ARTICLE

Will the Rise of China Transform the International System?

KEMAL İNAT* **and MELİH YILDIZ****

* Sakarya University, Turkey
ORCID No: 0000-0001-5292-3331

** Sakarya University, Turkey
ORCID No: 0000-0001-8226-6299

ABSTRACT *In this article, the rise of China is discussed in the light of economic and military data, and what the challenge from China means for the global leadership of the U.S. is analyzed. Changes in the indicators of the U.S. and China's economic and military power over the last 30-40 years are examined and an answer is sought for the following question: What will the consequences of China's rise be in terms of the international political system? To answer this question, similar 'rise and challenge' precedents are discussed to contextualize and analyze and the present challenge China poses. This article concludes that while improving its global status, China has been taking the previous cases' failed challenges into consideration. China, which does not want to repeat the mistakes made by Germany and the Soviet Union, is hesitant to pursue an aggressive military policy and tries to limit its rivalry with the U.S. in the economic area. While Chinese policy of avoiding direct conflict and focusing on economic development has made it the biggest economic rival of the U.S, the rise of China initiates the discussions about the end of the U.S. and West-led international system.*

Keywords: China, U.S., Rise of China, Challenge to American Leadership, International System

Insight Turkey 2021
Vol. 23 / No. 4 / pp. 231-258

Received Date: 15/10/2021 • **Accepted Date:** 01/12/2021 • **DOI:** 10.25253/99.2021234.13

Introduction

The main purpose of this article is to present the kind of consequences the rise of China poses in terms of U.S. global leadership and the structure of the international system. This entails a discussion of how the power struggle between the two countries will take shape in the future and an exploration of the data that indicates China's economic and military power. To facilitate this discussion, similar recent 'rises' and 'challenges' are closely examined. In this framework, a two-stage analysis is made to help predict how the challenge from China will affect the international political system. First, by examining how some recent rises and challenges have developed and culminated, helpful examples are provided to contextualize how China's current challenge should be assessed. Second, the data regarding the current economic and military powers of China and the U.S. are compared and inferences are made about how the struggle between these two actors will take shape based on the trend of change in these indicators, particularly over the last 30 years.

The article compares Chinese and U.S. power by focusing on economic and military data. For this reason, other quantitative and qualitative elements of power and qualitative elements, such as the form of government and diplomatic activity, are largely excluded from the scope of this research. From this perspective, predictions made about the effects of the Chinese challenge of the international system are limited to the economic and military dimensions of the power struggle. However, considering that economic capacity is the most determinant factor in the global power struggle, it should be stated that the growing increase in China's economic capacity will have a significant impact on shaping the international political system.

In the article, first, the rise or challenges posed by England, Hitler's Germany, the Soviet Union (USSR), and the U.S. to the international political system are examined in terms of their economic and military dimensions. Then, the challenge from China is revisited in its economic and military dimensions, and the main economic and military capacities of the China and U.S. are compared. The article concludes with an analysis of what China's rise means in terms of the international political system through the lens of the data examined in the previous sections.

Contemporary Examples of 'Rise' and 'Challenge'

The Rise of England

The process that transformed England, one of the great powers in the international system, into the most powerful actor in the system, began in the second half of the 18th century. The Industrial Revolution that took place in this period

enabled England to increase its economic power rapidly and turned London into the center of the global economic system within a century. Thanks to its unrivaled position in the industry, England rapidly increased its share in the world's economy for most of the 19th century. By 1870, the British Empire had come to control nearly a quarter of the world's national income (Table 1).[1]

Table 1: Great Powers' Shares in World National Income (Percent)

	The UK*	The U.S.	Germany	Russia	France
1820	5.2	1.8	3.9	5.4	5.1
1870	9 (24.3)	8.8	6.5	7.5	6.5
1913	8.2 (19.7)	18.9	8.7	8.5	5.3

Source: *The World Economy*[2]

* The ratios in brackets are the share of the entire British Empire in world national income, while the other ratios are only Britain's share.

The increase in England's economic power rapidly increased its impact on international trade. The export of products from Britain's booming cotton-weaving industry, and the rapidly increasing import of raw materials and grains, steeply increased its share in international trade, which rose to 25 percent in the 1870s.[3] The British merchant fleet also expanded rapidly during the 19th century, reinforcing London's growing influence in international trade.

Table 2: British Merchant Fleet (1780-1913)

	1780	1850	1900	1913
Transport Capacity (Million tons)	1	4.07	30.93	45.93
Share in the World (Percent)	25.3	27.9	32.18	26.86

Source: *The World Economy*[4]

Another indicator of England's rapidly growing economic power in the 19th century, and the reflection of this power in its expanding global hegemony, are England's foreign investments. Its growing wealth allowed London to invest in rapidly increasing amounts all over the world. These investments largely focused on areas that would contribute to the development of international trade, such as ports, warehouses, railways, mines, and banks. By increasing the value of its assets abroad from less than £1 billion in the early 1870s to around £2 billion in 1900 and £4 billion in 1913, England came to control 44 percent of the world's total foreign investments.[5]

The global economic system created by London during the 19th century was protected by England's great military power; its unrivaled navy formed the basis of this power and compensated for its negligible land power. From the end of the 16th century to the beginning of the 19th century, England's Royal Navy had been in global competition with major naval powers such as France, Spain, and the Netherlands for more than two centuries; at the beginning of the 19th century, it established its superiority (Table 3). Increasing its influence in the

England was able to establish its hegemony in the international system in the 19th century thanks to its economic and military power

following period, the Royal Navy reached the peak of its power mid-century.[6] Despite occasional challenges from France and Russia in the second half of the 19th century and from Germany at the beginning of the 20th century, England's Royal Navy was able to continue to protect imperial interests.

