



2012

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of the

**U.S.-CHINA ECONOMIC AND
SECURITY REVIEW COMMISSION**

**EXECUTIVE SUMMARY AND
RECOMMENDATIONS**

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SECOND SESSION

NOVEMBER 2012

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The Commission was created on October 30, 2000, by the Floyd D. Spence National Defense Authorization Act for 2001 §1238, Pub. L. No. 106-398, 114 STAT. 1654A-334 (2000) (codified at 22 U.S.C. §7002 (2001), as amended by the Treasury and General Government Appropriations Act for 2002 §645 (regarding employment status of staff) & §648 (regarding changing annual report due date from March to June), Pub. L. No. 107-67, 115 STAT. 514 (Nov. 12, 2001); as amended by Division P of the "Consolidated Appropriations Resolution, 2003," Pub. L. No. 108-7 (Feb. 20, 2003) (regarding Commission name change, terms of Commissioners, and responsibilities of Commission); as amended by Pub. L. No. 109-108 (H.R. 2862) (Nov. 22, 2005) (regarding responsibilities of Commission and applicability of FACA); as amended by Pub. L. No. 110-161 (Dec. 26, 2007) (regarding changes in annual report due date; submission of financial reports; printing and binding of Congressional reports; employee compensation and performance reviews; and applicability of House rules for travel by members and staff).

The Commission's full charter <http://www.uscc.gov/about/charter.php> and Statutory Mandate <http://www.uscc.gov/about/overview.php> are available via the World Wide Web.

IN MEMORIAM

This Report is dedicated to the memory of Timothy L. Lipka, who faithfully served the Commission as Staff Assistant. He was a trusted and highly valued member of the Commission's staff. Tim's passing on July 1, 2012, was tragic and untimely. He is deeply missed by all who knew him.

U.S.-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION

NOVEMBER 9, 2012

The Honorable Daniel Inouye,
President Pro Tempore of the U.S. Senate, Washington, DC 20510
The Honorable John Boehner,
Speaker of the U.S. House of Representatives, Washington, DC 20510

DEAR SENATOR INOUE AND SPEAKER BOEHNER:

On behalf of the U.S.-China Economic and Security Review Commission, we are pleased to transmit the Commission's 2012 Annual Report to the Congress—the tenth major Report presented to Congress by the Commission—pursuant to Public Law 106–398 (October 30, 2000), as amended by Public Law No. 109–108 (November 22, 2005). This report responds to the mandate for the Commission “to monitor, investigate, and report to Congress on the national security implications of the bilateral trade and economic relationship between the United States and the People's Republic of China.” In this Report, the Commission reached a broad and bipartisan consensus; it approved the Report unanimously, with all 12 members voting to approve and submit it.

In accordance with our mandate, this Report, which is current as of November 9, includes detailed treatment of our investigations of the areas identified by Congress for our examination and recommendation. These areas are:

- **PROLIFERATION PRACTICES**—The role of the People's Republic of China in the proliferation of weapons of mass destruction and other weapons (including dual-use technologies), including actions the United States might take to encourage the People's Republic of China to cease such practices;
- **ECONOMIC TRANSFERS**—The qualitative and quantitative nature of the transfer of United States production activities to the People's Republic of China, including the relocation of high technology, manufacturing, and research and development facilities, the impact of such transfers on United States national security, the adequacy of United States export control laws, and the effect of such transfers on United States economic security and employment;
- **ENERGY**—The effect of the large and growing economy of the People's Republic of China on world energy supplies and the role the United States can play (including joint research and development efforts and technological assistance), in influencing the energy policy of the People's Republic of China;
- **ACCESS TO UNITED STATES CAPITAL MARKETS**—The extent of access to and use of United States capital markets by the People's Republic of China, including whether or not existing disclosure and transparency rules are adequate to identify People's Republic of China companies engaged in harmful activities;
- **REGIONAL ECONOMIC AND SECURITY IMPACTS**—The triangular economic and security relationship among the United States, Taiwan, and the People's Republic of China (including the military modernization and force deployments of the People's Republic of China aimed at Taiwan), the national budget of the People's Republic of China, and the fiscal strength of the People's Republic of China in relation to internal instability in the People's Republic of China and the likelihood of the externalization of problems arising from such internal instability;
- **UNITED STATES–CHINA BILATERAL PROGRAMS**—Science and technology programs, the degree of noncompliance by the People's Republic of China with agreements between the United States and the People's Republic of China on prison labor imports and intellectual property rights, and United States enforcement policies with respect to such agreements;

- **WORLD TRADE ORGANIZATION COMPLIANCE**—The compliance of the People’s Republic of China with its accession agreement to the World Trade Organization (WTO); and
- **FREEDOM OF EXPRESSION**—The implications of restrictions on speech and access to information in the People’s Republic of China for its relations with the United States in the areas of economic and security policy.

The Commission conducted its work through a comprehensive set of six public hearings, taking testimony from over 59 witnesses from the Congress, the executive branch, industry, academia, policy groups, and other experts. For each of its hearings, the Commission produced a transcript (posted on its website—www.uscc.gov). The Commission also received a number of briefings by officials of executive branch agencies, intelligence community agencies, and the armed services, including classified briefings on China’s cyber operations and military and commercial aerospace modernization. (The Commission is preparing a classified report to Congress on those topics.)

Commissioners also made an official delegation visit to the Philippines, China, and Taiwan to hear and discuss perspectives on China and its global and regional activities. In these visits, the Commission delegations met with U.S. diplomats, host government officials, representatives of the U.S. and foreign business communities, and local experts.

The Commission also relied substantially on the work of its excellent professional staff, and supported outside research in accordance with our mandate.

The Report includes 32 recommendations for Congressional action. Our ten most important recommendations are at the conclusion of the Executive Summary.

We offer this Report to the Congress in the hope that it will be useful as an updated baseline for assessing progress and challenges in U.S.-China relations.

Thank you for the opportunity to serve. We look forward to continuing to work with you in the upcoming year to address issues of concern in the U.S.-China relationship.

Yours truly,



Dennis C. Shea
Chairman



William A. Reinsch
Vice Chairman

INTRODUCTION

China is undergoing a period of intense political transition and economic challenge that will test the ability of the Chinese Communist Party (CCP) to maintain its control over the country. The CCP has staked its legitimacy on continued economic growth in order to maintain the support of its middle class and its restive rural population of 700 million. To keep Chinese factories full and provide jobs to the rural millions seeking a better life in the cities, the party recognizes that the Chinese economy must continue economic growth and expand the social safety net. If growth is to continue, however, it will be necessary to implement politically difficult reform.

China's 12th Five-Year Plan (2011–2015) calls for the government to rebalance the economy toward domestic consumption and away from its historic reliance on export-led growth and vast infrastructure investments. The plan also encourages more government services, health care, education and pension reform, and a shift from resource-intensive manufacturing to the production of higher value-added goods. These reforms would benefit the American economy by further opening China to U.S. goods. The United States has long encouraged such market reform in China and has welcomed China's first steps to expand government services, particularly in rural areas.

Unfortunately, in recent years China has been backsliding from market reforms in favor of an increased role of the state in the economy. China's response to the global financial crisis also had the effect of strengthening its state sector by disproportionately benefitting state-owned companies. To date, China has failed to make significant moves to rebalance its economy, reduce export dependence, and increase domestic consumption. While such widespread economic reforms are difficult to implement, and while vested interests, such as exporters, are likely to oppose reforms that make it more difficult for their sectors to thrive, China is faced with a stark choice. As its economic growth slows and its export markets shrink, China can either transition to a new, rebalanced economy or face stagnation and even decline.

While China must resist the temptation to stay the comfortable but unsustainable course of the export-led economy it has nurtured over the past two decades, it faces a different dilemma in foreign affairs. Since 1989, China has maintained a long-standing policy following Deng Xiaoping's admonition to "hide your capacities, bide your time, accomplish things where possible." However, China's continuing military modernization is strengthening its confidence and ability to advance Chinese government interests, especially in the Asia Pacific. For example, China has been relentless in upholding what it insists is the legitimacy of its territorial claims in the East and South China seas. China's increased assertiveness has escalated regional tensions, prompting other countries to bolster their own defense capabilities and form or strengthen security partnerships. The United States has responded to China's muscular naval posture in the Pacific by planning to deploy more warships to the Pacific over the coming years. China is faced with another choice: either adhere to internationally recognized norms of behavior for freedom of navigation and the resolution of territorial disputes or face growing opposition from its neighbors and other members of the international community.

China and the United States are growing increasingly interdependent. The United States looks to China to rebalance its economy, and China needs to increase imports and domestic consumption. What the United States wants from the relationship with China is clear: the reciprocal and balanced trade relationship that we should have with a World Trade Organization partner and for China to respect the rule of law both domestically and abroad.

In the middle of a once-in-a-decade change in the top leadership of the Chinese Communist Party, Chinese and international observers are looking toward the next generation of leaders to determine how China will manage this important period of transition. Much has been said about the personalities of Xi Jinping, the expected future general secretary of the CCP and president of China, and Li Keqiang, the expected future premier of China. Due to the opacity of Chinese politics, it is difficult to assess how these two individuals will influence the CCP and the Chinese government. However, a few things are clear. First, internal political struggles in the CCP will likely continue, and retired leaders Jiang Zemin and Hu Jintao, and their supporters, will continue

to exercise significant influence. Second, the Politburo Standing Committee, China's top leadership body, is unlikely to be dominated entirely by any particular individual or political faction, which will necessitate compromise among China's leaders. Third, China's state-owned enterprises will likely continue to operate in the interest of the party as well as in their own self-interest. Fourth, the People's Liberation Army is likely to remain a powerful political force, both taking direction from and influencing CCP and Chinese government leadership. Finally, public security organs and the People's Armed Police will probably increase surveillance and control of the populace.

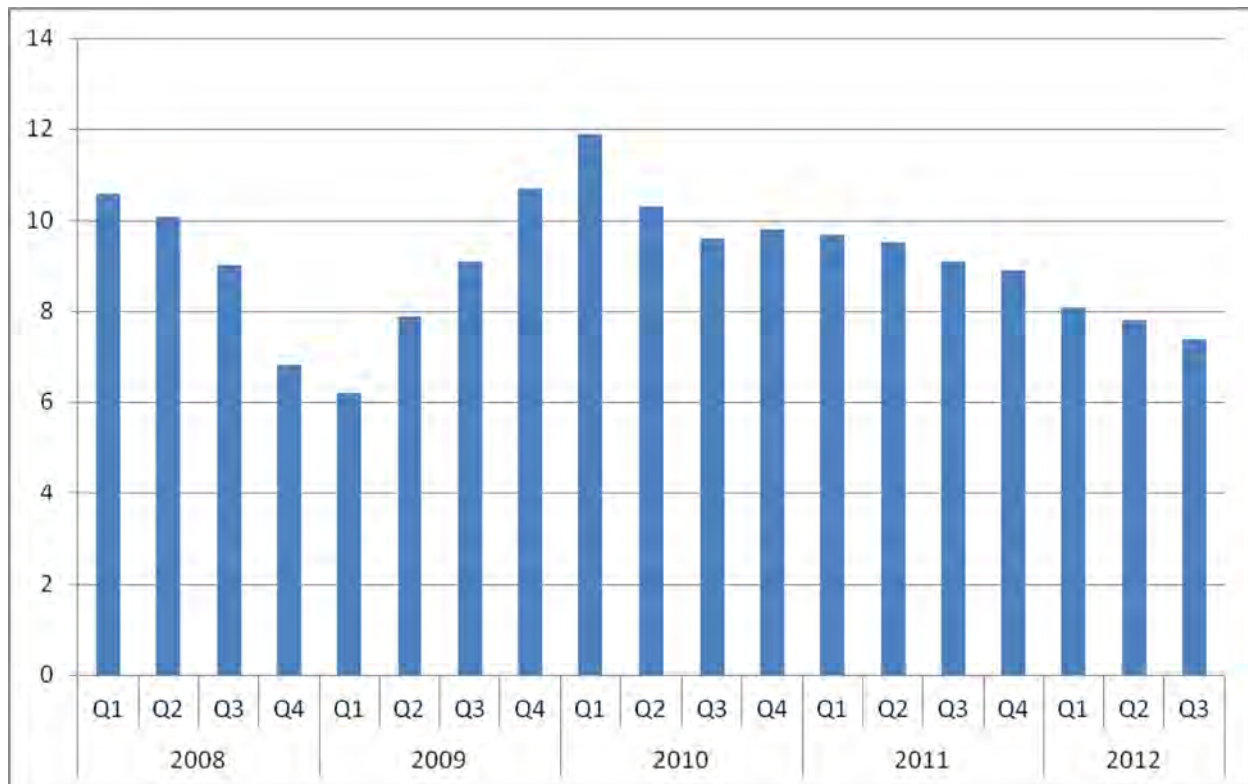
These developments suggest that the United States will continue to face a range of challenges when dealing with China. The United States should demand reciprocity and seek mutual benefit in its relationship with China, and both nations should remain mindful of our interdependence. Our nations would both be better off as partners rather than competitors; however, this will depend on whether China is willing to make the reforms necessary for it to transition into a responsible actor on the global stage.

