while most countries are cautious about getting caught cyber spying, "It's only the Chinese that think there are no consequences to getting caught." [42] The hack is being investigated by the FBI, but no details have been released and no charges have been filed.

The Great Cannon

A months-long attack in early 2015 against two U.S.-based websites, GreatFire.org and GitHub †—which provide methods to allow Chinese citizens to circumvent government-imposed, network-level censorship—was attributed in May to the Chinese government by the University of Toronto's Citizen Lab.[43] Nicknamed "the Great Cannon," the Chinese cyber weapon provides the government the

* The *Washington Post*, quoting unnamed Administration officials, reported on October 9 that the Chinese government had "quietly arrested a handful of hackers at the urging of the U.S. government—an unprecedented step to defuse tensions with Washington at a time when the Obama Administration has threatened economic sanctions." Those arrested were not named nor were their particular offenses revealed. According to the *Washington Post*, the action was taken by Chinese authorities in advance of President Xi's visit to Washington in response to an Administration list of hackers "identified by U.S. officials as having stolen commercial secrets from U.S. firms to be sold or passed along to Chinese state-owned companies." Ellen Nakashima and Adam Goldman, "In a First, Chinese Hackers are Arrested at the Behest of the U.S. Government," *Washington Post*, October 9, 2015.

† GitHub is a U.S. website for developers that hosts content forbidden in China and GreatFire.org, is an organization that monitors Internet censorship in China.

means to harness Internet traffic and redirect it to flood websites it considers dangerous, even those overseas. If the attack is successful, the offending websites are overloaded and cease functioning due to the DDoS attack. Before fielding the Great Cannon, the Chinese government simply attempted to filter out content from foreign and domestic media, or tried to block the websites entirely. That technique did not always work, particularly if Chinese citizens were using a virtual private network to access forbidden websites. Instead of blocking traffic entering China, the Great Cannon can be used to sabotage a website hosting material forbidden by Chinese censors, or to "aggressively go after sites outside China's borders deemed objectionable by Beijing."[44] The new Chinese cyber weapon was used to seize foreign web traffic headed to China's most popular search engine, Baidu, and redirect it to flood GitHub and GreatFire.org.[45]

Mysterious Eagle Preys on U.S. Businesses for a Decade

In mid-April 2015, the U.S. computer security firm FireEye identified a hacking group apparently backed by the Chinese government that has been stealing information for a decade about "journalists, dissidents, and political developments in relation to China, targeting government and military organizations and targeting economic sectors of interest to China's economy."[46] The group has been using malware that has been able to cross the "air gap"* and infect standalone computer networks not connected to the Internet. The malware's name, translated from Chinese, is "Mysterious Eagle."[47] FireEye called this hacker group "APT30," one of 20 such groups probably controlled by the Chinese government. "Such a sustained, planned development effort coupled with the group's regional targets and mission, leads us to believe that this activity is state sponsored, most likely by the Chinese government," the FireEye report said. APT30 also targeted at least 15 companies in communications, news media, technology, finance, and aviation.[48] The Chinese hackers gained access to these companies through spear phishing attacks: e-mails that appear legitimate from senders known to the recipient, but which contain malware inserted by the hackers. In the Mysterious Eagle case, network administrators were tricked into downloading malware on their home computers; when the network administrators transferred data from their home computers via thumb drives to the company network, they inadvertently introduced the malware from their home machines to the network.[49]

OPM Hack Affects More Than 22 Million Americans

On April 4, OPM revealed the first details of what turned out to be one of the largest data breaches of any U.S. network—an attack in which hackers gained access to the personally identifiable information of more than 22 million people, as well as millions of sensitive and classified documents.[50] Though the U.S. government has

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*Air gap refers to a computer network with no connection to the Internet through which a hacker might gain access. In some cases, access to the air-gapped network is gained through the use of thumb drives to infect a network through USB ports that may transfer the virus from an infected thumb drive to an air gapped computer.

not officially attributed the attack to China, it is the "leading suspect," according to national intelligence director Clapper, who characterized the intrusions of the OPM computer network as government-to-government espionage.[51] Given the scope and difficulty of detecting the intrusion, said the former general, "you have to kind of salute the Chinese for what they did."[52] Hackers will continue to try to steal information from the government and from U.S. companies "until such time as we can create both the substance and the psychology of deterrence," he warned. Meanwhile, Director General Clapper said, because of an unresolved internal debate within the Administration on whether to retaliate, Washington must focus "a lot more attention to defense."[53] In addition, he continued, "That's frankly been a struggle for us, because of unintended consequences and other related policy issues."

The information taken from the OPM computer network included lengthy forms, dating back to 2000, completed by federal employees and contractors as part of the process to obtain and maintain security clearances. The records include such personal identifiers as fingerprints, Social Security numbers, birthdates, and financial records, as well as such sensitive information as admissions of past drug abuse, arrests, and mental health treatment, foreign travel, interviews of colleagues and neighbors, and reports by security clearance investigators, and the names of relatives and foreign contacts for millions of current and former federal employees. "The impact on national security is staggering," said Dmitri Alperovitch, founder of CrowdStrike Inc., a cybersecurity company in Arlington, Virginia.[54] Said FBI Director Comey: "It is a very big deal from a national security perspective and from a counterintelligence perspective. . . . It's a treasure trove of information about everybody who has worked for, tried to work for, or works for the United States government."[55] Among the "treasures" are 5.6 million fingerprints that could be used to identify undercover government agents or to fashion duplicates to biometric data to obtain access to classified areas.*[56]

According to the *New York Times*, the inspector general at OPM had warned in November 2014 that computer security at the agency was inadequate: OPM had not inventoried the computer servers and devices with access to its networks, did not require anyone gaining access to information from the outside to use the kind of basic authentication techniques most Americans use for online banking, and did not regularly scan for vulnerabilities in the system.[57] The inspector general found that 11 of the 47 computer systems that were supposed to be certified as safe for use were not "operating with a valid authorization."[58] Although OPM claims to have employed the most up-to-date intrusion detection software programs, including the Einstein 3 system and the Continuous Diagnostics and Mitigation program, those systems apparently failed. Even more important, none of OPM's data were encrypted, and the malware detection system did not detect the intrusions for four months.[59]

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*The *Washington Post* reported that unnamed officials told the newspaper that the CIA "pulled a number of officers from the U.S. Embassy in Beijing as a precautionary measure in the wake" of the OPM breach. Ellen Nakashima and Adam Goldman, "CIA Pulled Officers from Beijing after Breach of Federal Personnel Records," *Washington Post*, September 29, 2015.