Table 3: The Superiority of the British Navy

Number of Warships Possessed by Great Powers (1800-1913)					
	1800	1830	1860	1890	1913
The UK	132	86	76	22	52
France	61	33	50	10	8
Russia	58	32	16	4	2
United States	-	5	5	-	16
Germany	-	-	-	-	30
Japan	-	-	-	-	8
Naval Expenditures of the Great Powers 1825-1913 (£ Million)					
	1825	1850	1875	1900	1913
The UK	4.68	7.16	9.82	34.33	48.83
France	1.98	4.29	5.51	17.24	21.73
Russia	1.01	1.91	3.45	8.89	24.48
The U.S.	0.61	1.95	3.76	14.19	27.04
Germany	-	-	2.37	8.94	23.12
Japan	-	-	0.59	7.79	9.80

Source: *Sea Power in Global Politics*[7]

England was able to establish its hegemony in the international system in the 19th century thanks to its economic and military power. However, London's economic power began to erode by the last quarter of the century as a result of the rapid industrialization of other great powers, especially the U.S. and Germany, with the advent of the second Industrial Revolution.[8] This led to the emergence of new rivals to England's naval power, one of the main pillars of British hegemony. Despite losing its monopoly on technology, however, England remained competitive and continued to enjoy leadership in areas such as naval power, vital to the defense of the Empire, as demonstrated in the building of the HMS Dreadnought Royal Navy battleship in 1906.

In short, thanks to its large empire, a strong navy, and rapid economic development, England quickly widened the power gap against other great powers from the beginning of the 19th century and became the most powerful actor in the system by mid-century. Although this position was eroded by military and economic challenges from other great powers starting from the last quarter of the century, England largely succeeded in maintaining its dominant position in the international system until World War I.

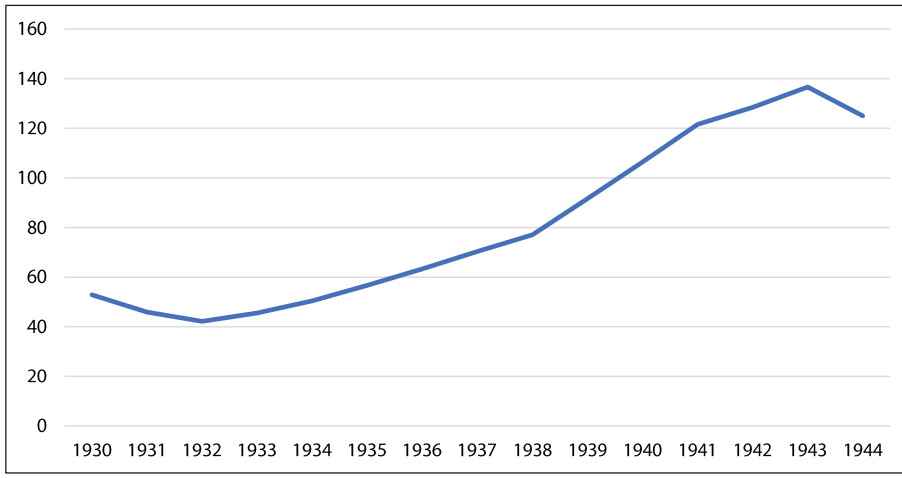
The Rise and Fall of Germany

The increase in Germany's economic and military capacity after Hitler rose to power in 1933 did not bring about sufficient capacity for the hegemony Hitler craved. Germany's military success in the first half of the war, especially the invasion of a 'great power' like France and the incursion into the Soviet Union's territory, initially created a perception that Germany's challenge to the international system was serious. However, when the economic performances of the warring parties during the war and their accompanying military production are closely examined, it is evident that Germany's challenge had almost no chance of success.

The German economy was in a very bad state on January 30, 1933, when Adolf Hitler was appointed Prime Minister (*Reichskanzler*), and the rapid improvement in macroeconomic indicators after this date was described as an 'economic miracle' (*Wirtschaftswunder*). Likewise, the great progress in Germany's field of armament, especially in the 1940s, and the opportunities offered by the ensuing development in the economy, was so striking it was called the 'miracle of armament' (*Rüstungswunder*).[9]

The increase in Germany's Gross National Product (GNP) figures is one of the areas where its economic prowess was most visible. Germany's GNP, which was 42.2 billion Reichsmarks (RM) in 1932, more than doubled by 1939, reaching RM 91.6 billion, and RM 136.6 billion in 1943. In 1944, when the wartime recession made itself felt, economic losses decreased the GNP by approximately 9 percent to RM 125 billion (Graph 1).

Graph 1: Germany's GNP (1930-1944, Billion RM)



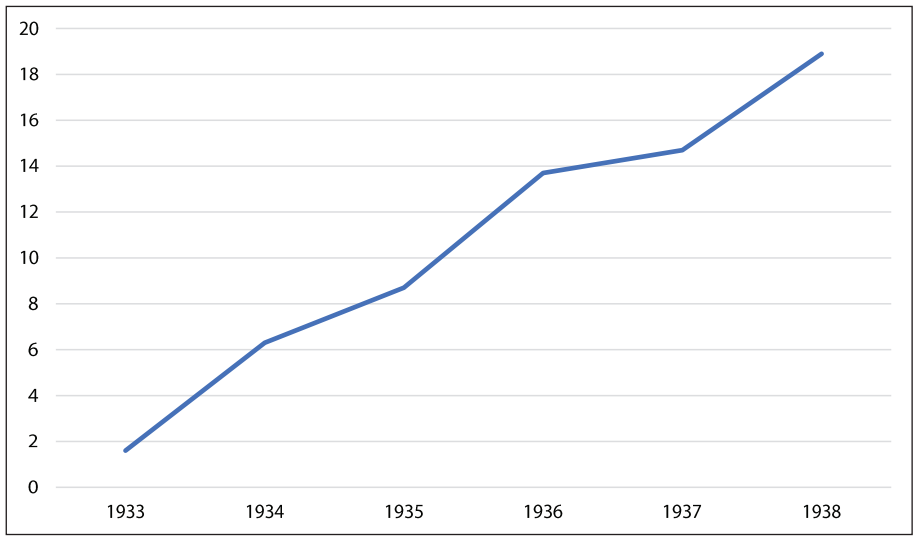
Source: *GESIS*[10]

The astonishing *Wirtschaftswunder* experienced in the Hitler era was caused by two main factors. First, a large amount of money was pumped into the market with a Keynesian-like economic policy in line with the spirit of the time. The market, in which RM 5 billion was transferred between 1933 and 1935, was directed as the state desired in keeping with the 'four-year plan' that came into effect in 1936.[11] Second, the intensive armament policy (*Rüstungswirtschaft*) imposed by Hitler, who wanted to prepare for war quickly, resulted in a significant increase in production in this area, and armament expenditures had a significant share in Germany's GNP.[12]