EXECUTIVE SUMMARY

Chapter 1: The U.S.-China Trade and Economic Relationship

When Chinese Premier Wen Jiabao announced this year's annual growth target of 7.5 percent in March, most analysts dismissed it as false modesty: The Chinese economy has consistently outperformed annual targets over the past decade, averaging close to 11 percent growth, despite the 2008–2009 global financial crisis. But with activity cooling much more than expected in recent months, the 7.5 percent target is starting to look ambitious. China's economy grew 7.4 percent in the third quarter of 2012, the seventh consecutive quarter of decelerating growth, as demand for Chinese goods and services at home and abroad slackened. If this trend continues, full-year growth is on course for its weakest showing since 1999. The government had hoped that increasing exports would help bolster the economy despite flagging domestic demand. Instead, exports are at risk of becoming a drag on the economy after slumping to just 1 percent annual growth in July 2012, from 11.3 percent in June.

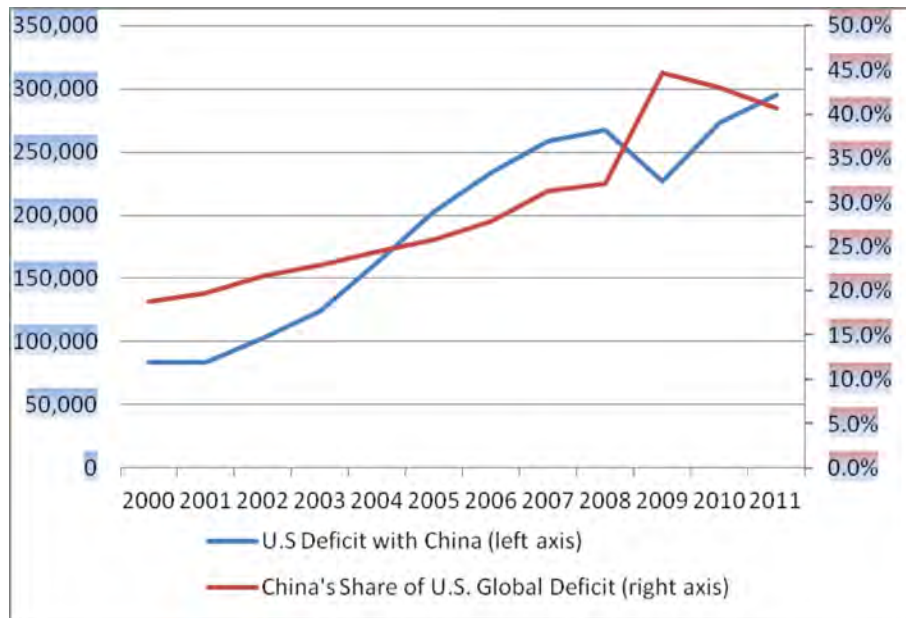
Figure 1: Chinese GDP, Quarterly, Change Year-on-Year (in percent), 2008–2012



Source: Chinese National Bureau of Statistics.

Although the U.S. trade deficit in goods with China fell in 2009 as a result of the global recession, it has since surged, reaching a record high of \$295.4 billion in 2011, up from \$273.1 billion in 2010. For the first eight months of 2012, the United States exported \$69.9 billion worth of goods to China and imported \$273.1 billion from China, for a deficit of \$203.1 billion. The deficit in goods with China is by far the largest among U.S. trading partners and 40.6 percent of the total in 2011. Currency appreciation leveled out in 2012: The renminbi (RMB) did not appreciate as much as in 2011, and there are even signs that the Chinese government may devalue the RMB to boost exports.

Figure 2: U.S. Deficit with China (in U.S. \$ million) and China's Share of the U.S. Global Goods Trade Deficit (in percent), 2000–2011

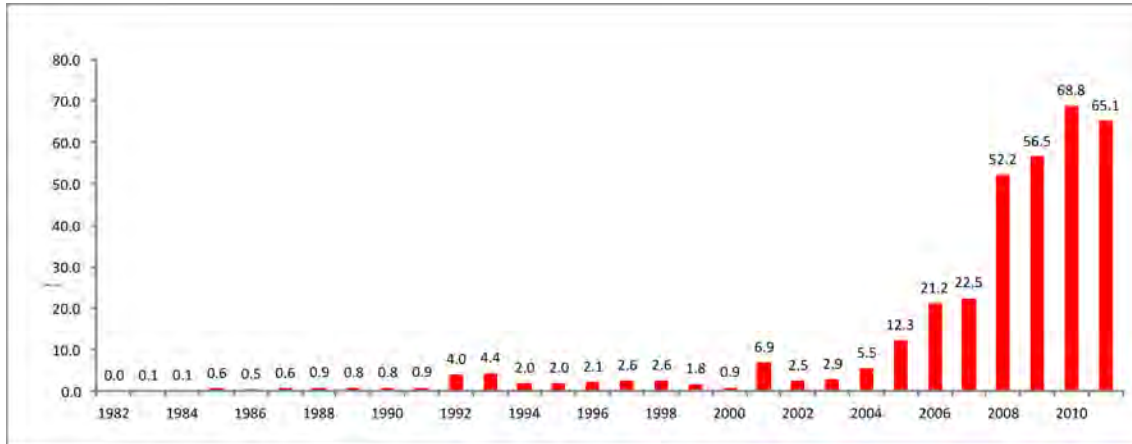


Source: U.S. Census Bureau, *U.S. Trade in Goods and Services* (Washington, DC: U.S. Department of Commerce, August 2012).

Rebalancing China's economy to one less dependent on exports and more focused on meeting the needs of China's consumers was declared a top priority by the governments of the United States and China. As Under Secretary of the Treasury Lael Brainard stated in July, rebalancing is imperative for China to avoid the "middle-income trap" and to navigate its demographic transition to a society of fewer workers and more retirees. However, under the pressure of declining growth, China is backsliding to continue its overreliance on fixed investment and government spending to power growth.

Despite three decades of economic reform, state-owned and state-controlled enterprises still account for as much as half of the Chinese economy. Their political influence within China and their ability to compete on a global scale are both on the rise, and China's industrial policy envisions an ever larger role for the state sector, particularly in support of China's exports and overseas investments. Government corporations provide the means for the central government to designate and control important segments of the economy. At the same time, the government employs its corporations to advance its foreign policy objectives and international commercial interests. Many, if not all, of the corporate officials chosen by the Chinese Communist Party (CCP) Central Organization Department are party members, and many of them become part of a revolving managerial class that cycles through the hierarchy of China's largest state-owned enterprises (SOEs). All the 130 leaders of the largest state-owned companies in 2011 were CCP members. In addition, 20 SOE executives served in 2010 on the CCP's Central Committee, which elects the ruling Politburo.

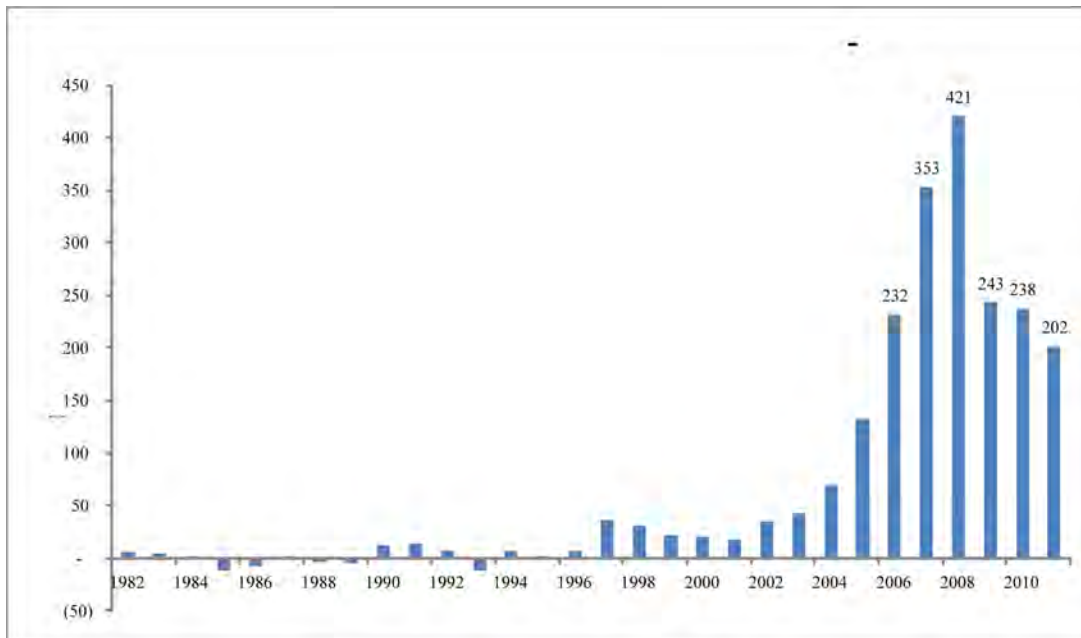
The existence of state-owned and state-controlled enterprises presents numerous challenges to U.S. corporate competitors in three distinct venues: within China, within the United States, and in third-country markets. Because SOEs are the preferred supplier for all levels of government in China, U.S. companies face a variety of discriminatory barriers to sales there. The same subsidies and preferences enjoyed by the state sector in China when competing with foreign companies in China also make Chinese SOEs stronger competitors in the U.S. market and third-country markets.

Figure 3: China's Foreign Direct Investments (in U.S. \$ billion), 1982–2010

Source: United Nations Conference on Trade and Development, (New York, Statistical Database). <http://unctadstat.unctad.org/TableViewer/tableView.aspx>.

The influence of the Chinese state over Chinese private companies is also a concern. The Chinese government exerts its authority over the private sector in a number of ways, including subsidies for favored companies and industries, and sanctions for those out of favor. China's large, state-owned sector; elaborate, top-down economic planning; single-party, authoritarian rule; and a judiciary that follows CCP dictates help the government control the Chinese economy. Private companies, for example, struggle to secure loans from a state-owned banking system that generally prefers lending to state-owned "national champions."