Under current law, the Federal Information Security Modernization Act of 2014, federal agencies are responsible for their own security. No agency officially responsible for national cybersecurity, such as the Department of Homeland Security, is actually responsible for enforcing any standards on any other Federal Government agency.[60] Thus, no one is responsible for enforcing standards across the Federal Government.

Despite the numerous press accounts quoting named and unnamed Administration officials blaming China for the intrusion, including Director of National Intelligence Clapper and former NSA and Central Intelligence Agency Director Michael Hayden, the Administration has not officially attributed the action to China.*

Chinese Hackers Breach Major Engineering Universities

Hackers apparently based in China gained access to and stole information from Penn State University's engineering school for more than two years, the school disclosed on May 16 after a report by federal and private investigators.[61] The data breach included information about the school's 500 research partners, including government agencies, companies, and other schools. Penn State specializes in aerospace engineering, and has a significant research partnership with the U.S. Department of Defense.[62] The California-based network security company FireEye said forensic analysis showed that Chinese hackers were among at least one of two separate groups that stole data from the college, based on an examination of the malware and other tools used to breach the network. Other U.S. engineering schools targeted by Chinese hackers are Johns Hopkins University, Carnegie Mellon University, the University of California-Berkeley, and the Massachusetts Institute of Technology.[63]

Chinese Hackers Breach United Airlines and Anthem for Customer Data

The group responsible for the OPM intrusion also exfiltrated data on passengers flying on United Airlines aircraft and on enrollees in California's largest health care insurer, Anthem Blue Cross Blue Shield, according to numerous news reports.[64] United, the world's second-largest airline, is often used by U.S. government employees, who are required to fly on U.S. carriers whenever possible. In the hack, United likely lost records that contained the names of passengers, their flights, destinations, passport numbers, and expiration dates, dates of birth, frequent flyer numbers, and home addresses. The data can be cross-referenced with other data taken from OPM to track the movement of federal workers, including those in the 17 different intelligence agencies whose workers are also required to fly on U.S.-flagged carriers. The Anthem breach exposed Social Security numbers and sensitive details about the health of 80 million customers, marking the attack as one of the biggest thefts of medical-related customer data in U.S. history.[65]

*Director Hayden said the OPM data was "a legitimate foreign intelligence target" and that "this is not shame on China; this is shame on us for not protecting that kind of information. . . . This is a tremendously big deal. And my deepest emotion is embarrassment." *Wall Street Journal*, "Michael Hayden Says U.S. Is Easy Prey for Hackers," June 21, 2015.

Cybersecurity firm CrowdStrike has attributed the Anthem breach to a Chinese hacker group nicknamed "Deep Panda," and has been following the group's efforts, including a data theft from RSA, another cybersecurity firm.[66]

Remedies and Retaliation for Cyber Attacks from China

Executive Order to Impose Sanctions

On April 1, 2015, President Obama issued an executive order following the attacks on the U.S. affiliate of Sony, Inc. by North Korea, China's ally. The President declared a national emergency due to the "increasing prevalence and severity of malicious cyber-enabled activities" from abroad, constituting "an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States." [67] Under the order, a wide variety of cyber activities could result in sanctions, including "malicious cyber-enabled activity" that leads to theft of or harm to

> *critical infrastructure, misappropriating funds or economic resources, trade secrets, personal identifiers or financial information for commercial or competitive advantage or private financial gain; knowingly receiving or using trade secrets that were stolen by cyber enabled means for commercial or competitive advantage or private financial gain; disrupting the availability of computer or network of computers (for example through a DDoS attack) and attempting, assisting, or providing a material support for any of the above activities*.[68]

The President's executive order also followed Congress' inaction on an Administration-supported bill to establish standards for privately owned critical infrastructure, such as telecommunications, electricity, and financial services. Following objections from the business community that even voluntary standards might become mandatory, the bill was defeated. A 2013 executive order establishing the Cybersecurity Framework to encourage adoption of cybersecurity standards is entirely voluntary.[69] Legislation on threat data sharing is pending in Congress.

Following revelations of the breach on the OPM computer network in mid-April, the Administration did not announce any sanctions under the April 1 executive order. The wording of the executive order appears to support the argument that it covers commercial cyber espionage. The order specifies that it is intended to punish those responsible or "complicit" in "malicious cyber-enabled activities that are reasonably likely to result in, or have materially contributed to, a significant threat to the national security, foreign policy, economic health or financial stability of the United States." [70] It also lists the theft of "personal identifiers" as being among the "malicious cyber-enabled activities" covered by the executive order. The standard of evidence for naming any malefactor is low—"a reasonable basis to believe or a reasonable cause to believe." Taken together, this wording appears to include the theft of personal identifiers in the OPM hack as a "malicious cyber-enabled activity" covered by the executive order.[71]

The White House refrained from interpreting whether the executive order would cover commercial espionage but left little doubt that sanctions were being considered. Deputy National Security Adviser Ben Rhodes told reporters September 22 in advance of President Xi's visit to Washington that, "While our preference is resolving this through dialogue, we're not averse to punitive measures, including sanctions, if we feel like there are actors in China and entities that are engaged in activities that are sanctionable."[72] President Obama, in a speech to the Business Roundtable before President Xi's visit noted, "We are preparing a number of measures that will indicate to the Chinese that this is not just a matter of us being mildly upset, but is something that will put significant strains on the bilateral relationship if not resolved, and that we are prepared to [take] some countervailing actions in order to get their attention."[73]

One hurdle to explicitly blaming China, however, may be the reluctance of the Administration to detail the sources and methods used to identify the Chinese government as the originator or the sponsor of the hack. In a briefing describing the circumstances for invoking the sanctions under the executive order, White House Cyber Coordinator Michael Daniel noted that "we will consider whether we have the evidence in a form that we are willing to disclose publicly."[74]