The Hitler era also saw a dramatic decrease in unemployment figures. The number of unemployed, which exceeded 6 million at the end of 1932 as a result of the Great Depression, fell rapidly below 1 million in 1937 as a result of the employment policies implemented during the National Socialist (NS) administration. However, it should be underlined that Hitler's armament policy also greatly contributed to the increase in employment.[13]

The most important indicator that reveals the role of armament policy in Germany's economic growth is that the share of military expenditures in national income; just 1.6 percent in 1933, it rose rapidly and reached 18.9 percent in 1938. In the same period, military expenditures increased from RM 720 million to RM 15.5 billion, an approximately 21-fold increase, while the increase in total public investments in the same period was only twofold.[14]

Graph 2: Share of Military Expenditure in Germany's National Income (1933-1938, Percent)



Source: *GESIS*[15]

The most important indicator that reveals the role of armament policy in Ger-

many's economic growth is that the share of military expenditures in national income; just 1.6 percent in 1933, arose rapidly and reached 18.9 percent in 1938. In the same period, military expenditures increased from RM 720 million to RM 15.5 billion, an approximately 21-fold increase, while the increase in total public investments in the same period was only twofold.

Germany's increase in military expenditures and disregard for the borders drawn by the Versailles Treaty resulted in the building of a strong army in a short time

Germany's increase in military expenditures and disregard for the borders drawn by the Versailles Treaty resulted in the building of a strong army in a short time. By 1939, when the war began, the ratio of Germany's military expenditures to national income had increased to 23 percent, and its share in total public expenditures to 66 percent. In the same year, while the number of soldiers in Germany reached 4.5 million, the production of weapons needed for the war accelerated, especially warplanes and tanks. Between 1933, when Hitler came to power, and 1939, when WWII began, Germany's total aircraft production amounted to 29,767 units, while this figure was 17,310 for England, 8,163 for France, 7,447 for the U.S., and 33,806 for the Soviet Union (Table 4).[16]

Table 4: Warplane Production of Great Powers (1933-1939)

	1933	1934	1935	1936	1937	1938	1939	Total
Germany	368	1,968	3,183	5,112	5,606	5,235	8,295	29,767
USSR	2,595	2,595	3,578	3,578	3,578	7,500	10,382	33,806
France	600	600	785	890	743	1,382	3,163	8,163
The UK	633	740	1.140	1,877	2,153	2,827	7,940	17,310
U.S.	466	437	459	1,141	949	1,800	2,195	7,447

Source: *Aufstieg und Fall der Grossen Mächte*[17]

Between 1933 and 1938, Germany's military expenditures totaled £2.86 billion; the Soviet Union was the closest country to it with a military expenditure of £2.80 billion. The military expenditures of other countries in the same period were less than half of the amounts spent by these two countries (Table 5).[18]

Table 5: Military Expenditure of Great Powers (1932-1938, £ Million)

Germany	2,868
Russia	2,808
Japan	1,266
The UK	1,200
The U.S.	1,175
France	1,088
Italy	930

Source: *Economy and Society (1939-1945)*[19]

Thanks to its large geography, Russia has traditionally been a major land power; Moscow's superpower position during the Cold War was supported in part by the advances it made in other areas of military power

However, despite Germany's economic performance and armament production before the war, Germany did not have the economic and military power to win a long-term war against the U.S., just as the Axis Powers were insufficient against the Allied Powers. From this point of view, Hitler's moves against the Soviet Union and then the U.S. in the second phase of the war led to Germany's downfall and it fell behind the Soviet Union and England during the war years.

The defeat was inevitable for Germany: it had started the war unpreparedly, lost the oil regions it had seized in the later stages of the war, had difficulty in obtaining the raw materials it needed, and its production facilities were seriously damaged by aerial bombardments. Hitler's revisionist, adventurous policy was mainly a challenge to the order established by the founders of the Versailles Treaty. However, since he did not limit this challenge to the founders of the Versailles order, and chose the Soviet Union as one of the main targets of his expansionist policy, the gap between Germany's economic and military capacity and Hitler's goals made failure inevitable.

The Rise of the Soviet Union

The USSR inherited a collapsed economy from the Russian Empire due to several events that took place consecutively: World War I, the revolution and the civil war all caused great damage. Moreover, the USSR's economy, which had grown rapidly in the interwar period, was adversely affected by WWII. The factor that enabled the USSR to be defined as a superpower in the system established after the war was its military power. However, the rapid economic growth that had begun to be realized immediately after the war gave the impression that Moscow could support its superpower position with economic tools (Table 6).

Table 6: Soviet Union National Income Growth Rates (1946-1991, Percent)

1946-50	1951-55	1956-60	1961-65	1966-70	1971-75	1976-80	1981-85	1986-91
8.9	4.9	5.4	4.8	4.8	2.9	1.8	1.7	-2.1

Source: *The Rise and Fall of the Soviet Economy*[20]

The rapid decline in growth rates in the 1970s and the recession of the USSR economy greatly damaged Moscow's competitiveness in the Cold War (Table 6). The bad course of its economy, which started to be felt intensely in the 1970s and continued until the disintegration process, reversed the successes of

the USSR in closing its economic gap with the U.S. This decline is clearly seen in per capita income. In 1948, the USSR had a per capita income of approximately 25 percent of that of the U.S.; it was able to increase this rate to a mere 35 percent in 1973 after a quarter-century of rapid economic development. The period of stagnation, however, led to a rapid decline in this rate, and it returned to 25 percent in 1991 when the USSR was dissolved.[21]

The USSR's economy began to fall short of meeting the requirements of superpower status long before the end of the Cold War. The USSR national income, which could never reach even half of the U.S. national income, had also rapidly regressed in the face of other economic powers since the 1970s when the multipolar economic structure emerged. The fact that the USSR forced its economy at greater rates in order to maintain military competition exacerbated its economic problems. While defense expenditures placed a great burden on the Soviet economy even before 1980, this burden was further aggravated as a result of Moscow's effort to respond to the rapid increase in U.S. defense expenditures in the 1980s under President Ronald Reagan. The ratio of USSR military expenditures to national income, which was 12.2 percent in 1970, increased to 14.8 percent in 1980 and reached 17.8 percent of the national income by 1988.[22]

What turned the USSR into a superpower after WWII and enabled it to maintain this position for a time, despite its increasing economic problems especially since the 1970s, was its great military power. Thanks to its large geography, Russia has traditionally been a major land power; Moscow's superpower position during the Cold War was supported in part by the advances it made in other areas of military power. One of these areas is naval power.