The year 2011 marked the 28th straight year in which the United States has registered a trade deficit with China. China's state-directed financial system and export-driven growth model; its market barriers to various U.S. exports; its discriminatory policies that favor domestic companies over foreign investors in China's market; rampant Chinese theft of intellectual property; and China's unreliable rule of law, as well as its inconsistent adherence to World Trade Organization (WTO) commitments, continue to disadvantage American competitors.

Figure 4: China's Current Account Balances (in U.S. \$ billion), 1982–2010

Source: China's National Bureau of Statistics, via Haver Analytics.

There is a growing consensus among economists and many international trade experts that long-standing methods of measuring bilateral trade relations are inadequate for the contemporary realities of global production chains and are distorting our understanding of bilateral trade balances. In practice, initial economic studies suggest that the U.S.'s trade deficit with China may be overestimated by the traditional standard measurements for determining bilateral trade balances. These measurements, which calculate the gross values of goods flowing between two countries, may be obscuring key details for devising more effective trade enforcement policies.

Though they are often discussed as distinct and separate issues, the challenges of trade and investment that impact U.S. interests at home and abroad all stem from China's macroeconomic policies. Improved understanding of the U.S.-China bilateral trade balance and the forces that shape it could be beneficial to policymakers faced with managing the relationship. However, resolving the many intractable trade issues that burden the U.S.-China relationship will remain a challenge for the U.S. government regardless of international improvements in the collection of trade data.

Conclusions

Trade and Economics Year in Review

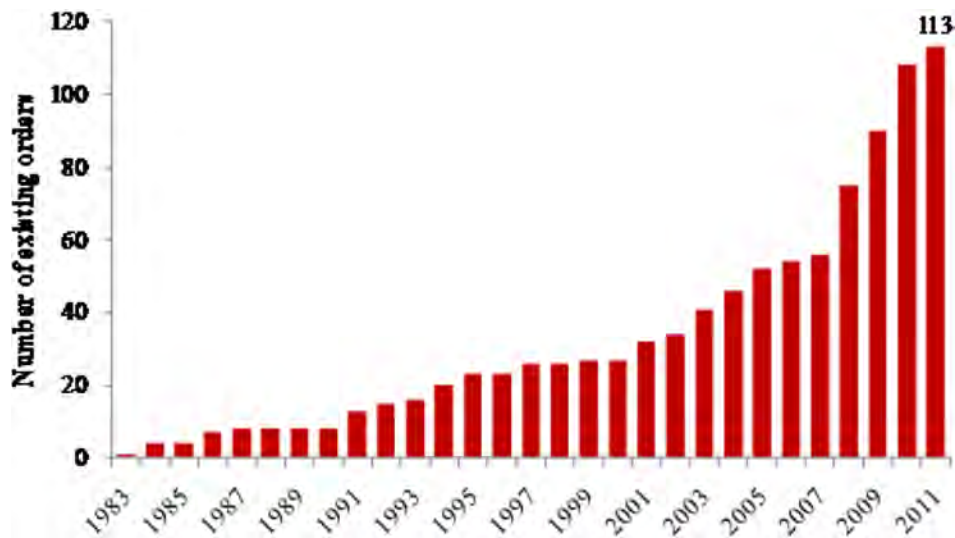
- In 2011, the U.S. deficit with China reached \$295.4 billion, up 8 percent from the previous year. For the first eight months of 2012, the United States exported \$69.9 billion worth of goods to China and imported \$273.1 billion from China, for a deficit of \$203.1 billion.
- Chinese growth in the first half of 2012 slowed significantly from the double-digit averages of the previous decade. Export growth has also slackened dramatically, mostly as a consequence of weak demand for Chinese goods from its two main trade partners, the United States and Europe.
- As a consequence of domestic economic weakness, Chinese rebalancing policies appear to have been put on hold. As originally intended, rebalancing would have entailed restructuring domestic growth from export- to consumption-driven, reducing fixed investment, and allowing the RMB to appreciate.
- Instead, fearful of a protracted slowdown, the Chinese government has introduced a set of growth-boosting policies, such as encouraging banks to lend and rolling out new infrastructure projects. These policies, though much more moderate in scope, echo the massive stimulus undertaken by the Chinese government in 2008–2009 in the wake of the global financial crisis, which at the time shored up Chinese growth but exacerbated the economy's imbalances.
- China's adherence to the WTO principles and its Protocol of Accession remains spotty. Most recently, the U.S. Trade Representative has engaged China over its practice of using investigations and trade remedy actions in retaliation for challenges brought by the United States and not based on actual evidence.

Chinese State-owned and State-controlled Enterprises

- State-owned and state-controlled companies in China provide the opportunity for the central government to implement its industrial policy, create global competitors, and develop monopoly industries for the benefit of the government. The government does so at the expense of foreign competitors.
- Beijing reversed a 30-year process of economic reform of state-owned enterprises during the 2008 global financial crisis. A massive, \$585 billion economic stimulus was directed by the government through state-owned banks to many state-owned companies, particularly in the metals, mining, and construction industries. As a result of the financial infusion, the state sector grew and became more influential within China. A resurgent Chinese state sector, armed with extensive government subsidies, competes unfairly with domestic Chinese firms and with China-based affiliates of American companies.

- The largest Chinese state-owned enterprises are generally managed by the Chinese central government through a holding company that answers directly to the State Council. The top leaders of 121 centrally owned, nonfinancial SOEs are chosen by a branch of the Chinese Communist Party and are typically party members. In turn, the SOEs influence government and party decisions on the economy. In addition to SOEs owned by the central government, there were 114,500 SOEs owned by provincial or local governments, according to a 2011 estimate by the World Bank.
- The banking system in China is almost entirely state owned and is dominated by five banks that account for nearly all lending. SOEs are the principal borrowers, while entrepreneurs and private companies find it hard to obtain loans even at higher rates. The country has an underdeveloped bond and equity market, putting private Chinese companies and foreign affiliates of U.S. companies at a further disadvantage. The rate of interest payments to depositors is set by the government at an artificially low rate, allowing the government to provide low loan rates to its favored clients in the state sector. This system of “financial repression” represents a transfer of wealth from the private sector to the state sector.
- Even those companies that are majority privately held are likely to be influenced or controlled by the government. Private Chinese companies are expected to follow the guidelines of the government, which are spelled out in Five-Year Plans and other official planning documents issued by the State Councils and implemented by various ministries.
- U.S. companies face unfair competition from Chinese SOEs within China, within the United States, and in third-country markets. Governments at all levels in China favor Chinese SOEs in procurement contracts. Chinese affiliates operating abroad do so with preferential financing from the government in China.
- Governments at all levels in the United States seek investment from China. But investment from Chinese SOEs carries a number of risks to U.S.-based competitors due to the preferential financing that Chinese governments provide. U.S. laws and regulations are inadequate to address the advantages given to Chinese SOEs operating in America. Although Chinese investment into the United States is low, China has large dollar holdings that could be converted into direct investment in the United States.
- When China joined the WTO in 2001, the government committed to economic reforms that included diminishing the role that the state plays in the economy. China has not complied with many of these explicit obligations. The United States has a variety of remedies to use to counter China’s failures to comply. They include bringing WTO complaints and antidumping and countervailing duty cases against the Chinese government and against Chinese industries. The Securities and Exchange Commission could issue regulations calling for enhanced disclosure by Chinese state-owned companies listed on U.S. exchanges of the subsidies given to the Chinese SOEs. The U.S. government could demand reciprocal treatment for foreign investment in China to match the treatment afforded by Chinese companies in America. Many U.S. firms are restricted to minority ownership of joint ventures in China or excluded entirely from some business sectors, while no such restrictions on Chinese companies exist in the United States. In some cases, reciprocal treatment is called for. The U.S. government could also exclude Chinese products and services from U.S. and state government services contracts and government construction projects until China opens its own government and SOE contracts to competitive bidding from American companies.

Figure 5: Antidumping and Countervailing Duty Orders in Effect against Chinese Firms, Cumulative Totals, 1983–2011



Source: U.S. International Trade Commission, USITC Five-year Sunset Reviews (Washington, DC). <http://pubapps2.usitc.gov/sunset/>.

The Evolving U.S.-China Trade and Investment Relationship

- China's indigenous innovation policies and additional attention to certain strategic sectors identified in its 12th Five-Year Plan ensure that it will continue to provide support to national champions. For the foreseeable future, such companies will continue to be favored over foreign firms for government and state-owned enterprise procurement contracts and will continue to benefit from a range of subsidies, tax breaks, special development funds, increased credit support, and other assistance not enjoyed by their foreign competitors. These advantages continue to make Chinese national champions formidable competitors in China and in other markets globally, undermining U.S. industry innovation and success.
- Inconsistencies in central and subnational laws, practices, and enforcement efforts, particularly in the realm of intellectual property rights, continue to damage the U.S. economy as American businesses in the United States and China lose sales and jobs to competitors who do not play by the same rules and whom we have no means of persuading to address the problem.
- Foreign firms doing business in China risk the loss of their intellectual property and inventory to Chinese joint venture partners because of the lax enforcement of intellectual property rights and business contracts in China. U.S. technology companies are also increasingly vulnerable to Chinese intellectual property theft and resulting lost profits and market share.
- Growing Chinese investment may offer an important new source for U.S. job creation and economic growth, but it is too early to know whether the benefits will outweigh whatever longer-term economic costs Chinese state-owned and state-directed investments may bring.
- Any U.S.-China bilateral investment treaty agreement can be expected to involve a lengthy negotiation process and therefore should not be viewed as a potential near-term solution for any of the many bilateral trade and investment challenges, but the potential of such an agreement should nevertheless make it an important consideration for U.S. policymakers.
- The use of various emerging methodologies for measuring trade in value added may, in time, prove helpful to U.S. policymakers for crafting trade and economic policies that better exploit the U.S.'s strategic advantages, leveraging the U.S.-China trade relationship to the greater advantage of U.S. workers and businesses.

Chapter 2: China's Impact on U.S. Security Interests

China continued to advance its military modernization efforts over the last year and increased its official 2012 defense budget 11.2 percent from last year to \$106 billion, the 21st consecutive year-on-year increase. While this official figure makes China the world's second-largest defense spender after the United States, the publicly disclosed budget does not include many aspects of China's defense spending and expenditures, which may be as much as 50 percent greater.

China's military modernization, particularly its aircraft carrier, fighter aircraft, space, and ballistic missile programs are strengthening China's ability to execute its "Area Control Strategy," which is described in the Commission's *2011 Annual Report to Congress*. In September 2012, China's first aircraft carrier entered into service; it is expected to largely serve as a training platform to learn carrier operations. The U.S. Department of Defense expects China will build multiple carriers and associated support ships over the next decade. China continued flight testing of its next-generation fighter with stealth characteristics, the J-20, which may reach operational capability by 2018 and is reportedly intended to focus on South China Sea contingencies. In June, photos of the J-20's cockpit revealed similarities with the U.S.'s advanced jet fighter, the F-22, reviving concerns that espionage may have played a role in the jet's development. Photos and video have also emerged of a separate fighter prototype, the J-31. In early November 2011 and June 2012, China successfully docked unmanned and manned spacecraft, respectively, with the Tiangong-1 orbital space lab. The only other states to have successfully executed such a docking are Russia and the United States, and the maneuver is a critical skill necessary to conduct more sophisticated operations in space such as establishing a permanent space station. China also made further advances in its ballistic missile forces, including test-launching the DF-41, a new class of road-mobile, intercontinental ballistic missile, potentially with a multiple, independently targeted reentry vehicle capability.

The People's Liberation Army's (PLA) exercises in 2012 focused on naval, air, and joint force training, and the navy's international activities and areas of operation continued to expand. This training indicates that the PLA is working to improve its ability to operate jointly and in a greater range of operating areas.