Weighing Defensive and Offensive Countermeasures

As the evidence has increased that nation states are involved in cyber attacks and espionage, the principal response has remained defensive: principally shoring up systems to detect network intrusions and malware. A more offensive strategy has slowly evolved, however, even as its details remain largely classified. The U.S. Department of Defense in 2011 published a doctrine equating the most damaging cyber attacks—those directed against public infrastructure—with an act of war, and theoretically allowing equivalent retaliation.[75] "When warranted, we will respond to hostile attacks in cyberspace as we would to any other threat to our country," the Pentagon said in the report to Congress. "We reserve the right to use all necessary means—diplomatic, informational, military, and economic—to defend our nation, our allies, our partners and our interests." In 2012, then Defense Secretary Leon Panetta made the doctrine more explicit, noting that a cyber attack on the United States resulting in large-scale property destruction and loss of life—a "cyber Pearl Harbor"—could be considered an act of war and could justify proportionate cyber retaliation.[76] Defense Secretary Ashton Carter updated the strategy in 2015 "to fit the age of probe, thievery, and assault over computer networks."[77] At the core of the strategy is a hierarchy of cyber attacks: Fending off routine commercial attacks remains the responsibility of targeted companies. The Department of Homeland Security is responsible for detecting more complex attacks and helping the private sector defend against them. The most damaging attacks would be handled by the military's Cyber Command, which is based at the NSA headquarters in Maryland. "As a matter of principle, the United States will seek to exhaust all network defense and law enforcement options to mitigate any potential cyber risk to the U.S. homeland or U.S. interests before conducting a cyberspace operation," the strategy says.[78]

At a speech at Stanford University unveiling the new doctrine, Secretary Carter defined a major cyber attack as “something that threatens significant loss of life, destruction of property, or lasting economic damage.”[79] The new doctrine also lays out the case for the threat of cyber retaliation to deter attacks, much as the threat of nuclear deterrence kept the missiles from flying during the Cold War:

> *Deterrence is partially a function of perception. It works by convincing a potential adversary that it will suffer unacceptable costs if it conducts an attack on the United States, and by decreasing the likelihood that a potential adversary’s attack will succeed. The United States must be able to declare or display effective response capabilities to deter an adversary from initiating an attack; develop effective defensive capabilities to deny a potential attack from succeeding; and strengthen the overall resilience of U.S. systems to withstand a potential attack if it penetrates the United States’ defenses*.[80]

But as Secretary Carter acknowledged, such a policy is easier to declare than to implement. The overall head of NSA’s Cyber Command, Admiral Michael S. Rogers, has often noted that the price of conducting cyber attacks is still far too low for many countries to resist computer network attacks.[81] Secretary Carter and NSA Director Rogers have said that the United States should develop a plan to signal hackers about the consequences of their actions.[82]

One recent proposal from the Council for Foreign Relations criticizes the Administration for tolerating “incessant cyber-attacks by China on the U.S. government, critical infrastructure, and businesses.”[83] The paper says that “virtually nothing has been done to stop this cyber assault,” and that U.S. “passivity” must end, “especially since there is no way to reach a verifiable cyber-security agreement with China.”[84] The authors believe current U.S. strategy to confront Chinese government commercial espionage lacks the following: (1) the imposition of costs on China that are in excess of the benefits it receives from its violations in cyberspace; (2) increased U.S. offensive cyber capabilities to dissuade China’s leaders from using cyber attacks against the United States and its partners in the region; (3) continued improvement in U.S. cyber defenses, including a law regulating information sharing between intelligence agencies and the corporate world; and (4) legislation, such as the Cyber Information Security Protection Act, allowing businesses to rapidly share intelligence on cyber threats with each other and the government without fear of lawsuits.[85]

In its June hearing, the Commission considered testimony on the idea of government-directed offensive operations against other nation states as a form of retaliation and deterrence. The Commission also considered the possibility of U.S. corporations mounting retaliatory cyber strikes against Chinese companies or seeking damages against companies that either mounted attacks or benefited from information stolen by government or private hackers.

Given that the Internet is a relatively new phenomenon and that war is rooted in ancient history, it is not surprising that internationally recognized laws of war embodied in the Geneva Conventions and elsewhere have not kept up.[86] The authors of an authoritative law review article note that

> *the law of war provides a useful legal framework for only the very small slice of cyber attacks that amount to an armed attack or that take place in the context of an ongoing armed conflict. . . . Other existing legal frameworks—both domestic and international—offer equally fragmentary assistance in addressing cyber attacks through law. Examining existing law leads to a clear conclusion: A new, comprehensive legal framework is needed to address cyber attacks. That framework includes a more robust system of domestic enforcement but a truly effective solution to this global challenge will require global cooperation.*[87]

Mr. Poindexter cautioned that a counterattack could escalate beyond the theft of data to "real destructive mechanisms." [88] Mr. Tiao warned that the many U.S. economic ties with China would make cyber retaliation difficult: "In order to take action against a nation state like China where we have a complex economic and security relationship, it's a little more complicated than taking sort of a quick strike action against, say, the North Koreans with which we don't have a similarly complicated relationship." [89] Mr. Tiao, however, suggested an indictment of individual hackers could form the legal basis for a trade retaliation case or economic sanctions. And, the creation of a Foreign Intelligence Cyber Court could also provide the legal basis for further action. However, noted Mr. Tiao, U.S. companies cannot retaliate or "hack back" without violating current U.S. law * prohibiting computer hacking.

When the Commission on the Theft of American Intellectual Property (IP Commission) examined the issue in 2013, it noted that current U.S. law does not permit corporations that have been hacked to use an an active defense. An "active network defense . . . allows companies not only to stabilize a situation but to take further steps, including actively retrieving stolen information, altering it within the intruder's networks, or even destroying the information within an unauthorized network [and] . . . photographing the hacker using his own system's camera, implanting malware in the hacker's network, or even physically disabling or destroying the hacker's own computer or network." [90] Among the reasons the IP Commission cited for not allowing an active defense are the potential for collateral damage to the Internet and the possibility of doing damage to an innocent third party. The IP Commission recommended further study of the issue while acknowledging that "entirely defensive measures are likely to continue to become increasingly expensive and decreasingly effective, while being unlikely to change the cost benefit calculus of hackers away from attacking corporate networks." [91]

Asked at the June Commission hearing to comment on one suggestion that U.S. intelligence agencies could aid U.S.-based companies whose IP or competitive bids had been stolen by a Chinese company, Mr. Poindexter responded: "We have a lot of restrictions on what the Intelligence Community is allowed to supply a busi-

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* 18 U.S.C. § 1030 criminal law, "Fraud and Related Activity in Connection with Computers."

ness, and the Intelligence Community doesn't want to supply that because they know what the problems are going to be. ... Who do you support? Do you support BAE, a big British company? They are in the United States. They get hacked. What do we do then? Do we do the same kind of work?"