Table 7: Total Tonnage of U.S. and USSR Naval Power (1950-1990, Million tons)

	1950	1960	1970	1980	1990
The U.S.	9.2	9.4	7.6	4.2	4.0
USSR	0.6	1.3	2.0	3.1	3.3

Source: *Power at Sea: A Naval Power Dataset, (1865-2011)*[23]

The Russian navy, which was one of the largest naval powers of the early 20th century, suffered a major defeat against Japan in 1905. In the period following this defeat, the political turmoil experienced by the country caused naval power to be neglected. This situation started to change immediately after WWII. The Soviet navy, which grew rapidly during the Cold War, started to show its power and influence in the open seas, especially after the 1970s.[24] Although the USSR's naval strategy and naval building program were quite different from those of the U.S.,[25] they posed a serious challenge to the U.S.'s naval superiority during the Cold War (Table 7).

It was not only its conventional strength that made the USSR a military superpower, but also its large nuclear capacity. The USSR became the second state to have nuclear weapons in 1949, breaking the short-term monopoly of the U.S. in this area. The USSR, which rapidly expanded its nuclear capacity, also increased its capacity to develop ballistic missiles, ballistic missile submarines, and strategic bombers, and achieved the ability to hit targets on the U.S. mainland with these weapons in the early 1960s.[26] The USSR focused on constantly increasing its military power in order not to be left behind in its global struggle against the U.S. Moscow's intense efforts in this direction ensured the establishment of a military balance with Washington in both conventional and nuclear fields. In this protracted military rivalry and arms race, by 1986, the Soviet army had twice as many soldiers as the U.S., more than three times more tanks, an air force that could compete with that of the U.S., at least in quantity, and a navy that posed a serious threat to Washington's naval supremacy.

Politically, the USSR positioned itself as a challenging power in the international system, which had been shaped at a time when Germany and Japan had been pushed out of the system as defeated great powers, England and France had begun to reduce their global commitments post-war and the U.S. was positioned as a hegemon.[27] The USSR's challenge posed a serious threat to American hegemony until the early 1970s. However, due to its increasing economic problems, the gap between the military and economic power of the USSR began to widen rapidly from the beginning of the 1970s onward, which led to the failure of Moscow's challenge to Washington's global hegemony.

The Rise of the U.S.

The rise of the U.S. can be analyzed in a three-stage process. In the first stage, the U.S. achieved rapid economic, demographic and military growth through its geopolitical advantage of being away from the great power centers of the period, and rose to the position of the world's largest economic power at the end of the 19th century. Later, after defeating or outshining the traditional European powers and Japan in WWII, it briefly gained the position of the only superpower with a monopoly on nuclear weapons, and then became one of the two most important actors of the bipolar system, with the USSR as the second superpower. Finally, with the disintegration of the USSR and the end of the Cold War, the U.S. became the sole superpower again.

To take a closer look at these stages, the U.S., whose share in world industrial production increased to 23.6 percent in 1900, had 27 percent more industrial production than England and 78 percent more than Germany.[28] The U.S., which joined WWI late, emerged advantageously from the war, which brought about the end of the traditional empires, and consolidated its position as the world's largest economic and military power. Just before WWII, the U.S. had a GDP twice that of Germany/Austria and the Soviet Union, three times that

of France and Japan, more than five times that of Italy, and an economic size that was nearly three times that of England which, even with its colonies, could only reach 71 percent of the U.S.' GDP. After WWII, the economic superiority of the U.S. became even more evident. By 1945, while the GDP of the U.S. increased by 84 percent compared to the pre-war period and reached $1.474 trillion (in 1990 figures), the total GDP of the other six major powers could only reach 93.2 percent of the U.S. (Table 8). The shrinkage experienced in the economy of the European powers and Japan pushed these countries to the periphery of world politics, the U.S. and USSR emerged as superpowers.

Despite military and economic competition with the Soviet Union and economic competition with Japan and some European countries during the Cold War, the U.S. continued to be the most powerful country in the world

Table 8: Great Powers' GDP and Their Ratio to the U.S. (1938-1945, Million $/1990 figures)

	1938	Ratio to U.S. Percent	1945	Ratio to U.S. Percent
United States	800		1.474	
USSR	359	44.8	396	26.8
The U.K. U.K. + Colonies	284 569	35.5 71.1	331	22.4
France France + Colonies	186 234	23.2 29.2	101	6.8
Germany Germany + Austria	351 376	43.8 47.0	310	21.0
Japan Japan + Colonies	169 232	21.1 29.0	144	9.8
Italy Italy + Colonies	141 144	17.6 18.0	92	6.2
Total of USSR, UK, France, Germany, Japan, Italy	1,490	186.2	1.374	93.2

Source: *Mark Harrison, (1998)*[29]

Despite military and economic competition with the Soviet Union and economic competition with Japan and some European countries during the Cold War, the U.S. continued to be the most powerful country in the world. In this period, two important comparisons can be made between the economic sizes of the U.S. and other great powers. First of all, although the undisputed economic superiority of the U.S. lasted until the 1960s, Japan and some European countries have improved their positions against the U.S. in terms of GDP since the 1970s; by 1980, the total GDP of the six countries reached 166 percent of that of the U.S. In 1960, this rate was only 89 percent. This shows that the economic supremacy of the U.S. has decreased compared to the first period

One of the main indicators of China's coming to the fore as the actor that poses the biggest challenge to U.S. world leadership and the superiority of the West is the huge increase in its economic capacity

of the Cold War. Secondly, while the USSR was the first power against the U.S. in terms of GDP figures at the beginning of the Cold War, Japan took its place toward the end. In 1990, Japan's GDP reached 52.5 percent of that of the U.S., as seen in Table 9, which shows that the most serious economic challenge to the U.S. came from the Far East.