China continues to develop its capabilities in the cyber arena. U.S. industry and a range of government and military targets face repeated exploitation attempts by Chinese hackers as do international organizations and nongovernmental groups including Chinese dissident groups, activists, religious organizations, rights groups, and media institutions. In 2012, Trend Micro released case studies on the China-linked campaigns that targeted government ministries, including military institutions in India and various military and industrial institutions in Japan, research institutions and agencies related to the space industry, and Tibetan activists. In January 2012, security researchers identified an apparently China-based cyber espionage operation targeting a U.S. Department of Defense's network authentication standard. In April 2012, denial of service attacks on the U.S.-based website Boxun.com, which reported heavily on the Bo Xilai scandal, led to speculation about Chinese state involvement. In July, Indian media reports accused China of successfully using removable media to compromise computers at India's Eastern Naval Command that were not connected to the Internet. From a government standpoint, perhaps the most significant example of malicious Chinese cyber activity exposed in 2012 was when the National Aeronautics and Space Administration (NASA) reported it was the victim of 47 "advanced persistent threat" attacks, 13 of which successfully compromised agency computers. Intruders stole user credentials for more than 150 NASA employees and gained full functional control over networks at the Jet Propulsion Laboratory.

Figures about exploitations and attacks on U.S. Department of Defense information systems decreased in both 2010 and 2011, which the department attributed to greater leadership attention and the creation of U.S. Cyber Command. However, if the threat activity from the first half of the year persists at its current rate throughout the second half, 2012 will bring levels of malicious activities comparable to 2011.

The integrity of the defense and telecommunications supply chains poses a concern, as the growing complexity of technical systems and the increasing fragmentation of supply chains allow numerous points for subversion. A 2012 Senate Armed Services Committee investigation found numerous instances of suspect parts used in a variety of military systems and identified China as "the dominant source country for counterfeit

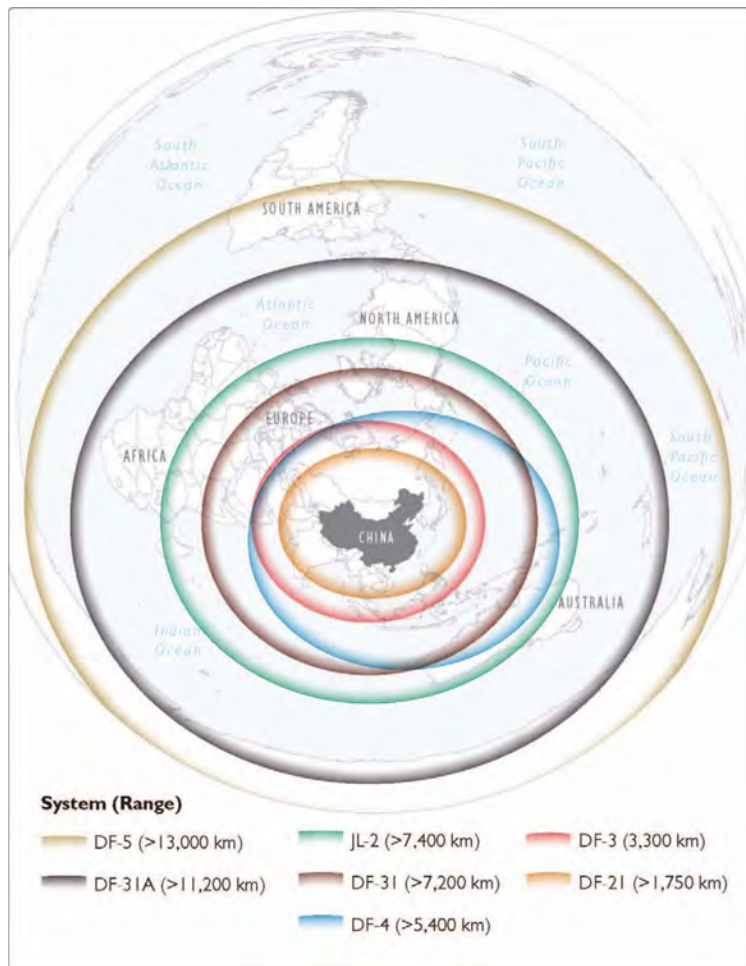
electronic parts that are infiltrating the defense supply chain.” According to U.S. government officials, malicious supply chain attacks have already taken place.

Many U.S. entities do not have the capability to sufficiently manage the threat of Chinese cyber espionage. Businesses often have concerns about exposing proprietary or other sensitive information and, notwithstanding Securities and Exchange Commission guidance encouraging the disclosure of material penetrations, many listed firms do not report significant breaches.

In conjunction with the modernization of its traditional military capabilities and cyber capabilities, China has made a series of quantitative and qualitative improvements to its nuclear forces. China is on the cusp, perhaps within two years, of attaining a true “nuclear triad” of land-based ballistic missiles, submarine-launched ballistic missiles, and air-dropped nuclear bombs. For planning purposes, Chinese strategists consider the United States as the principal threat.

China has disclosed little information about the size, composition, and disposition of its nuclear forces, but its steady modernization, combined with the ambiguity of some of its official statements, raises questions about its nuclear policies. While China maintains a “no first use” policy, what this actually means is uncertain, and the circumstances that merit retaliation are undefined. China is in the process of modernizing and increasing its intercontinental ballistic missile inventory and conducted several tests late this year. The U.S. Defense Intelligence Agency estimates that the number of Chinese intercontinental ballistic missiles that can strike the continental United States may more than double by 2025.

Figure 6: China’s Missile Ranges, 2012



Source: U.S. Department of Defense. Modified from Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2012* (Washington, DC: Department of Defense, 2012), p. 43.

Export enforcement capacity for nuclear-related goods and permissive interpretation of some of China's international nuclear-related commitments remain a concern. Additionally, the increasing mobility of China's nuclear weapons, and the maturation of its air- and sea-based varieties in particular, will challenge existing safeguards within China's nuclear command-and-control architecture.

Conclusions

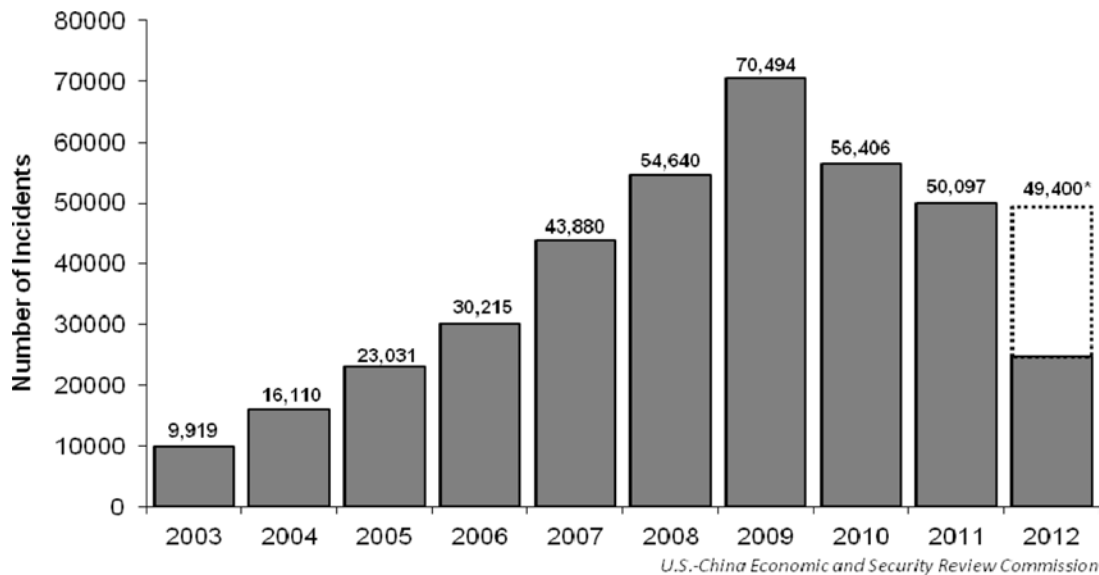
Military and Security Year in Review

- China continues to modernize its military, developing platforms to strengthen its power projection capability in the region. Developments in China's aircraft carrier, advanced fighter aircraft, space, and missile programs signal the potential for the PLA to threaten U.S. forces operating in the western Pacific.
- China's defense budget continues its trend of annual increases, making China the world's second-largest defense spender after the United States. As in past years, actual defense expenditures are greater than the announced sums, given the omission of key items such as foreign procurement.
- Over the past year, China's military and maritime enforcement agencies have demonstrated a greater presence in the East China Sea and South China Sea. This increased level of activity has inflamed regional tensions.
- The PLA's training and military diplomatic activities, increasingly taking place farther afield with a growing diversity of partners, indicate a widening in its range of missions and skill sets.
- Notwithstanding several disruptions in late 2011 and early 2012, significant U.S.-China military engagements took place this year, suggesting the potential for greater institutionalization of military-to-military ties.
- Civil-military relations saw challenges this year in China as corruption within the PLA surfaced in the press, suggesting some uncertainties in relations between the PLA and the CCP. China also appears to be consolidating party control over the organizations charged with maintaining domestic security and stability.

China's Cyber Activities

- China-based cyber exploitations and attacks are executed by numerous different actors. The PLA has several distinct entities that operate in the domain, including elements of the headquarters staff and potentially each military branch, some combination of which would seek to execute cyber attacks during wartime. Several entities within China's intelligence and security services also likely have a cyber espionage mandate. Nominally independent groups likely engage in state-sponsored exploitation, and certain corporate actors, such as Chinese information technology or telecommunications firms, may also operate in cyberspace on the state's behalf.

Figure 7: U.S. Department of Defense Reported Incidents of Malicious Cyber Activity, 2003–2011, with Projection for 2012*



*The figure for 2012 represents a projection based on incidents logged from January 1, 2012, to June 30, 2012. The projection assumes a constant rate of malicious activity throughout the year.

Sources: Coby D. Bland, lieutenant colonel, U.S. Air Force, (staff member, U.S. Cyber Command), interview with Commission staff, August 16, 2012; and U.S.-China Economic and Security Review Commission, *2011 Annual Report to Congress* (Washington, DC: U.S. Government Printing Office: Washington, DC: 2011) p. 174. http://www.uscc.gov/annual_report/2011/annual_report_full_11.pdf. Several historical figures have been revised on the basis of updated information from the U.S. Department of Defense.

- The Chinese military, the People’s Liberation Army, is refining and implementing strategies for the cyber domain. Conceptually, the PLA bundles cyber issues together with other areas of conflict, such as electronic warfare, space warfare, and public opinion warfare. This approach seeks to provide the PLA with the ability to defend, and comprehensively leverage, information for China’s benefit. China has no single public strategy to attain its civil goals in cyberspace, but the country’s numerous development plans identify investment priorities and inform cyber-related bureaucratic objectives and decisions.
- The state of the Internet in China substantially affects the broader cyber domain. With close to 540 million Internet users and over 675 million Internet devices, much of the country’s influence relates to its massive scale. As in the United States and elsewhere, Chinese users face a range of malicious cyber activities, and these devices are vulnerable and often compromised. China seeks to shape its cyber domain with heavy investment in emerging technologies and comparable investment in research, including in areas that relate to cyber exploitation and attack. To these ends, China’s high-technology talent pool is on a favorable trajectory
- In 2012, Chinese state-sponsored actors continued to exploit U.S. government, military, industrial, and nongovernmental computer systems. Any individual penetration remains difficult to attribute, but security researchers are increasingly able to group exploitations into “campaigns” based on common features and gain better insight into those responsible. Although most China-based activity observed over the past year relied on basic and straightforward techniques, a series of new developments suggest Chinese exploitation capabilities are improving significantly. Irrespective of sophistication, the volume of exploitation attempts yielded enough successful breaches to make China the most threatening actor in cyberspace.
- China presents the largest challenge to U.S. supply chain integrity. Many components of defense systems and telecommunications infrastructure are manufactured in China or sourced from Chinese entities. This yields active problems with counterfeit and substandard components and raises the potential for the introduction into critical systems of intentionally subverted components. Counterfeit parts can cause failures that raise costs, adversely affect military readiness, and subject servicemen and

- women to unnecessary dangers. Subverted components can allow foreign militaries or intelligence services to disrupt, destroy, or otherwise compromise U.S. systems.
- Chinese activities in cyberspace have a range of consequences for the international environment. Countries targeted by Chinese espionage increasingly seek their own cyber capabilities, which may yield destabilizing consequences. Beijing also advocates for policies in cyberspace that enhance state control over the Internet. To the extent China is successful in this regard, the shift would have adverse consequences for free speech and other norms and would come at the expense of nongovernmental participation in Internet administration.