Mr. Tiao suggested that a Section 337 trade act case identifying the stolen IP might be easier to pursue in court rather than an ordinary tort case that would require proof of monetary damages from the theft of IP—far beyond what a U.S. cyber intelligence agency might be able to provide.* Doing so, however, would likely require a publicly traded U.S. company to file an 8–K report with the U.S. Securities and Exchange Commission (SEC). (The report's purpose would be to notify shareholders of a situation that could have a "material" effect on the earnings of a company and, therefore, its share price.) The SEC has not issued guidance specifically on what circumstances would trigger the disclosure requirement in the case of theft of IP through a computer network intrusion. U.S. companies have strongly opposed any requirement that they disclose to the public or to the SEC the intrusions on their computer network.[92] According to the Office of the National Counterintelligence Executive, "no legal requirement to report a loss of sensitive information or a remote computer intrusion exists, and announcing a security breach of this kind could tarnish a company's reputation and endanger its relationships with investors, bankers, suppliers, customers, and other stakeholders."[93]

In the absence of criminal prosecution, U.S. companies may be able to pursue a civil action against a hacker for the theft of IP. In the case of a cyber attack or intrusion from abroad, the civil case might require evidence obtained by a U.S. intelligence agency in order to be successful.† While that has not become commonplace, Mr. Tiao noted that since a 2013 executive order,‡ U.S. intelligence agencies made it "a major priority for the government to push information that the intelligence community was collecting and the law enforcement agencies were collecting in a timely fashion out to companies that had been identified as victims."[94]

Recent Attempts to Negotiate a Solution to Chinese Cyber Espionage

The visit of President Xi to the United States in late September provided an opportunity to raise directly Washington's objections to Chinese commercial cyber espionage, intrusions into U.S. government computer networks, and the imposition of regulations and standards in China meant to disadvantage foreign-based providers

* Section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, allows the seizure by customs authorities of imports that contain stolen IP.

† One possible remedy is Section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, which allows the seizure by customs authorities of imports that contain stolen IP.

‡ Executive Office of the President, Executive Order 13636, "Improving Critical Infrastructure Cybersecurity," February 12, 2013. The National Institute for Standards and Technology was ordered to work with the private sector to develop guidelines on information sharing, privacy, and the adoption of cybersecurity practices. Similar legislation was considered by Congress but did not pass, due in part to opposition from the business community based on fears that voluntary guidelines would eventually become mandatory. The National Institute for Standards and Technology subsequently released a framework agreement in February 2014. The program remains entirely voluntary. Congress is considering new legislation, the Cybersecurity Information Sharing Act, which has been endorsed by the U.S. Chamber of Commerce.

of Internet services. The actual negotiations preceded the official state visit.

The Administration revealed in early September that it had conducted a series of talks in Washington with a Chinese delegation headed by Meng Jianzhu, secretary of the CCP's Central Political and Legal Affairs Commission. He met with a number of high-ranking officials, including National Security Adviser Susan Rice, FBI Director James Comey, Department of Homeland Security Secretary Jeh Johnson, and Secretary of State John Kerry.[95] Mr. Meng said that China "resolutely opposes cyber attacks and cyber espionage" and promised that "whoever carries out cyber attacks and cyber espionage in China violates the national law and will be held accountable by law."[96]

President Xi began his trip to the United States with a stop in Seattle, where he met with executives of some of the top U.S. technology companies, such as Microsoft—the host of the event—Apple, IBM, Facebook, Google, and Cisco Systems. President Xi repeated stock denials that the Chinese government conducts or sponsors or tolerates commercial cyber espionage or attacks on U.S. government agencies. "Both commercial cyber theft and hacking against government networks are crimes that must be punished in accordance with the law or relevant international treaties," President Xi told the conference group.[97] "The Chinese government will not in whatever form engage in commercial theft," he added.[98] After Presidents Xi and Obama met in Washington, DC, the White House distributed a fact sheet stating that the two leaders had agreed that "neither country's government will conduct or knowingly support cyber-enabled theft of intellectual property, including trade secrets or other confidential business information, with the intent of providing competitive advantages to companies or commercial sectors."[99] The two leaders also agreed to establish a "high-level joint dialogue mechanism on fighting cybercrime and related issues" that will meet twice a year. A previous dialogue at a lower level was suspended by the Chinese government to protest the indictment in May 2014 of five PLA officers for cyber espionage.

The form of the announcement—a fact sheet released solely by the White House—along with the lack of any signed document and a lack of precision on the meaning of "cyber theft," "cyber attack," "cyber espionage," "economic espionage," "economic cyber spying," and "cyber-enabled theft of intellectual property," led some to question the level of commitment by both sides.[100] As President Obama said at the joint press conference September 25: "What I've said to President Xi and what I say to the American people is the question now is, are words followed by actions? And we will be watching carefully to make an assessment as to whether progress has been made in this area."[101] The White House fact sheet explained, in part:

> *Further, both sides agree to cooperate, in a manner consistent with their respective national laws and relevant international obligations, with requests to investigate cybercrimes, collect electronic evidence, and mitigate malicious cyber activity emanating from their territory. Both sides also agree to provide updates on the status and results of those investigation to the other side, as appropriate.*

The United States and China agree that neither country's government will conduct or knowingly support cyber-enabled theft of intellectual property, including trade secrets or other confidential business information, with the intent of providing competitive advantages to companies or commercial sectors.[102]

This agreement appears to create a much narrower definition of cyber misbehavior than is encompassed by President Obama's April 1 executive order. That executive order appears to cover the theft of personally identifiable information, such as the Office of Personnel Management theft of the personal details of 22.1 million federal employees, applicants, and contractors.