Table 9: Ratio of Great Powers' GDP to that of the U.S. (Percent)

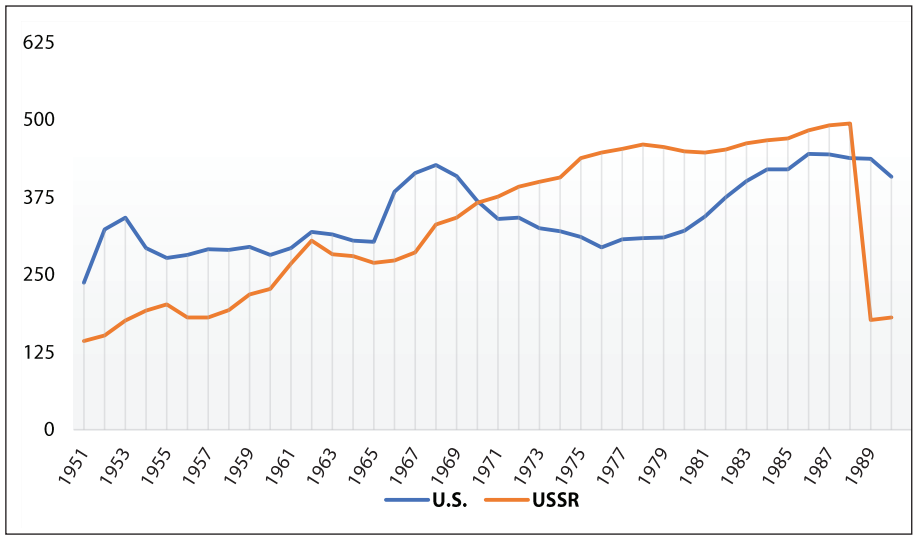
	1950	1960	1970	1980	1990
USSR	33.1	34.8	41.3	33.3	13.5
The UK	18.6	13.5	12.2	19.7	18.3
France	13.1	11.4	13.8	24.5	21.3
Germany	12.6	14.2	20.1	33.2	29.7
Japan	8.4	8.1	19.8	38.7	52.5
Italy	7.6	7.4	10.5	16.7	19.8
Total	93.4	89.4	117.7	166.1	155.1

Source: *Table compiled by the authors with data from World Bank; UN Data; Kennedy, Aufstieg und Fall der Grossen Mächte; Harrison, The Economics of World War II*[30]

From a military point of view, the only country that had the capacity to compete with the U.S. during the Cold War period was the Soviet Union. Although the USSR lagged far behind the U.S. economically, its total defense expenditures between 1950-1990 ($13,388 billion) were very close to the defense expenditures of the U.S. ($13,872 billion). In fact, the USSR, which was behind the U.S. in annual military expenditures until 1970, made more annual military expenditures than the U.S. from this date until 1988. Even in the second half of the 1980s, when serious problems were experienced in the Soviet economy, high defense expenditures continued; however, there was a serious decline in this area in 1989 and 1990, when instability increased with the Eastern European Revolutions (Graph 3).

The military capacity of the USSR and the increasing economic power of Japan and the European countries were the factors that limited the power of the U.S. in the second half of the Cold War. However, the fact that the U.S. was the only surviving superpower in the new era that began with the disintegration of the Soviet Union resulted in the writing of works on the 'unipolar system' in the 1990s and the consolidation of the superiority of the West. It didn't take long, however, to see that these evaluations and predictions were misguided and for predictions to emerge that the 21st century will be the 'Asian Century.'

Graph 3: Military Expenditures of USSR and the U.S. During the Cold War (2003, $ Billion)



Source: *Statista*[31]

The Challenge From China

Economic Dimensions of the Challenge

One of the main indicators of China's coming to the fore as the actor that poses the biggest challenge to U.S. world leadership and the superiority of the West is the huge increase in its economic capacity. China's GDP, which has not shown any shrinkage on an annual basis since 1977, increased by 3,983 percent between 1990 and 2020, rising from $360 billion to $14.7 trillion. As a result of this increase, China's share in world production, which was 1.6 percent in 1990, reached 17.4 percent in 2020. The Chinese economy, whose annual growth figures were always above 7 percent, grew by an average of 10 percent annually between 1991 and 2015. In the same period, the annual average growth in the economies of Western countries such as the U.S., Germany, France, the U.S., and England remained at the level of 1.5-2.5 percent. According to World Bank data, annual GDP growth figures for China have been higher than those of the U.S. for all years without exception since 1977.[32] Looking at China's main economic indicators, it is clear that there are great increases in exports, imports, and energy consumption in addition to its GDP. China's exports, which rose from $49.1 billion to $2.7 trillion between 1990 and 2020, made China the world leader in this field, while its imports increased from $38.4 billion to $2.3 trillion in the same period. Again, in the same period, China's total energy consumption increased by 406 percent, making it the world's largest energy-consuming country (Table 10).

Table 10: China's Main Economic Indicators (1990-2020)

	1990		2020		Increase between (1990–2020) (Percent)
	China	Share in World (Percent)	China	Share in the World (Percent)	
GDP ($ Billion)	360	1.6	14,723	17.4	3,989
GDP (PPP) ($ Billion)	1,115	3.8	24,273	18.3	2,076
Export ($ Billion)	49.1	1.14	2,723	12.02	5,457
Import ($Billion)	38.4	0.88	2,357	10.83	6,038
Primary Energy Consumption (Exajoules)	28.7	8.4	145.46	26.1	406

Source: *World Bank and BP Statistical Review of World Energy*[33]

When compared with the U.S. in terms of basic economic indicators, China has to a large extent closed the gap in some areas and surpassed the U.S. in many others, taking first place in the world. In Table 11, the two countries are compared in terms of energy production and consumption, Research and Development (R&D) expenditures, and macroeconomic indicators such as national income and foreign trade. By 2020, China had strengthened its position against the U.S. in terms of all of these indicators when compared to 1990. The fact that China's population is more than four times that of the U.S. and that Beijing has achieved higher figures than Washington in some indicators does not, of course, indicate that China has become a greater power than the United States. However, China has become the most important rival to challenge the U.S. dominance with its rapid economic development in the past 30 years –if it continues to grow in a similar way, it is evident that it will be one of the most prominent actors in the global power struggle of the 21st century.

China, which had a figure corresponding to only 6 percent of the U.S. in 1990 in terms of nominal GDP size, reached 70 percent of the GDP of the U.S. in 2020. In terms of GDP size according to purchasing power parity, it not only closed the gap but also surpassed the U.S. in 2017 and reached 115.9 percent of its GDP in 2020, becoming the world's largest country in this field (Graph 4). Between 1990 and 2020, China increased its share of the world's GDP from 3.8 percent to 18.3 percent in terms of purchasing power parity, while the share of the U.S. decreased from 20.3 percent to 15.8 percent in the same period (Table 11).