China's Nuclear Developments

- Numerous uncertainties remain about China's nuclear warhead holdings. Outside assessments from western observers, which generally range from about 100 to 500 warheads, but cluster around 240, rely heavily upon assumptions. Observers from Taiwan and particularly Russia place these figures substantially higher. Consistent with its emphasis upon secrecy, China has not provided official confirmation of these estimates. Defensible projections of China's fissile material stocks suggest that the PLA could hold greater quantities of warheads, or obtain additional warheads, if so inclined.
- China's military doctrine prioritizes highly the security of its nuclear stockpiles and assurance of its nuclear command-and-control architecture. However, the potential for new warhead management procedures for China's nuclear arsenal raises questions about which entities are authorized to launch these weapons. According to some analysts, what appear to be occasional disconnects between China's civil and military leadership introduce uncertainties about the integrity of China's command authority procedures and whether the PLA might approach important decisions independent of the country's civilian leadership.
- China's public statements about its nuclear policies are consistently vague. China's proclaimed nuclear strategy is one that maintains deterrence by guaranteeing the ability to retaliate to a first strike. Although the characteristics of China's nuclear arsenal and associated doctrinal materials generally support this claim, the situations that would merit retaliation and the actions that constitute a first strike remain undefined. China's leadership is aware of, and values, this ambiguity. The Chinese defense establishment's fixation on the concepts of "active defense" and "gaining the initiative" in warfare introduce the possibility of escalation into, or within, the nuclear domain.
- The PLA continues to modernize and expand its nuclear stockpile. China is now on the cusp of attaining a credible nuclear triad of land-based intercontinental ballistic missiles, submarine-launched ballistic missiles, and air-dropped nuclear bombs. Chinese strategists view mobility in each modality as central to effectiveness. The dominant, land-based leg of China's triad also utilizes extensive subterranean storage and distribution infrastructure to ensure survivability against a strike.
- China remains outside of the major arms limitation and control conventions, such as the New Strategic Arms Reduction Treaty and the Intermediate Range Nuclear Forces Treaty, which the United States historically approached bilaterally with Russia. Substantial drawdown commitments from Washington and Moscow in recent years, as well as China's use of weapons prohibited under these treaties, have raised questions about Beijing's diplomatic posture toward nuclear restrictions.

Chapter 3: China in Asia

The South China Sea is a region of strategic importance to the United States and the center of hotly contested territorial disputes. In terms of tonnage, about half of all globally shipped commercial goods and \$1.2 trillion in U.S. trade transit the South China Sea annually. Ongoing territorial disputes in the South China Sea grew more contentious in 2012 as claimants, especially China, became more vocal and active in asserting their positions. While China's maturing naval forces underpin its confidence and capabilities in the South China Sea, nonmilitary Chinese actors have been the major players in these disputes. In particular, fishing vessels, civilian maritime law enforcement agencies, energy companies, and local governments in coastal provinces play significant roles in establishing and strengthening China's claims.

Beijing intentionally cultivates ambiguity surrounding its claims, which allows it to delay the resolution of its disputes while consolidating its presence in contested areas and maximize its flexibility in dealing with disputes. Should a dispute in the South China Sea escalate, the United States risks being drawn into a conflict. U.S. security commitments in the region include the 1951 U.S.-Philippines Mutual Defense Treaty, in which “Each party recognizes that an armed attack in the Pacific Area on either of the Parties would be dangerous to its own peace and safety and declares that it would act to meet the common dangers in accordance with its constitutional processes.”

Throughout 2012, relations between the People’s Republic of China (PRC) and the Republic of China (Taiwan) continued to reflect the lowered tensions, liberalized economic exchange, and improved official relations observed since Ma Ying-jeou was first elected as president of Taiwan in 2008. Over the past four years, both governments have adopted more conciliatory positions regarding cross-Strait policy: Beijing has eased back from earlier efforts to pressure Taiwan and isolate it diplomatically, and Taipei has turned away from confrontational efforts to assert Taiwan sovereignty and toward efforts to pursue greater economic integration.

Continued control of both the executive and legislative branches by the Kuomintang after Taiwan’s 2012 elections means that the immediate future will likely see a high degree of continuity in Taiwan’s economic, foreign, and security policy; however, the rapid momentum toward warmer relations seen in 2009–2010 has slowed. Dialogues to date have focused on “economics first, politics later; easy first, difficult later.” Many of the less contentious issues, such as direct passenger flights and mail service, increased tourism, and educational exchanges have been settled. The thornier issues that remain touch upon sensitive questions of sovereignty and national identity, leaving negotiators on both sides to wade into the “deep water” of future cross-Strait negotiations.

The cross-Strait military balance has continued to shift more firmly in favor of the PRC, with the PLA fielding more modern and capable platforms. Of particular concern to both Taiwan and U.S. military defense planners—as well as many of China’s neighbors—is the steadily increasing capacity of Chinese military forces to employ extended-range strike warfare and other antiaccess/area denial capabilities. On September 21, 2011, the Obama Administration notified Congress of intended arms sales related to Taiwan’s aging fleet of 145 F–16 A/Bs fighters; however, no commitment has been made regarding the possibility of U.S. sales of the more advanced C/D variant of the F–16 aircraft.

The year 2012 marked the 15th anniversary of China regaining sovereignty over Hong Kong. While the “one country, two systems” formulation continues to be used to describe Hong Kong’s relationship with the mainland, developments over the past year suggest that Beijing’s influence in the city’s affairs is growing. According to a media survey released in April by the Hong Kong Journalists Association, 87 percent of journalists believe that press freedom in Hong Kong has deteriorated since former Chief Executive Donald Tsang took office in 2005. Evidence suggests that Beijing substantively intervened in the 2012 chief executive election on behalf of Leung Chun-ying, the eventual winner.

In December 2011, a University of Hong Kong poll found that only 17 percent of the territory’s seven million residents identify themselves as “Chinese citizens,” a “new low since 2000,” indicating a growing gap in how the territory defines itself vis-à-vis the mainland. Discontent with the mainland is a source of concern for Beijing. Established in Hong Kong’s Basic Law is the “ultimate aim” of electing the chief executive and Legislative Council “by universal suffrage.” But implementation of universal suffrage has already been twice delayed, and its fate is uncertain.

Beijing’s growing interference in Hong Kong’s political affairs casts doubt on the continued viability of the “one country, two systems” framework and Beijing’s willingness to eventually grant Hong Kong universal suffrage. Hong Kong’s status as a customs territory distinct from the mainland continues to raise concerns regarding the illicit transfer of technology to China. An April 2012 U.S. Government Accountability Office report revealed that integrated electronic circuits “have been diverted to China (a destination requiring a license for these items) through Hong Kong (where no license is required).” The report quoted an unnamed Commerce Department official stating that certain types of such circuits could “contribute to China’s military advancement.”

Conclusions

China and the South China Sea

- Beijing’s objectives in the South China Sea are to uphold what it insists is the legitimacy of China’s territorial claims; to have unimpeded access to maritime resources like oil, natural gas, and fish; and to ensure control of its maritime periphery in order to guarantee the security of its sea lines of communication and deny what it views as threatening foreign military activities there.

Figure 8: Map of South China Sea with all Claims



Source: Tina G. Santos, “Philippines lodges 7th protest with China over Scarborough Shoal,” *Philippine Daily Inquirer*, May 23, 2012. <http://globalnation.inquirer.net/37625/philippines-lodges-7th-protest-with-china-over-scarborough-shoal>, amended by the U.S.-China Economic and Security Review Commission. Locations of various features are not exact.

- China appears to pursue a strategy in the South China Sea that involves delaying the resolution of its maritime disputes while growing its actual presence in contested areas and strengthening its navy and air force. The objective of this strategy is to strengthen China’s position relative to the other claimants to ensure eventual resolution of disputes in China’s favor.
- Beijing prefers that nonthreatening actors like civilian law enforcement agencies and commercial fishermen enforce China’s claims and expand China’s presence in disputed areas. The PLA Navy’s maturing capabilities underpin Chinese assertiveness and foster insecurity among non-Chinese claimants.
- To the extent that China’s activities in the South China Sea are meant to stabilize and secure its maritime periphery, its actions in 2012 appeared to have the opposite effect. China’s assertiveness led other claimants to grow their presence in disputed areas, invest in military modernization, and look for maritime security support from the United States and its regional allies.
- China National Offshore Oil Corporation (CNOOC), one of China’s state-owned oil companies, demonstrated itself to be an agent of the Chinese state in 2012. CNOOC advanced China’s interests in the South China Sea by auctioning oil and gas blocks in waters disputed by Vietnam and by referring to its offshore energy infrastructure as “mobile national territory.”

China and Taiwan

- The gap in cross-Strait military capabilities continues to widen despite a series of Taiwan defense initiatives, the implementations of which have been constrained by budgetary concerns. Nonetheless, in 2012, Taiwan accepted a \$3.7 billion U.S. proposal to upgrade its fleet of F-16 A/Bs and held a number of high-profile military exercises meant to demonstrate its capacity for self-defense.
- While cross-Strait dialogue continues to deepen on issues related to trade, cultural, and educational exchanges, recent years have seen little progress in cross-Strait security dialogues. Furthermore, as a consequence of domestic politics on both sides, the sensitive issues surrounding Taiwan's political status have yet to be discussed.
- In 2012, the U.S. government approved a visa waiver program for Taiwan residents traveling to the United States.

China and Hong Kong

- Hong Kong's 2012 elections were tumultuous and the outcome was viewed as heavily influenced by Beijing, compounding fears about the integrity of the "one country, two systems" framework.
- Beijing's increasing influence in Hong Kong's affairs calls into question the security of advanced technology products exported from the United States to Hong Kong.
- Popular discontent in Hong Kong with the mainland increased in 2012 and led to a number of demonstrations and public quarrels. While the city still enjoys freedoms of expression not permitted on the mainland, there were a number of instances in which city authorities, acting out of deference to Beijing, challenged the exercise of those rights.
- Along with large wealth gaps and soaring real estate costs, Hong Kong's struggling economy is a concern for Beijing. A series of measures designed to provide economic assistance to the city have been adopted, and China's efforts to leverage the city to gradually internationalize the RMB have continued.
- Reports of direct censorship and self-censorship also increased in 2012. Leading Hong Kong publications claim to have received pressure to provide positive coverage of Beijing's favored candidate prior to the election. Conspicuous downplaying of human rights issues and troubling personnel changes amount to an unprecedented degree of interference in the Hong Kong press.