Regulatory Barriers to Digital Trade in China, and Costs to U.S. Firms

Censorship

China's authoritarian government maintains tight control over the flow of information across and within its borders with a system termed the "Great Firewall." [103] As part of this effort to control dissent by restricting speech, news, and social media, the Chinese government has implemented a policy of replacing foreign IT and Internet providers with Chinese companies. This not only affects human rights in China and skews the thinking of Chinese citizens about the United States and their own country, it also has a profound impact on a large segment of the U.S. economy. At the Commission's June hearing, Mr. Poindexter said that China's government is "not content to manage only their own content; they want to manage ours. . . . China controls the distribution of ideas, modifies them to suit its own needs, removes them, or allows access to them and monitors who has them." [104]

The U.S. economy has much at stake. The United States has the most advanced IT and software industry in the world and accounts for 55 percent of global expenditures on research and development, according to a study by the U.S. Department of Commerce.[105] U.S. firms in digitally intensive industries sold $935.2 billion in products and services online in 2012 (latest data available), including $222.9 billion in exports—about a quarter of the total sales, according to a 2014 study by the U.S. International Trade Commission.[106] That makes the IT and software sector one of the most export-dependent industries in the United States. The U.S. International Trade Commission estimates removing existing foreign barriers to U.S. digital trade would increase the U.S. real gross domestic product (GDP) by an estimated $16.7 billion to $41.4 billion.[107] Since China is the second largest trading partner of the United States, and its other major trading partners—Canada, Japan, and Europe—do not discriminate against U.S. digital products, China's adverse policies are the single-largest drag on U.S. exports of digital services.

The Chinese government heavily regulates, monitors, and controls online content, and requires all market participants in China to comply with vague guidelines and regulations through self-censorship. In cases where foreign sites and services have refused to comply with China's censorship policies, Chinese authorities have blocked online access to them. Examples include the *New York Times*, Bloomberg News, the *Guardian*, Facebook, Picasa, Twitter, Tumblr, Google, Foursquare, Hulu, YouTube, Flickr, Dropbox, and LinkedIn.[108] China's censors can block any search result; in the past, sensitive subjects (including Tibet, Tiananmen Square, the names of dissidents, and the wealth of the families of China's top leaders) and coverage of news events (such as the capsized ferry boat in the Yangtze River near Shanghai and the slow government response to the 2008 Sichuan earthquake) have been or remain blocked. Three organizations that monitor freedom of expression—the Open Network Initiative, Freedom House, and Reporters Without Borders—found China to be a "pervasive" censor.[109]

The Great Firewall directly limits the participation of U.S. information and communication technology (ICT) companies in China's market in a variety of ways:

- Censoring the information available on foreign-based websites or requiring Internet-based companies to self-censor to access the market;
- Using the Great Firewall to slow down or degrade or redirect some foreign web-based services rather than block them outright;
- Blocking access to key words and web page advertising domains;
- Requiring Internet search engines to remove results; and
- Issuing technology mandates that hobble user privacy and security.[110]

In his testimony at the Commission's June hearing, Matthew Schruers, vice president for law and policy at the Computer and Communications Industry Association, noted that orders by Chinese authorities to filter and block information online are "unpublished and unappealable through state control or influence over the communications infrastructure."[111] Mr. Schruers continued, "Some have explained the elaborate Chinese censorship system as being geared towards maximizing the economic benefits of the Internet while maintaining strict social control; whatever the domestic aim of these mechanisms may be, they function, intentionally or not, as unlawful barriers to international trade."[112]

Some cases of discrimination against U.S. firms have been more blatant. Chinese authorities have redirected traffic sent to U.S.-based search engines to Baidu—the China-based competitor to Google, Yahoo, and Microsoft search engines—presumably, in part, because Baidu does not respond to searches for banned terms such as Tiananmen Square massacre, Tibet, Nobel Peace Prize winner Liu Xiaobo, or the artist Ai Weiwei.[113] Stepped-up censorship efforts in recent months include a crackdown on virtual private networks, which are often used by companies and individuals to access secure data and blocked websites. More than 80 percent of U.S. companies surveyed by the American Chamber of Commerce in China in 2015 reported being limited by the censorship of Internet content and websites when conducting business.* Other reported censorship methods include blocking sites by Internet protocol addresses, and blocking and filtering uniform research locators (URLs) and search engine results.

These nontariff market barriers may violate China's World Trade Organization (WTO) commitments to treat foreign and domestic businesses equally. While the WTO has not been asked to rule on the issue, one theory holds that China in particular could be vulnerable to such a charge, based on its relatively sophisticated censorship capabilities. Although countries might successfully claim to impose censorship on moral or religious grounds, "there is a good chance that a panel might rule that permanent blocks [by China] on search engines, photo-sharing applications, and other services are inconsistent with the GATS [General Agreement on Trade in Services] † provisions, even given morals and security exceptions; less resourceful countries, without means of filtering more selectively, and with a censorship based on moral and religious rounds, might be able to defend such bans in the WTO." [114] GATS also stipulates that a system of judicial or administrative review be available to WTO members—a process that is not available in China.[115] By contrast, Chinese Internet firms enjoy a fast-growing and walled-off market on the Mainland while they have unrestricted market access to the United States, including the ability to access U.S. capital markets to fund expansion at home and abroad.[116] To date, the United States has not brought any WTO cases against China on its nontariff barriers against foreign information and communication technology companies.

Regulations and Standards as a Barrier to Trade

The Chinese government is in the process of passing and implementing comprehensive new laws and regulations that affect the use of information and software technology and the Internet and have the potential to limit or exclude U.S. technology companies from key tech-intensive sectors of the Chinese market. Existing regulations combined with new and stricter proposals would impose localization requirements, market access limits, data privacy and protection requirements, IP rights infringement, and uncertain legal liability rules. Among the digitally intensive industries affected are: newspapers, periodicals, books, directories and mailing lists, motion pictures, sound recordings, video and music production and distribution, broadcasting, news syndicates, banking and insurance, credit card transactions, online retail trade, and wholesale trade in business-to-business transactions.[117] As part of the effort, the Chinese government asked U.S. technology companies over the summer to sign a pledge that they would, among other commitments, store Chinese user data within the country and provide the government access to its networks and, according to some interpretations, encryption keys and source code.[118]

According to testimony from Samm Sacks, a technology analyst at the Eurasia Group in Washington, U.S. technology companies

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* The figure in 2013 was 55 percent. American Chamber of Commerce in China, "China Business Climate Survey Report," May 2015, 30.