In terms of per capita income, which is the most important indicator of welfare, China still has a long way to go to reach the figure of the U.S. Despite

taking serious steps to close the gap with the U.S. in this area between 1990 and 2020, the per capita income in China has barely reached 16.5 percent of the U.S. in nominal figures. Considering that this rate was only 1.3 percent in 1990, it is seen that China's progress in this regard is quite large; however, there are more steps to be taken by the Beijing administration in order to bring the welfare level of its people to that of the American people.

Table 11: China-U.S. Comparison in Terms of Main Economic Indicators (1990-2020)

	1990				2020				U.S.-China Ratio Percent	
	The U.S.	World Share Percent	China	World Share Percent	The U.S.	World Share Percent	China	World Share Percent	1990	2020
GDP ($ Billion)	5,963	26.2	360	1.6	20,937	24.7	14,723	17.4	6.0	70.3
GDP PPP ($ Billion)	5,963	20.3	1,115	3.8	20,937	15.8	24,273	18.3	18.7	115.9
Per Capita Income ($)	23,888		318		63,543		10,500		1.3	16.5
Per Capita Income PPP ($)	23,888		982		63,543		17,311		4.11	27.2
Export ($Million)	551.8	12.8	49.1	1.14	2,134	9.4	2,723	12.02	8.9	127.6
Import ($Million)	629.7	14.4	38.4	0.88	2,811	12.9	2,357	10.83	6.1	83.8
Energy Production (MTOE)	1,647	18.7	881	10.0	2,190	15.4	2,749	19.4	53.5	125.5
Primary Energy Consumption (Exajoules)	80.99	23.6	28.70	8.4	87.79	15.7	145.46	26.1	35.43	165.7
Renewable Energy Consumption (Exajoules)	0.67	42.4	0.01	0.6	6.15	19.4	7.79	24.6	1.49	126.6
R&D Spending ($ Billion)	161.4*		9.2*		580.2	24.9	574.4	24.7	5.7*	99.0

Source: *Compiled from data from World Bank, U.S. Bureau of Economic Analysis, BP Statistical Review of World Energy 2021, Enerdata, National Science Foundation, and R&D World.*[34]

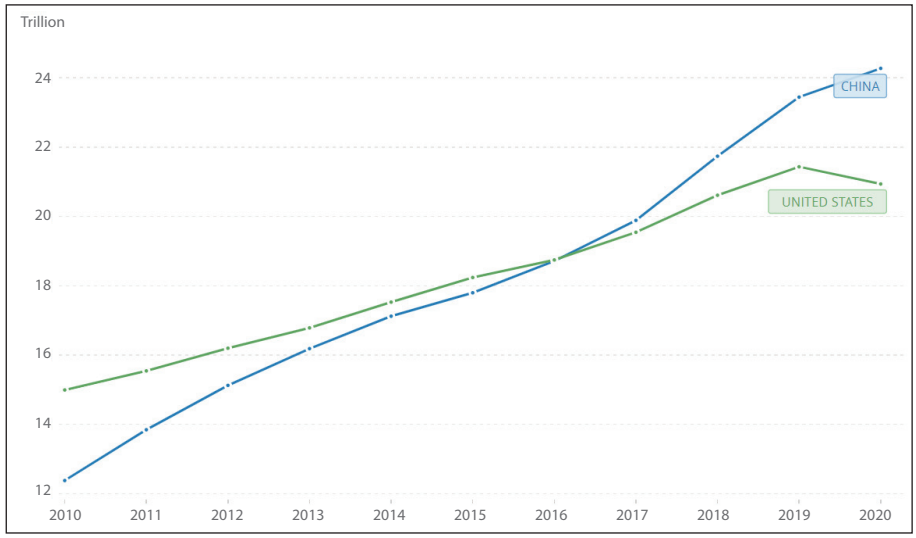
* Figures from 1991

In terms of foreign trade, which is the driving force behind China's economic growth, Beijing has made great progress in the last 30 years compared to Washington. China, which was able to export only 8.9 percent of the U.S. export figures in 1990, had begun exporting more than the U.S. by 2020 and

According to 2020 data, while China is by far the world's largest energy importer with 799 Mtoe, the U.S. has a surplus of 92 Mtoe in energy trade

this ratio has increased to 127 percent. With these figures, China's share in world exports increased from 1.1 percent to 12 percent between 1990 and 2020, while the share of the U.S. decreased from 12.8 percent to 9.4 percent. The same is true for import figures. China, which imported 6.1 percent of the U.S.' goods and services in 1990, increased this rate to 83 percent in 2020. In the same period, China's share in total world imports increased from 0.8 percent to 10.8 percent, while the share of the U.S. decreased from 14.4 percent to 12.9 (Table 11). In terms of foreign trade, it should be noted that China, which had a surplus of $366 billion, has a serious advantage when compared to the U.S., which had a deficit of $677 billion in 2020.

Graph 4: GDP of the U.S. and China by Purchasing Power Parity (2010-2020, $ Trillion)



Source: *World Bank*[35]

In terms of energy, which is an indispensable element for sustainable economic development, China strengthened its position compared to the U.S. between 1990 and 2020. In these 30 years, China increased its share in world energy production from 10 percent to 19.4 percent, while the share of the U.S. decreased from 18.7 percent to 15.4 percent. In parallel, China, which was able to produce only 53.5 percent of the energy of the U.S. in 1990, increased this rate to 125 percent in 2020 and became the world's largest energy-producing country. There are similar figures in terms of energy consumption. China, whose total energy consumption was only 35.3 percent of the U.S. in 1990, became the world's largest energy-consuming country by increasing this rate to 165

percent in 2020. In the same period, China's share in world primary energy consumption increased from 8.4 percent to 26.1 percent, while the share of the U.S. decreased from 23.6 percent to 15.7 percent (Table 11).