Chapter 4: China's Global Reach

Europe has been a reliable destination for Chinese exporters, and it has also become an increasingly attractive prospect for Chinese investors seeking to diversify their foreign holdings and to acquire valuable technologies and know-how. At the same time, the economic relationship has been plagued by growing European frustration, shared by the United States, over China's disregard for intellectual property rights, forced technology transfers, restrictions on market access for foreign firms, and the many direct and indirect subsidies offered by the Chinese state to Chinese exporters and investors.

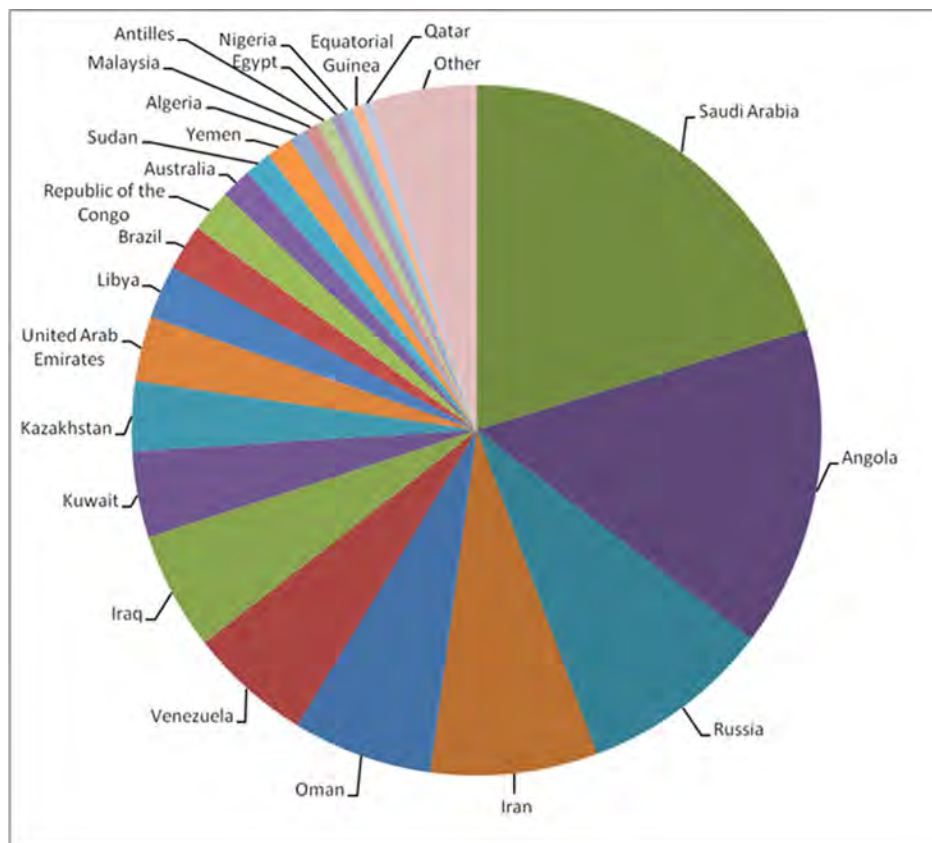
Many questions remain about what role China will play in resolving the European sovereign debt crisis. European Union (EU) leadership has been trying to build support for a European Financial Stability Facility, while individual member states work hard at attracting Chinese investment, giving rise to fears that competition among countries for Chinese investment could allow China to "divide and conquer" Europe on matters of trade, security, and human rights.

Although Sino-European cooperation on antipiracy, peacekeeping operations, and other global security issues has largely been a positive development for the European Union and China, European defense and dual-use exports to China have emerged as an area of potential transatlantic disagreement. Despite a European arms embargo, EU defense exports to China totaled over \$90 million in 2010. Some European defense scholars have asserted that EU engagement with China in the military and high-tech sphere has contributed significantly to the advancement of China's defense capabilities.

Despite differences in perception of China's rise, U.S. and European security interests converge on the issue of maritime security in Asia. Approximately 90 percent of European trade is seaborne, and much of it transits the Strait of Malacca and the South China Sea. The United States is similarly reliant on shipping in the region, and both actors have an interest in preserving freedom of navigation and stable and secure sea lanes.

While Europe has struggled in recent years, China's continued economic growth has resulted in an intense need for natural resources, and its dependence on foreign energy is growing. About 51 percent of China's imported oil comes from the Middle East, with Saudi Arabia as its primary supplier; an additional 24 percent comes from Africa, where Angola is the primary supplier. Energy is a significant driver of China's engagement with troubled or unstable states like Iran, Sudan, and South Sudan. In an effort to diversify China's global energy sources, Chinese policymakers and companies are looking to North and Central Asia, and Southeast Asia, for more of their energy. China is becoming more active in the North American energy sector as well. Chinese companies invested over \$17 billion in North American energy from 2010 to early 2012; in 2011, North America was China's top regional destination for oil and gas acquisitions.

Figure 9: China's Crude Oil Imports by Country, January to July 2012



Source: Baiinfo.com, Baichuan Information [import and export data for January 2012 through July 2012] (Beijing, China). <http://baiinfo.com/Orders/NewsList/5827?pageid=1>.

A June 2012 American Resources Policy Network report found that the United States is more dependent on China than on any other country for a basket of minerals identified as "critical." China produces over 90 percent of the world's rare earths; over 80 percent of antimony, magnesium metal, and tungsten; and between 50 percent and 80 percent of 15 additional minerals. Over the last few years, China has initiated policies to consolidate its rare earth industry, limit production, impose export restrictions, and start importing rare earths. Given China's withholding of rare earths from Japan over a diplomatic dispute, Beijing could seek to use its dominant position in critical mineral supply chains as leverage in political disputes with other countries, including the United States. In response to China's restrictive policies on rare earths (as well as tungsten and molyb-

denum), the United States, the European Union, and Japan requested WTO consultations with China in March 2012; after consultations failed to resolve the issue, the three powers requested a WTO dispute settlement panel in June.

With one-fifth of the world's population and only 7 percent of the world's water resources, China faces significant challenges related to water scarcity. Over 40 mid- to large-sized Chinese cities, including Beijing, suffer from significant water shortages, and many of the nation's water resources are severely polluted. Scientists have found high rates of cancer in populations living alongside many of China's polluted rivers. Widespread health problems associated with pollution (including water pollution) are a major cause of social unrest in China. All of China's major rivers (including three of the world's five largest rivers measured by discharge) originate from the Tibetan plateau. China's management of these important transboundary waterways has significant economic, environmental, and health ramifications for downstream users in contiguous areas, and China has been involved in disputes over water rights with several of its neighbors including India, Kazakhstan, North Korea, Russia, and Vietnam. Some analysts predict that tensions over water resource issues in Asia could soon lead to open conflict.

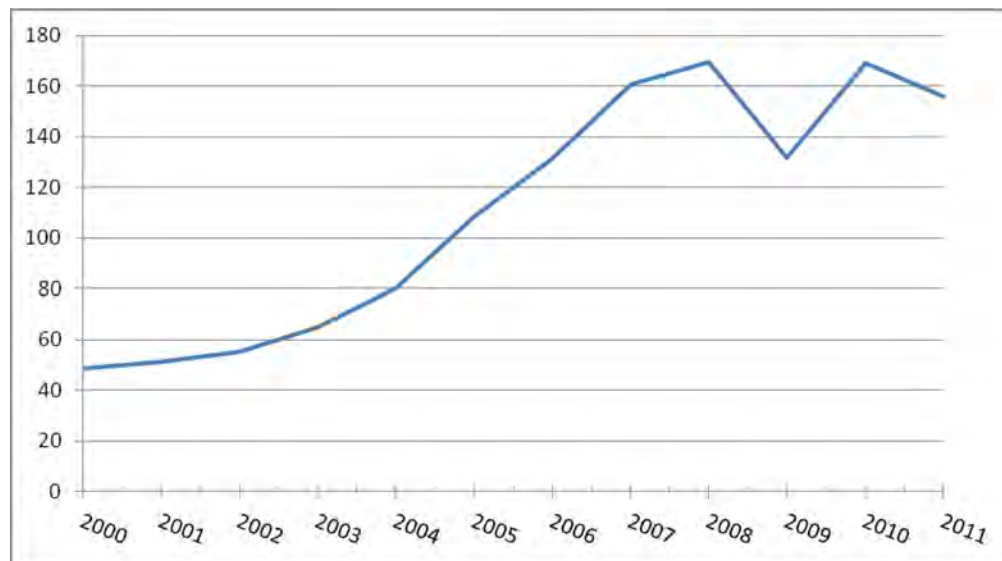
China possesses the world's largest distant water fishing fleet, and the industry is set to grow due to significant political and financial support from the Chinese government. Fisheries experts report that Chinese distant water fleets engage in illegal, unreported, and unregulated fishing.

Conclusions

China and Europe

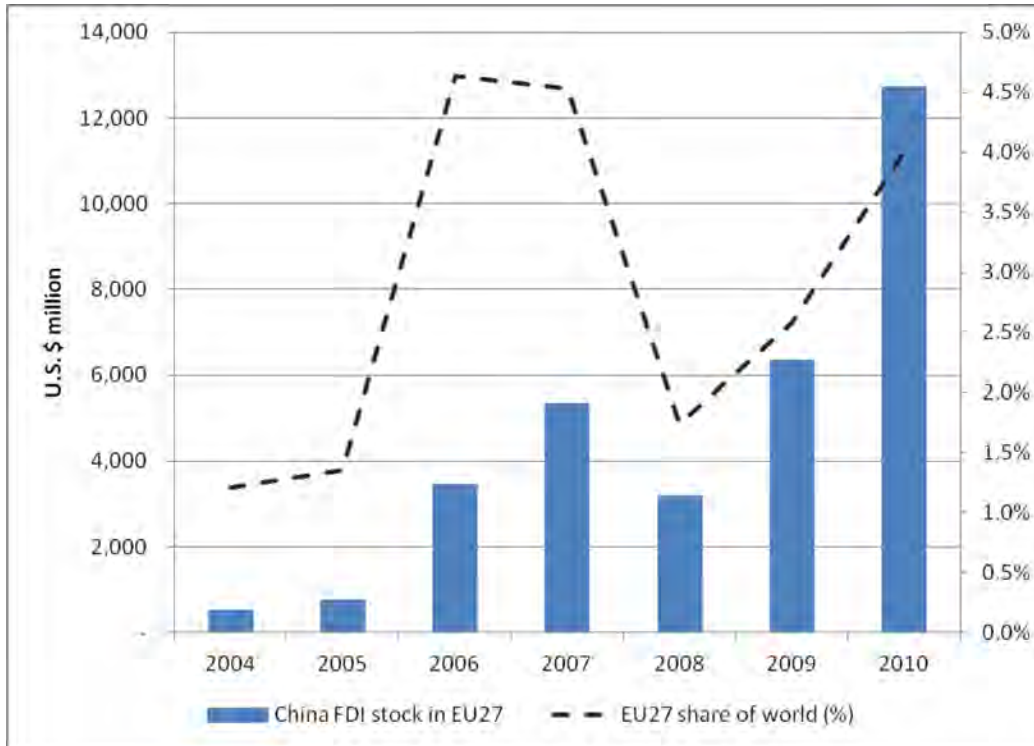
- China has a fundamental interest in seeing the euro crisis recede, as it depends on the European Union for the largest part of its exports. Throughout the euro crisis, China has consistently voiced support for the euro and for individual countries in distress, but there have not been any significant direct contributions.

Figure 10: The EU27 Trade Deficit with China (in € billions), 2000–2011



Source: Eurostat (Luxembourg: European Commission, various issues).