† GATS is an international trade agreement within the WTO.

may be required by China's central government to "undergo invasive audits, turn over source code, and provide encryption keys for surveillance." [119] The key legislation and policy directives that have been proposed or are under consideration include:

- A purge of foreign firms from government-sanctioned procurement lists;
- Restrictions on foreign equipment in the banking sector requiring suppliers to meet "secure and controllable" standards;
- A draft counterterrorism law compelling telecom and Internet companies to provide encryption keys to enable government surveillance on stored data on local Chinese servers;
- A new national security law that will expand Beijing's regulatory powers under a broad and far-reaching definition of national security and calls for sovereignty in cyberspace;
- Creation of a cyberspace review body to evaluate security for all Internet and IT products;
- A new cybersecurity law or framework; and
- A 13th Five-Year Plan for software and "big data" focused on boosting data security for SOEs, financial institutions, and government agencies.[120]

National Security Law

The central government's Standing Committee approved a new National Security Law on July 1 that expands the nation's authoritative rule over a far greater list of "core interests," including control over the press, social media, and the entire Internet in China, which must be made "secure and controllable." [121] Zheng Shuna, a National People's Congress official, explained at the unveiling of the new National Security Law in Beijing that "Internet space within the territories of the People's Republic of China is subject to the country's sovereignty." [122] He added that "the country must defend its sovereignty, security, and development interests. It must also maintain political and social stability. . . . Any government will stand firm and will not leave any room for disputes, compromises, and interference when it comes to protecting core interests. China is no exception." [123] (For more information, see Chapter 1, Section 2, "Foreign Investment Climate in China.")

Cybersecurity Law

A week after the new national security law received approval, China's central government proposed a cybersecurity law that would likely put the Cyberspace Administration of China and the Ministry of Industry and Information Technology in charge of "comprehensively planning and coordinating network security efforts and related supervision and management efforts." [124] The law is intended to "ensure network security, to preserve cyberspace sovereignty, national security and societal public interest, to protect the lawful rights and interests of citizens, legal persons and other organizations, and to promote the healthy development of economic and social information," according to the draft.[125] Among the 67 articles in the draft are several declaring that network providers are responsible for the material on their websites, which must not contain “state secrets”—a term with a constantly shifting meaning that can include information the government has already made public. Network providers must also ensure that those using their service are identifiable to the government. “Critical information infrastructure operators” are required to exclusively store data on servers within China.[126] Foreign companies seeking to obtain Internet service provider licenses in China must partner with a domestic company that holds a license.[127]

Foreign Investment Control

China’s insistence on applying the principle of sovereignty to the Internet, which respects no borders, “suggests that the Chinese government is pursuing a policy strategy that could eventually over the long term lead to fragmentation of the U.S.-led global Internet,” Ms. Sacks told the Commission.[128] The concept also is likely to provide the legal basis for an expanded protocol for national security reviews of inbound foreign investment, which is also in the draft of a new foreign investment law. The policy, warned Ms. Sacks, could justify restricting inbound foreign investment on the basis of “strategic, economic, social, ideological, and technical readings of national security.”[129] (For more information, see Chapter 1, Section 2, “Foreign Investment Climate in China.”)

Banking Regulations

The China Banking Regulatory Commission also decreed last September that financial institutions in China must increasingly use “secure and controllable” ICT products and services in order to “meet banking information security requirements.”[130] The goal, according to the China Banking Regulatory Commission, is for 75 percent of ICT products in Chinese banking institutions to be considered “secure and controllable” by 2019. Less than 15 percent of banks operating in China meet the criteria.[131] The new rules accompany China’s efforts to reduce its reliance on U.S. technology, a plan that “picked up steam after former U.S. National Security Agency contractor Edward Snowden alleged in 2013 that the U.S. government used some of the country’s technology firms to spy on foreign governments,” according to some news accounts.[132]

While “secure and controllable” is not defined in the national security, cybersecurity, or banking laws, business groups have interpreted it as an excuse to favor Chinese software, hardware, and services over foreign competing products.[133] A January 28 letter signed by 18 U.S. business groups addressed to the CCP Central Leading Group for Cyberspace Affairs warned that under the banking regulation, ICT products and services would be required to “undergo intrusive security testing, contain indigenous Chinese intellectual property (IP), implement local encryption algorithms, comply with country-specific (Chinese) security standards, disclose source code and other sensitive and proprietary information to the Chinese government, and engineer their products so as to restrict the flow of cross-border data.”[134] In the letter, the U.S. business groups suggested these policies would effectively exclude sales of

U.S. hardware, software, and services to Chinese banks, and would violate China's WTO commitments to refrain from technical barriers to trade and to not discriminate against imports.[135] In addition, disclosing source code could provide government hackers access to private computer networks.

Subsequent letters signed by U.S. ICT business associations and Republican House leaders urged the Chinese leadership to postpone implementation pending further dialogue. In response to unnamed "financial institutions and related parties," the China Banking Regulator Commission instructed Chinese banks on April 13 to temporarily "suspend implementation" of the rules, which are expected to be revised and reissued after integrating suggestions from relevant domestic parties.[136] However, Ms. Sacks told the Commission at its June hearing that the banking law "remains in play" and is unlikely to be altered in any substantial way.[137] Indeed, in August, the China Banking Regulatory Commission summoned to a meeting several Western technology companies, including IBM, Microsoft, and Cisco Systems Inc., and told them the banking regulations were being revived, jeopardizing hundreds of millions of dollars in revenue for foreign tech companies selling a wide range of products from servers to cloud computing software.[138] In addition to revelations of NSA cyberspying, Chinese officials cited as justification for the impending restrictions on foreign technology the opposition in Congress to purchases by U.S. telecommunications companies of equipment manufactured by the Chinese IT companies Huawei and ZTE.[139]

Counterterrorism Law

China's draft counterterrorism law presents another obstacle for foreign ICT firms. Expected to go into effect in the coming months, the law would require ICT firms to submit encryption keys to the Chinese government and to install security back doors to allow access to government officials. The initial draft of the law requires companies to keep servers and user data within China (localization), provide communications records to law enforcement authorities, and censor terrorism-related Internet content.[140]

According to President Obama, the counterterrorism provisions "would essentially force all foreign companies, including U.S. companies, to turn over to the Chinese government mechanisms where they can snoop and keep track of all the users of those services. . . . [T]hey are going to have to change [the ICT policy] if they are to do business with the United States."[141]