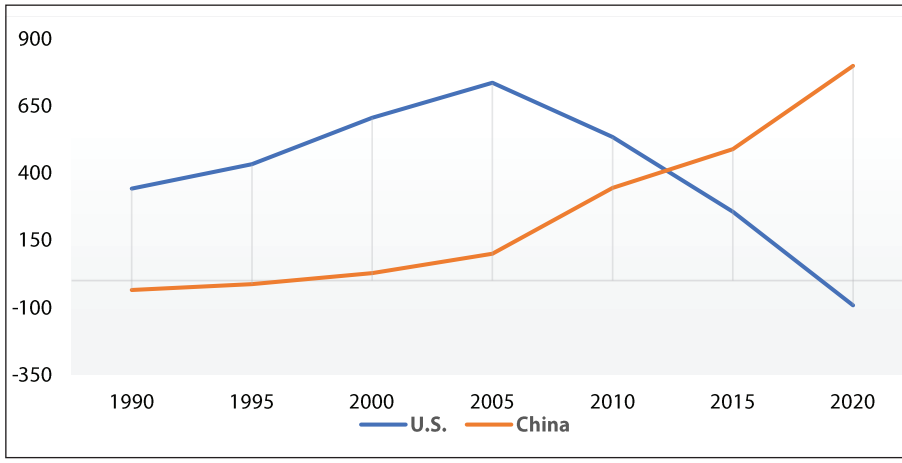
Although these figures give an idea about the intensity of China's economic activities, they also point to its fragile side: China is more import-dependent than the U.S. in terms of energy resources. As the world's largest energy consumer, and one whose consumption is expected to gradually increase, China is in a disadvantaged position in terms of oil, coal, and natural gas reserves when compared to the U.S., which still has a share of around 80 percent in world energy consumption (Table 12). According to 2020 data, while China is by far the world's largest energy importer with 799 Mtoe, the U.S. has a surplus of 92 Mtoe in energy trade. In 1990, the situation for these two countries was the opposite; the U.S. had an energy deficit of 342 Mtoe, while China had an energy surplus of 35 Mtoe. This situation was reversed with the U.S.'s shale oil/gas revolution; as of 2019, the U.S. had become a net energy exporter country. China, which has insufficient resources, has been a net energy importer since 1997 and the world's largest energy importer since 2012 (Graph 5).

Table 12: China and U.S.' Oil, Coal, and Natural Gas Reserves (2020)

	The U.S.	World Share Percent	China	World Share Percent
Oil (Billion barrel)	68.8	4.0	26	1.5
Coal (Billion Tons)	248.9	23.2	143.2	13.3
Natural Gas (Trillion cubic meters)	12.6	6.7	8.4	4.5

Source: *BP Statistical Review of World Energy 2021*[36]

Graph 5: Energy Trade Balance of the U.S. and China (1990-2020, Mtoe)



Source: *Compiled from Enerdata*[37]

The fact that Beijing's steps to increase its military capacity pose a threat to the military superiority of the United States has started to become evident, especially since 2010; this can be clearly tracked in its military expenditures

China's foreign dependency in the field of energy has led Beijing to develop domestic and renewable resources; as a result of this policy, China was responsible for 54.3 percent of world coal consumption and 24.6 percent of renewable energy consumption in 2020.[38] While the share of the U.S. in renewable energy consumption in the world decreased from 42.4 percent to 19.4 percent between 1990 and 2020, China's share increased from 0.10 percent to 24.6 percent in the same period. This is a reflection of the importance China attaches to renewable energy sources (Table 11). According to 2020 data, China, which has 36 percent of the installed photovoltaic (solar energy) power in the world, has 3.4 times more installed power than the U.S. in this field. According to data from the same year, China has 2.4 times more installed wind turbine capacity than the U.S., with 38.5 percent of the installed wind turbine capacity in the world.[39]

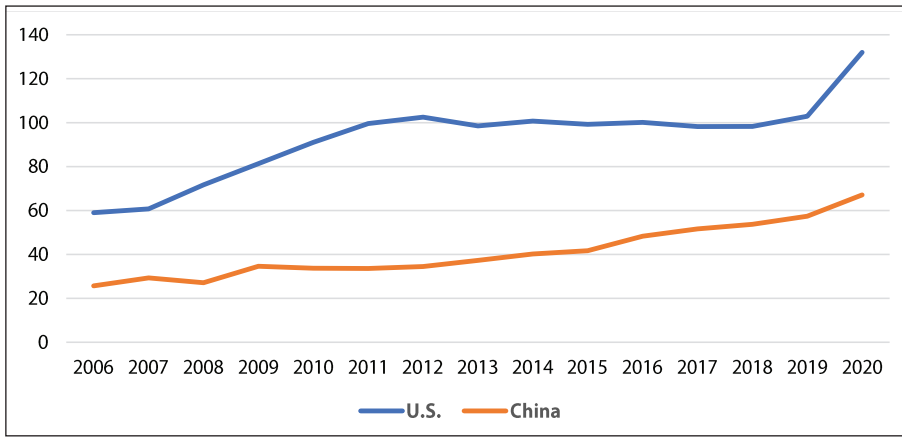
China has left the U.S. and other western countries behind in renewable energy technologies and has caught up with the U.S. in terms of expenditures for R&D activities as of 2020. While China's R&D expenditures in 1991 corresponded to only 5.7 percent of the U.S.' expenditures in this field, this rate increased to 99 percent in 2020 (Table 11). China spent $574.4 billion on R&D in 2020, surpassing the total R&D expenditures of Japan, Germany, India, South Korea, and France, which are among the top seven spenders in the world in this category.[40]

This increase in China's R&D expenditures is evident in the number of Chinese-based companies included in the Fortune 500 ranking of high-tech companies. Accordingly, while there were seven American companies and only two Chinese companies in 2010 in the "aerospace and defense companies" category in the list of the world's largest 500 companies, the number of American companies in this category decreased to six in 2020, while the number of Chinese companies increased to seven. In the same period, the sales revenues of the American aerospace and defense companies in this list decreased from $289 billion to $286 billion, while the revenues of the Chinese companies increased from $49 billion to $270 billion. In terms of the general ranking, while there were 175 American companies compared to nine Chinese companies in 2000, the number of Chinese companies in the list increased to 124 in 2020, and the number of American companies decreased to 121.[41]

Finally, when general government debt –another important macroeconomic indicator– is examined, Beijing is in a more advantageous position compared

to Washington. According to 2020 data, while China's public debt was at the level of 67 percent of GDP, this rate was 130 percent, nearly twice that of China, for the U.S., which lost its budget discipline due to the impact of the COVID-19 pandemic crisis (Graph 6). These figures have made the U.S. the country with the third-highest public debt-to-GDP ratio among Organization for Economic Co-operation and Development (OECD) countries after Greece and Japan in 2020.[42] However, as can be seen in Graph 6, China's public debts are increasing continuously, similarly to those of the U.S., and this increase has gained momentum in recent years.