- The opacity of bond purchases, especially in the secondary market for European bonds, makes it difficult to determine what role China has played in alleviating the EU's sovereign debt crisis. Statements by Chinese officials and economic trends suggest that Chinese companies have been using the euro crisis to deepen their foreign direct investment (FDI) in the European Union through acquisitions of technologies and brands, among other things.
- Chinese FDI flows to the European Union so far have been modest, but there is potential for significant growth. Chinese investment has been generally well received, but it is too early to assess its impacts, negative or positive.

Figure 11: Chinese Cumulative FDI in the EU27, 2004–2010

Source: Ministry of Commerce of the People's Republic of China, *2010 Statistical Bulletin of China's Outward Foreign Direct Investment* (Beijing, China: 2011).

- European companies face the same problems as U.S. companies: loss of intellectual property and technology to Chinese companies, an uneven playing field due to Chinese government subsidies offered to the domestic firms, and the lack of market access in many sectors and industries, and China's government procurement market. This presents a number of opportunities for U.S.-EU cooperation on trade-related issues.
- Transfers of European arms and dual-use technologies to China have enhanced China's capabilities in the naval and space domains. Such advancements could contribute to the development of China's military in a way that runs counter to U.S. interests in stability in the western Pacific and global commons.
- European policymakers and leaders generally do not perceive that they have substantial strategic interests in the Asia-Pacific region, and they do not perceive China's military modernization to be a security threat. This view contrasts with that of the United States, a Pacific power with increasing security interests in the region that takes a more cautious view of China's military rise. As such, transatlantic alignment on security issues related to China and the Asia-Pacific is limited.

China's Demand for and Control of Global Resources

- China's leaders view China's growing dependence on foreign energy as a strategic vulnerability. China depends on unreliable producer states (like Iran, Sudan, and South Sudan) for much of its oil imports. China also relies heavily on maritime trade routes for its energy imports, exposing China's energy trade to crucial chokepoints like the Strait of Malacca and the Strait of Hormuz. Beijing's insecurity about these circumstances leads China to diversify its foreign sources of oil and transport routes.
- China's overseas energy interests are expanding as China seeks new sources of supply and places to invest. The majority of China's foreign energy comes from the Middle East and Africa. China also has significant energy interests in North, Central, and Southeast Asia. North America has emerged as the top destination for Chinese energy investments in recent years.

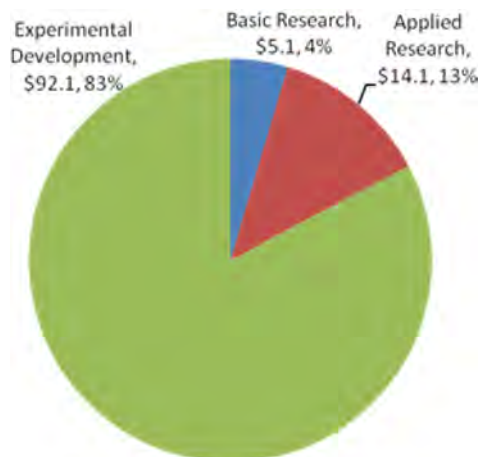
- China's state-owned oil companies are major players in China's foreign energy activities. The state-owned oil companies' recent success in their North American deals illustrates their growing international prestige as well as their competitiveness. While the state-owned oil companies often behave like commercial actors, significant political and financial support from the Chinese government gives the companies an unfair advantage when competing with U.S. or foreign energy companies for deals.
- The United States is heavily dependent on China for much of its mineral imports. China is a primary supplier of 21 critical mineral commodities upon which the United States is 100 percent dependent. Beijing demonstrated during a diplomatic row with Japan that it was willing to use its dominant role in the rare earths supply chain as leverage against Tokyo.
- China faces several challenges related to water scarcity and pollution. China's use of hydropower dams and water diversion projects on transboundary rivers can have detrimental economic, environmental, health, and security impacts in downstream states in Central, South, and Southeast Asia. This creates tensions between China and its regional neighbors.
- China is the world's largest fishing nation. In addition to domestic fishing, China has the world's largest distant water fleet, which operates on the high seas and in the maritime territories of several countries throughout Asia, Africa, and South America. China's distant water fishing industry often engages in illegal, unreported, and unregulated fishing, especially in waters off the coast of Africa.

Chapter 5: Assessing China's Efforts to Become an Innovative Society

Since January 2006, Chinese industrial policy has focused on moving manufacturing away from labor-intensive, low-wage, and resource-dependent factory work to a higher position on the value-added, high-technology scale. A critical part of that plan requires the development of a culture of innovation in China. The plan requires government programs to support basic research, to create an advanced scientific and technical education system, to maintain strong intellectual property protection, and to foster entrepreneurship, the building blocks of an innovative society.

So far, China's record of reaching these benchmarks is mixed. China has made considerable progress in shifting its manufacturing away from simple consumer goods toward high-technology by investing heavily in the infrastructure of innovation. In some areas, the effort has been enormous. For example, postgraduate degrees awarded to Chinese scientists and engineers rose from 30,328 in 2001 to 172,336 in 2009, a 468 percent increase. This progress resulted from a dramatic expansion of science and technology university programs in China, from 239 in 2000 to 834 in 2010.

Figure 12: Chinese Research and Development Expenditures by Category, 2010



Note: Monetary sums in billions of U.S. dollars, based on current exchange rates.

Source: National Bureau of Statistics of China, *Communiqué on National Expenditures on Science and Technology in 2010* (Beijing, China: September 28, 2011). http://www.stats.gov.cn/english/newsandcomingevents/t20111010_402758248.htm.

Complementing China's developing innovation capabilities is an elaborate strategy for obtaining America's advanced technology by subterfuge, either stealing it outright or by requiring U.S. companies to turn over technology to Chinese business partners as a condition for investment and market access in China. Other tactics China employs to give its companies and industries an unfair advantage include currency manipulation; tax incentives for exports; limits on foreign purchases designed to force technology transfers; land grants and rent subsidies to Chinese-owned firms; preferential loans from banks; tax incentives for Chinese-owned firms; cash subsidies; benefits to state-owned enterprises; generous export financing; government-sanctioned monopolies; a weak and discriminatory patent system; joint venture requirements; cyber espionage to steal intellectual property; direct discrimination against foreign firms; limits on imports and sales by foreign firms; onerous regulatory certification requirements; and limiting exports of critical materials in order to deny foreign firms key inputs. Taken together, such activities constitute "innovation mercantilism."

There is evidence that some Chinese investments have paid off, while others have failed. During the past decade, the U.S. trade deficit with China in advanced technology products climbed from \$11.8 billion in 2002 to \$109.4 billion in 2011, an 827 percent increase. Still, China's efforts to boost intellectual property protections for Chinese inventors have stagnated; its goal of nurturing an entrepreneurial class by creating a private system of equity and bank financing is lagging far behind; and questions have been raised about the quality of Chinese scientific and engineering training and the utility of an education system that values rote memorization over creativity.

Conclusions

- The central government of China has assigned a high priority within its industrial policy planning on developing a culture of innovation. The intent is to replace low-wage, resource-intensive manufacturing with high value-added production.
- Funding for research and development is increasing, and China has invested heavily in enhancing its science and engineering education. This is apparent from the large increase in university graduates with science and engineering degrees. But China still lacks a financing system to support entrepreneurs and the willingness to enforce intellectual property protections, two requirements for an innovative society.
- China depends on industrial espionage, forced technology transfers, and piracy and counterfeiting of foreign technology as part of a system of "innovation mercantilism." China can avoid the expense and difficulty of basic research and unique product development by obtaining what it needs illegally. China's success is evident, in part, by the large increase in the U.S. trade deficit with China on advanced technology products.
- China has also successfully developed a capacity for "second-generation innovation." As a result, U.S.-based multinational companies increasingly use China as a center for product research, engineering, and manufacturing while retaining design, marketing, and sales within the United States. This has allowed some U.S. companies to remain price competitive but has led to the loss of manufacturing jobs in the United States.
- China's leadership has implemented extensive infrastructure, including formal plans and funding vehicles, to invest in and promote research and development and innovation. The plans have ambitious goals and clearly articulated time lines. Investments and efforts are diffused among numerous categories of special projects and technologies.
- Historically, China's heavy emphasis on central planning has at times disadvantaged "bottom-up" entrepreneurial efforts or curiosity-driven research, but over the past ten years China's innovation planning has become diffuse.
- China's investments in science and technology focus overwhelmingly upon experimental development over applied and basic research. This emphasis helps in China's rapid commercialization of products but raises questions about Chinese scientists' ability to produce "leapfrogging" innovations, as directed by China's planning documents.

- Local governments in China fund about half of the country’s research and development activities. This funding comes along with expectations that research will focus on technologies with more immediate, practical benefits.

Supercomputing Conclusions

- The Chinese government views progress in the field of supercomputing, as one Ministry of Science and Technology statement put it, as an “important symbol to measure and reflect the technological competitiveness of a country’s comprehensive national strength, the strategic high ground of the world’s high-tech fields.”
- China is innovating in select areas of supercomputing. The nation’s recent impressive achievements in the sector do not suggest it is about to decisively overtake the U.S.’s leadership position. However, China has the people and resources to continue producing notable advancements.

Cloud Computing Conclusions

- China faces complex prospects in the cloud computing sector. Its status as a chosen technology under the 12th Five-Year Plan, and the attendant high-level leadership support and financial benefits, helps provide a favorable environment for success.
- Several issues pose obstacles to broader internal adoption as well as Chinese ambitions to ultimately export cloud services. Censorship requirements have adverse implications for domestic and foreign entities alike. Broader security questions pose another issue; as a recent *People’s Daily* article put it, in the cloud, “[f]ew Chinese companies have the awareness to protect themselves at the moment.” Intellectual property protection as well as host of legal and jurisdictional ambiguities further complicate matters.
- With respect to innovation specifically, cloud computing offers a difficult test case. Chinese entities are making circumscribed innovations in the field but that cloud technologies are heavily concentrated, by design, outside of users’ views makes complete assessment challenging.

Defense Systems Conclusions

- China’s technological capabilities in the defense sector have grown remarkably over the past two decades. Consequently, China’s military has access to increasingly impressive military platforms, munitions, and support systems. China’s efforts in the field are well funded and receive a high level of leadership support.
- Assessing the level of innovation in China’s new military hardware remains difficult. China’s military capabilities have been uneven for decades, with pockets of excellence in some areas (e.g., nuclear weapons and delivery systems in the 1960s) and persistent flaws in other areas (e.g., turbofan jet engines through today). However, the Chinese defense industrial base is on a continually improving trajectory. Innovation will probably not occur uniformly, but pockets of innovation are arising.

Chapter 6: China’s Political Transitions in 2012

The year 2012 has been a turbulent one for politics in the PRC. The country saw its greatest open political crisis in a generation, with the very public downfall of CCP Politburo member Bo Xilai and the accompanying suspended death sentence handed down to his wife, Gu Kailai. This story—involving an alleged murder plot, accusations of corruption, and an alleged defection attempt by a senior police official—shattered the carefully constructed façade of unity fostered by the state’s propaganda organs and revealed rifts in the elite circles of the Communist Party. This drama took place against the backdrop of preparations for a major leadership succession. The 18th National Congress of the Chinese Communist Party, which convened in early November, marks only the second transition of power since the death of paramount leader Deng Xiaoping in 1997. This transition to a “Fifth Generation” of party leadership will test both the procedures for orderly succession established by the CCP over the past two decades as well as the ability of the party’s senior ranks to overcome factional divides and coalesce under a new, collective leadership.