In response to this criticism, National People's Congress spokeswoman Fu Ying said the ICT proposals in China's draft counterterrorism law were "in accordance with the principles of China's administrative law as well as international common practices, and won't affect Internet firms' reasonable interests."[142] She pointed to Edward Snowden's allegations that operatives of the NSA and its British equivalent, the Government Communications Headquarters, hacked into the internal computer network of the Dutch multinational firm Gemalto, the largest manufacturer of subscriber identity module (SIM) cards in the world, stealing encryption keys that can be used to monitor mobile communications.[143]

Less obvious but of equal importance to the new regulations is the reorganization of China's Internet regulatory authority, Ms. Sacks told the Commission at the June hearing. President Xi Jinping has assumed the top post at the Central Leading Small Group for Network Security and Informationization. The agency was created in February 2014 to consolidate the leadership's role, which had been fragmented. Of the 22 members of the group, according to Ms. Sacks, half hold the most senior rank among Party, military, and government officials. In the top-down Chinese government where the Party occupies the pinnacle, this agency is expected to be the last word on policy and implementation.[144]

Import Substitution Policies

To boost its homegrown technology sector and address its cybersecurity concerns, China is shifting from foreign to domestic technology suppliers in sensitive segments of the economy by 2020, including banking, military, SOEs, and key government agencies.[145] House Republican leaders say that if these new ICT policies are fully implemented, they will "negatively impact other sectors, such as banking, manufacturing, and health care, and harm the U.S. economy and jobs due to falling sales, outright theft of business secrets, and companies simply leaving the market."[146]

The Chinese government has started to implement these policies. The number of foreign technology brands on China's list of ICT products approved for government purchase fell by one-third, while more than half of foreign suppliers of security-related products were dropped from the approval list.[147] For example, the number of government-approved products made by U.S. network equipment maker Cisco Systems Inc. fell from 60 in 2012 to zero in 2014.[148] In some cases, U.S. companies that lose business operating licenses or government procurement approval will be forced to partner with a Chinese firm to preserve at least some business for their Chinese affiliate company.

Internet Plus

Ms. Sacks also noted two related policies implemented by President Xi—the Made in China 2025 initiative and the Internet Plus plan—as the main channels to promote local high-value-added technology sectors as the economy slows.[149] (See Chapter 1, Section 3, "China's State-Led Market Reform and Competitiveness Agenda," for discussion of the Made in China 2025 plan.) The Internet Plus plan seeks to capitalize on China's huge online consumer market by building up the country's domestic mobile Internet, cloud computing, big data, and the "Internet of Things,"* and to create global competitors by assisting domestic firms' expansion abroad.[150] China's Internet Network Information Center reported there were 649 million Internet users and 557 million mobile device users in China as of December 2014, far outstripping the second-largest Internet user country, the United States.[151] McKinsey & Company, a global management and consulting firm, estimated

*The Internet of Things is the interconnectivity between physical objects such as a smartphone or electronic appliance via the Internet that allows these objects to share data. For more information, see Harald Bauer, Mark Patel, and Jan Veira, "The Internet of Things: Sizing Up the Opportunity," *McKinsey & Company*, December 2014.

that starting in 2013, e-commerce would contribute up to 22 percent of China's productivity growth by 2025 and fuel between 7 and 22 percent of the total GDP through 2025.[152] Furthermore, McKinsey estimated e-commerce could create 46 million new jobs between 2013 and 2025.[153]

U.S. technology firms seeking to enter the fast-growing Chinese market face increasing costs of doing business due to censorship-related restrictions, onerous regulations, and preferential support for domestic firms.[154] Because Google, Facebook, Twitter, and YouTube remain blocked in China due to their refusal to censor content, domestic copycats such as Baidu, RenRen, Weibo, and Youku have filled the gap.[155] (See Chapter 1, Section 2, "Foreign Investment Climate in China," for further discussion of China's investment climate for foreign firms.)

Implications for the United States

China's increasing use of cyber espionage directed against commercial targets in the United States and abroad has already cost U.S. companies tens of billions of dollars in lost sales and the expenses of repairing and remediating the damage. The largest and most sophisticated cyber attacks have been traced to government-sponsored or government-run teams of hackers in China. In many cases, the trade secrets and confidential information about bidding and business strategy have been turned over to Chinese government-owned competitors. This has led to the creation of global competitors to U.S. companies and industries, where none would otherwise exist. Some of those IP thefts have done harm to the national security and the economy of the United States, particularly because they have targeted large U.S. defense contractors such as Northrup Grumman and Lockheed Martin.

The United States has relied on a passive defense, and the U.S. government has failed to create an overall strategy to counter the increasingly sophisticated cyber attacks on some of our most valuable technology companies. Legislation to encourage U.S. companies to share information about cyber intrusions among each other and to voluntarily report theft of their information to the government has not been enacted into law. U.S. law has not kept up with the challenges posed by cyber attacks from government-sponsored hackers, nor does international law adequately address the issue. Although some policy discussions on offensive operations to counter cyber attacks have taken place, nothing has been decided. As a result of this inertia, the United States remains unable to thwart state-sponsored or state-supported cyber attacks.

The United States has the most advanced and globally integrated digital economy in the world.[156] Exports from its digitally intensive industries make up nearly a quarter of total industry sales.[157] Of the world's 35 digital "category kings," the United States claims half, including such names as Google, Facebook, Twitter, LinkedIn, YouTube, and Instagram. There are currently 83 U.S. based, venture-backed companies founded since 2000 that have reached a $1 billion valuation.[158] But that success is jeopardized by a concerted Chinese government effort to wall off the fastest-growing market in the world for digital commerce.

China is employing a combination of censorship, regulations, and support for homegrown companies over international competitors. Longstanding censorship has already forced major U.S. companies to limit their business dealings in China or to exit the country. Meanwhile, the Chinese government has been removing foreign software and hardware companies from its official procurement lists in an effort to shift buying to domestic information and communications technology companies. The result will be the continuing loss of market access for U.S. firms, declining revenue, and a reduction in jobs in the United States.