China faces challenging decisions regarding the use of its growing military power, economic clout, and diplomatic influence. In the critical years ahead, the views and policy preferences of the country's leadership will set the trajectory for China's emergence as a major world power. However, it is difficult to determine the character and worldviews of China's new political leaders. These officials will need time to consolidate their positions in the new hierarchy, and factional divides and the need for consensus decision-making will likely preclude any bold new policy initiatives. This will likely produce a strong tendency to defer decisions on contentious issues in the U.S.-China relationship, such as the restructuring of China's export-driven economic model, the dominant role of state-owned enterprises in major sectors of the economy, the orientation of Chinese foreign policy, and China's maritime territorial disputes with its neighbors. The United States must carefully monitor events in Beijing as China's new leaders consolidate their positions inside the Communist Party. Absent unforeseen events, dramatic changes in the direction of PRC foreign and economic policy are unlikely in the near term, and the ability of China's leaders to respond to new policy initiatives will be constrained.

Conclusions

- A new group of younger, rising officials will assume the most senior postings in the Chinese Communist Party at the 18th Party Congress in November 2012. These "Fifth-Generation" cadres tend to have a number of factors in common: Many suffered during the Cultural Revolution; most have experience in provincial-level government administration; and nearly all have more formal education than their predecessors, with studies focused in economics and the social sciences. A disproportionate number of these rising leaders are also "princelings," the children of prominent revolutionary-era Communist officials.
- Factionalism remains a serious issue at the elite level of Chinese politics, centered on two major patronage networks: the "Shanghai" and "Princeling Party" group that owes fealty to former CCP General Secretary Jiang Zemin; and the "Communist Youth League Faction" loyal to CCP General Secretary Hu Jintao. The membership of the Politburo and Politburo Standing Committee from the years 2002 to 2012 has reflected representation for both of these two groups, with Hu Jintao holding the top leadership slot and loyalists of Jiang Zemin occupying the largest number of seats.
- Presumptive CCP General Secretary Xi Jinping and presumptive PRC Premier Li Keqiang are expected to be the two most senior figures in the new leadership lineup, but they will not dominate the policy process: The newly appointed leadership of the CCP will likely continue to operate in a collective, consensus-driven fashion. This decision-making dynamic—combined with the continuing influence of retired party leaders—means that there will be considerable internal debate regarding major policy issues and that there will likely be little substantive change to PRC policy in the near-term.

THE COMMISSION'S KEY RECOMMENDATIONS

The Commission believes that ten of its 32 recommendations to Congress are of particular significance.

The Commission recommends that:

- Congress examine foreign direct investment from China to the United States and assess whether there is a need to amend the underlying statute (50 U.S.C. app 2170) for the Committee on Foreign Investment in the United States (CFIUS) to (1) require a mandatory review of all controlling transactions by Chinese state-owned and state-controlled companies investing in the United States; (2) add a net economic benefit test to the existing national security test that CFIUS administers; and (3) prohibit investment in a U.S. industry by a foreign company whose government prohibits foreign investment in that same industry.

- Congress request that the administration assess and report to the Congress on possible vulnerabilities for U.S. government and private sector parties in data storage and the provision of web services, such as cloud computing, in terms of national and economic security interests. Such assessment should focus on the provision of such services by Chinese companies and whether specific mitigation, abatement, or notice provisions are necessary.
- Congress direct the U.S. Department of Commerce to report annually on Chinese investment in the United States including, among other things, data on investment in the United States by Chinese SOEs and other state-affiliated entities.
- Congress require the U.S. Department of State to detail current and planned efforts to integrate China into existing and future nuclear arms reduction, limitation, and control discussions and agreements. Committees of jurisdiction within Congress should request periodic updates on these efforts.
- Congress direct the administration to establish an interagency task force with the secretaries of Commerce, Defense, Energy, the Interior, and State and the director of the U.S. Geological Survey to (a) develop a governmentwide definition and list of “critical minerals”; (b) develop a plan regarding those minerals to reduce the vulnerability of the United States to pressure from China or any other country for political or economic advantage; and (c) require federal agencies to use existing statutory and regulatory tools to encourage critical minerals extraction and manufacture in the United States.
- Congress direct that, in undertaking any bilateral investment treaty negotiation with China, the U.S. administration should insist upon terms that ensure reciprocity and explicitly address the unfair challenges posed by China’s SOEs in all markets.
- Relevant Congressional committees conduct an in-depth assessment of Chinese cyber espionage practices and their implications and report the findings in an unclassified format.
- Congress direct the U.S. Securities and Exchange Commission (SEC) to revise its protocols for reviewing filings by foreign entities listed on or seeking to be listed on the U.S. stock exchanges. The SEC should develop country-specific data to address unique country risks to assure that U.S. investors have sufficient information to make investment decisions. The SEC should focus, in particular, on state-owned and -affiliated companies, and subsidies and pricing mechanisms that may have material bearing on the investment.
- Congress require the Department of Defense to report to Congress on the extent to which its current procurement regulations and contracting procedures allow it to exclude the acquisition of any foreign-produced equipment from any department system where there is concern as to the potential impact of cyber vulnerabilities.
- Congress review the U.S.-Hong Kong Policy Act of 1992 to determine its continued applicability. In particular, Congress should review the security of advanced technology products exported from the United States to Hong Kong.

ADDITIONAL RECOMMENDATIONS BY THE COMMISSION

Chapter 1: The U.S.-China Trade and Economic Relationship

Section 2: Chinese State-owned and State-controlled Enterprises

The Commission recommends that:

- Congress examine the access of small- and medium-sized enterprises to the remedies contained in the U.S. antidumping and countervailing duty laws. As part of this examination, Congress should consider whether to (1) grant enhanced authority to initiate antidumping and countervailing duty cases to the Senate and House Committees most responsible for international trade; and (2) include state and local governments as interested parties under the U.S. trade laws.
- Congress adopt legislation that would provide a private right of action for domestic producers who suffer injury from antidumping and countervailing duty violations from the operations of Chinese state-owned or -affiliated firms operating in the U.S. market.

Section 3: The Evolving U.S.-China Trade and Investment Relationship

The Commission recommends that:

- Congress assess the ability of the Office of the United States Trade Representative to adequately investigate, develop, resolve and/or adjudicate trade complaints. As part of this assessment, Congress should evaluate the availability of, and access to, information necessary to address unfair trade complaints; whether it is advisable to provide USTR with subpoena authority; and, if so, the nature of such authority.
- Congress monitor efforts to measure trade in value-added, such as the OECD–WTO joint initiative, and identify the potential impacts of value added measurements on U.S. trade law.

Chapter 2: China’s Impact on U.S. Security Interests

Section 2: China’s Cyber Activities

The Commission recommends that:

- Congress conduct a review of existing legal penalties for companies found to engage in, or benefit from, industrial espionage.

Section 3: China’s Nuclear Developments

The Commission recommends that:

- Committees of jurisdiction seek input from relevant U.S. government agencies and international organizations to assess disparities in estimates of the size and disposition of China’s nuclear forces.

Chapter 3: China in Asia

Section 1: China and the South China Sea

The Commission recommends that:

- Congress direct the Department of Defense to work with U.S. friends and allies in the Asia Pacific region to strengthen mechanisms to share information on maritime activity in the South China Sea.
- Congress urge the U.S. Navy to conduct regular transit operations in critical waterways in ways that demonstrate and reinforce U.S. values and interests related to freedom of navigation.
- Congress direct the U.S. Coast Guard to take steps to promote the formation of, and participate in, a regional coast guard forum in Southeast Asia modeled on the North Pacific Coast Guard Forum.¹

Section 2: China and Taiwan

The Commission recommends that:

- Congress urge the administration to remain engaged with Taiwan officials regarding Taiwan’s future defense needs, particularly as they pertain to sales of arms and equipment such as may be necessary to offset the growing capabilities of the People’s Liberation Army for coercive power projection.

¹Established in 2000, the North Pacific Coast Guard Forum includes the coast guards of Canada, China, Japan, Korea, Russia, and the United States. The forum aims to “foster multi-lateral cooperation by sharing information and establishing best practices in the North Pacific Ocean.” The forum focuses on cooperation on maritime security, maritime domain awareness, illegal drug trafficking, illegal migration, fisheries enforcement, and combined operations. North Pacific Coast Guard Forum, “NPCGF—What is It?” <http://www.ccg-gcc.gc.ca/e0007869>.

Section 3: China and Hong Kong

The Commission recommends that:

- Congress reauthorize Section 301 of the U.S.-Hong Kong Policy Act of 1992, which requires the U.S. secretary of State to submit an annual report to Congress on political, economic, and social developments in Hong Kong of relevance to the United States. This should include reporting on mainland interference in Hong Kong's internal political affairs and Chinese efforts to leverage the territory as a platform for the internationalization of the RMB.
- Members of Congress, when visiting mainland China, also visit Hong Kong and that Congress encourage senior administration officials, including the secretary of State, to make visits to Hong Kong part of their travel.

Chapter 4: China's Global Reach

Section 1: China and Europe

The Commission recommends that:

- Members of Congress and congressional bodies participating in transatlantic legislative dialogues such as the Transatlantic Policy Network or the Transatlantic Legislators' Dialogue promote the discussion of economic, political, and security issues as they relate to China and Asia within these dialogues.
- Congress direct the Department of Defense to survey NATO's current and planned exchanges and interactions with China to ensure that U.S. contributions are in compliance with the limitations enumerated in the National Defense Authorization Act of 2000.
- Congress urge the administration to strengthen transatlantic cooperation on investment screening regimes and trade policy related to China with the European Union and individual EU member states through appropriate venues.
- Congress urge the European Union and EU member states to strengthen the implementation of the 1989 Tiananmen arms embargo.

Section 2: China's Demand for and Control of Global Resources

The Commission recommends that:

- Congress assess the mandate, activities, and effectiveness of the Department of Defense's Strategic Materials Protection Board in order to ensure that the board meets its statutory responsibilities as mandated in 10 U.S.C. § 187.²
- Congress maintain support for the U.S.-initiated Mekong River Initiative's Mekong Partnership for the Environment.
- Congress maintain support for nongovernmental organizations involved in the U.S. Agency for International Development's Economic Support Fund for Tibet and the agency's Environmental Cooperation—Asia (ECO-Asia) programs for Water and Sanitation and Environmental Governance.
- Congress direct the U.S. Department of State to assess the utility, interest of affected countries, and significance for the United States of creating an Asian regional water security framework to facilitate cooperative agreements among riparian countries and to promote transparency and information sharing on water security issues.

²The Strategic Materials Protection Board was created by statute (10 U.S.C. § 187) in 2007. The Board, which includes the Secretary of Defense; the Undersecretary of Defense for Acquisition, Technology, and Logistics; the Undersecretary of Defense for Intelligence; and the secretaries of the Army, Navy, and Air Force, is mandated to meet no less than once every two years to issue a report and recommendations on the security of supply for materials considered critical to national defense.

Chapter 5: Assessing China's Efforts to Become an Innovative Society

The Commission recommends that:

- Congress ensure that the Office of the U.S. Trade Representative and the Interagency Trade Enforcement Center have sufficient resources so that the agencies can bring the necessary challenges against Chinese “innovation mercantilism” before the WTO.
- Congress request that the National Academy of Sciences prepare a comprehensive study assessing China's strategies, policies and programs to become an innovative society and enhance its indigenous innovation. In conducting this study, the academy shall identify specific actions taken by the Chinese government to achieve the innovation goals outlined in the 12th Five-Year Plan. The academy shall include an evaluation of those leading-edge technologies where Chinese capabilities are comparable to or exceed those of the United States and provide appropriate measurement metrics. In addition, the academy shall identify the extent to which industrial espionage has been used as a tool to advance China's interest with specific examples, where possible. The academy shall also report on the extent to which U.S. companies have assisted in China's technological development.