Conclusions

- China's government conducts and sponsors a massive cyber espionage operation aimed at stealing personally identifiable information and trade secrets from U.S. corporations and the U.S. government. Some of the stolen information is provided to Chinese state-owned businesses that compete with U.S. firms in China and abroad. Other recipients of U.S. trade secrets include sectors of the Chinese economy that the central government designated as Strategic Emerging Industries, which China intends to nurture into global competitors.
- The cost to the U.S. economy and to U.S. companies of government-sponsored cyber theft has been on the rise as network intrusions have become more sophisticated and harder to detect. The financial damage results from the loss of trade secrets such as copyrights and patents, manufacturing processes, foregone royalties, the costs of cyber defense, the loss of business and jobs, and the expense of remediating and repairing the damage to computer networks.
- U.S. cybersecurity companies and the Federal Government have become more adept at attributing computer network attacks to specific countries and to groups of hackers within those countries. Their willingness to release details on the culprits has also increased. U.S. companies have also become more willing to reveal details of the attacks on their computer networks.
- The U.S. reaction to the increasing number and sophistication of foreign cyber espionage and malicious network attacks has been mostly defensive. U.S. law does not allow retaliatory cyber attacks by private citizens and corporations, nor does it appear to allow counterintrusions (or "hack backs") for the purpose of recovering, erasing, or altering stolen data in offending computer networks. International law has not kept up with developments in cyber warfare, and no international consensus exists on how to attribute or appropriately respond to cyber attacks. However, a policy discussion on the issue of offensive and retaliatory cyber operations has begun.
- The Chinese government appears to believe that it has more to gain than to lose from its cyber espionage and attack campaign. So far, it has acquired valuable technology, trade secrets, and intelligence. The costs imposed have been minimal compared to the perceived benefit. The campaign is likely to continue and may well escalate as the Chinese Communist Party leadership con-

tinues to seek further advantage while testing the limits of any deterrent response.

- The Chinese government maintains strict censorship controls over the flow of information across and within its borders, and holds Internet providers, websites, search engines, and online news media responsible for censoring their content on the basis of vague guidelines and arbitrary rulings. The Chinese government's obsession with limiting citizen access to information harms U.S. companies attempting to compete in China. Some U.S. companies have faced retaliation, including the filtering or outright blocking of their websites, and all foreign companies risk loss of business licenses for violating the Chinese government's unpredictable sensitivities.
- The Chinese government is in the process of passing comprehensive new laws and regulations on cybersecurity that would affect trade in digital goods and services in a wide range of industries, including the news media, banking, credit card transactions, online retail trade, entertainment media, and telecommunications. Some of the new rules would have the effect of excluding U.S. companies from participating in the world's fastest-growing digital market by requiring, for example, that servers containing information about Chinese citizens and companies be located exclusively in China, and that companies doing business in China provide encryption keys to allow government entry into their databases.

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RECOMMENDATIONS

Foreign Investment Climate in China

The Commission recommends:

- Congress assess the ability of, and if necessary amend, existing U.S. trade laws to address China's industrial policies, abusive legal or administrative processes, and discriminatory treatment of foreign investors, and to determine the consistency of these practices with China's World Trade Organization commitments.
- Congress consider legislation requiring the President to submit a request to Congress for approval before any change occurs, either for the country as a whole or for individual sectors or entities, in China's status as a non-market economy. Under such legislation, any change to China's designation could not proceed without the consent of both Houses of Congress.
- Congress consider legislation conditioning the provision of market access to Chinese investors in the United States on a reciprocal, sector-by-sector basis to provide a level playing field for U.S. investors in China.
- Congress direct U.S. antitrust enforcement agencies to conduct an analysis and legal assessment of alleged anticompetitive behavior by Chinese antitrust enforcers, and report in full on enforcement activities.
- Congress expand the guidelines for consultation and transparency relating to trade negotiations covered by Trade Promotion Authority to include negotiations on a Bilateral Investment Treaty between the United States and China.
- Congress require the Administration to provide a comprehensive, publicly-available assessment of Chinese foreign direct investments in the United States prior to completion of negotiations on a Bilateral Investment Treaty. This assessment shall include an identification of the nature of investments, whether investments received support, of any kind, from the Chinese government and at which level (national, provincial, or municipal), and the sector in which the investment was made.
- Congress urge the U.S. Trade Representative to initiate consultations with China's Ministry of Commerce to identify the extent to which China's policy regarding subsidies and other incentives for purchases of domestically-produced new energy vehicles may violate its World Trade Organization commitments and what steps should be taken to address any inconsistencies with those commitments.

China's State-led Market Reform and Competitiveness Agenda

The Commission recommends:

- Congress direct the U.S. Government Accountability Office to prepare a report that analyzes U.S. exposure to China's financial sector, the progress of China's financial sector reforms, and the effect of China's financial sector reforms on the U.S. and global financial systems, and identifies the policies the U.S. government is adopting to protect U.S. interests in light of this changing environment.
- Congress urge the U.S. Department of Commerce to undertake a comprehensive review and prepare a report on China's Made in China 2025 and Internet Plus initiatives, including their forced localization of manufacturing and research and development requirements, to determine their potential impact on domestic U.S. production and market access for U.S. firms.
- Congress direct the U.S. Environmental Protection Agency, U.S. Department of Energy, and U.S. Department of Commerce to jointly prepare a report that outlines China's stated targets to address pollution and climate change, and evaluates whether the Chinese government has allocated sufficient resources (including expenditures) to meet those commitments.

Commercial Cyber Espionage and Barriers to Digital Trade in China

The Commission recommends:

- Congress assess the coverage of U.S. law to determine whether U.S.-based companies that have been hacked should be allowed to engage in counterintrusions for the purpose of recovering, erasing, or altering stolen data in offending computer networks. In addition, Congress should study the feasibility of a foreign intelligence cyber court to hear evidence from U.S. victims of cyber attacks and decide whether the U.S. government might undertake counterintrusions on a victim's behalf.
- Congress require the Administration prepare an annual classified report on foreign government-sponsored cyber attacks against all Federal Government agencies, including but not limited to an assessment of the damage and the affected agencies' plans to secure their networks against further attacks.
- Congress consider legislation amending the Federal Information Security Modernization Act of 2014 to require an annual review by the U.S. Department of Homeland Security of the steps taken by all federal agencies to ensure that adequate systems are in place to protect cyber assets.
- Congress pass legislation to require the Securities and Exchange Commission (SEC) to make clear to publicly traded companies and their investors the circumstances under which the theft of intellectual property through a computer network intrusion may be a material fact that might affect a company's revenues and should therefore be required to be disclosed to the SEC.

- Congress evaluate existing consumer right-to-know laws to determine whether a cloud-based computing company has an affirmative duty to identify the physical location of its cloud-based assets.