Graph 6: Ratio of General Public Debt to GDP in U.S. and China (2006-2020, Percent)



Source: *CNBC*[43]

Military Dimensions of the Challenge

In October 2017, Chinese President Xi Jinping stated at the 19th Party Congress of the Chinese Communist Party that the modernization of his country's military power would be completed by 2035 and that China would become a 'world-class' power by the middle of the century.[44] Indeed, Beijing had begun to intensify its work long before this announcement in order to achieve these goals. The fact that Beijing's steps to increase its military capacity pose a threat to the military superiority of the United States has started to become evident, especially since 2010; this can be clearly tracked in its military expenditures.

After the Cold War, approximately 45 percent of military expenditures worldwide were made by the United States. While the share of the U.S. has started to decline in recent years, China's share has increased rapidly. Rather than the decrease in U.S. military expenditures, the rapid increase in China's expenditures was an effective factor in this change. While China's military expenditures were seven percent of the U.S.' in 2000, this rate increased to about 16 percent in 2010. In 2020, China spent $252 billion, compared to $778 billion spent by the U.S., comprising about one-third of U.S. military spending (Table 13).

Table 13: the U.S. and China's Military Expenditures & Shares in World Military Expenditures (1990-2020)

	Military Expenditure ($ Billion)						
	1990	1995	2000	2005	2010	2015	2020
The U.S.	325.1	295.8	320.1	533.2	738.0	633.8	778.0
China	10.1	12.6	22.9	45.9	115.7	214.5	252.0
	Share in World Military Expenditures (Percent)						
	1990	1995	2000	2005	2010	2015	2020
The U.S.	45.8	40.9	43.3	45.7	44.6	38.2	39.0
China	1.4	1.8	3.1	4.0	7.0	12.9	13.0

Source: *Compiled from SIPRI and World Bank Data*[45]

The biggest challenge to U.S. airpower comes from China. China's airpower, which is quite significant in quantity, has made rapid progress in terms of quality with the modernization process it has recently undergone. This is clearly seen in warplanes, which are the main indicators of airpower. The proportion of modern, fourth-generation fighter jets in the Chinese air force in 2008 was 20 percent, and the majority of its airpower consisted of J-7 and J-8 aircraft, which are quite old and insufficient for today's wars. In 2020, the proportion of J-7s and J-8s in China's air force decreased to 25 percent, while modern, fourth-generation aircraft such as J-10, J-11, and J-16 made up the majority.[46] Efforts and resources devoted to the modernization of its airpower have quickly transformed China into one of the leading countries in fighter jet technology. The development of the fifth-generation J-20 fighter aircraft is a clear indication of this. The J-20, which entered service in 2017, became the world's third operational fifth-generation fighter aircraft after the F-22 and F-35, and China became the second country to produce such advanced fighter jets after the United States.[47]

In addition to its work on airpower modernization, China has been working intensively on unmanned aerial vehicles (UAVs), whose military importance and influence have increased rapidly since the beginning of the century. These efforts have transformed Beijing into one of the leading countries in the field of UAV technology. While China has created a large inventory of MALE (Medium Altitude-Long Endurance) class UAVs in a short time, it has also started to develop HALE (High Altitude-Long Endurance) class UAVs such as Soaring Dragon and Cloud Shadow in recent years. These UAVs in particular help to increase China's ISR (Intelligence, Surveillance, and Reconnaissance) capability.[48] Its intensive work in the field of UAV technology is rapidly increasing Beijing's competitive power vis-à-vis the U.S. in this field.[49]

The naval power of the U.S. is one of the most effective tools to help it maintain its global hegemony. However, its superiority has recently been challenged by China. There are important reasons pushing Beijing to create a strong navy. The security of maritime trade routes is a serious issue for China, as it has great

importance for international trade in its economic growth.[50] In addition, important issues for Chinese foreign policy, such as Taiwan and the South China Sea, bring about the need for a strong navy.

Table 14: U.S. and China's Air Force Powers (2005-2020)

	Fighter Aircraft			Attack Helicopters			Heavy and Medium Class Transport Aircraft		
	2005	2015	2020	2005	2015	2020	2005	2015	2020
The U.S.	3,803	3,500	3,475	1,477	908	867	697	709	686
China	2,643	1,971	2,041	31	150	278	56	65	113

Source: *Compiled from IISS Data*[51]

China has made a great leap forward in navy building in recent years. The investments made in this field have transformed the Chinese navy into the largest naval power in the world in a short time.[52] This transformation has not only taken place in terms of quantity—in the recent period but great progress has also been made in the development of Chinese naval power capabilities. Beijing is rapidly increasing the number of heavily armed destroyers in its navy. The rapid increase in the number of modern vertical launching systems (VLS)[53] used in the navy is an important example that reflects the development of Chinese naval power. Whereas the Chinese navy had no warships with such modern systems in 2010, it had a total of 1,008 vertical launch system cells in 15 warships by 2020. Compared to the U.S. Navy, which has a total of 9,044 vertical launch system cells in 90 warships in 2020, the Chinese Navy remains far behind in combat capacity. However, the growth rate of Chinese naval power in this area is well above that of the U.S. While Washington increased the number of ships carrying vertical launch systems in the navy by nine between 2010-2020, Beijing went from zero to 15 such modern warships in the same period.[54] The development of the Chinese navy in this area continues at an accelerated pace with many warships under construction, especially Type-055 destroyers.[55]

Table 15: Chinese Naval Force Development and Planning (2000-2040)

	2000	2010	2020	2030	2040
Warships	0	0	2	5	6
Cruisers & Destroyers	19	25	41	60	80
Fleet & Corvette Units	38	50	102	135	140
Submarines	62	56	57	68	72

Source: *China Naval Modernization*[56]

The recent transformation has changed the structure of Chinese naval power; what was once a coastal defense force to a large extent, with very limited capacity to conduct operations in overseas regions, has recently expanded its operation area with the addition of aircraft carriers, modern destroyers, and large

landing and supply ships. With these additions, China has become a global power in this field.

Another reflection of China's rapidly developing military power is seen in its missile capacity. Beijing runs one of the world's most active and diverse missile development programs. With its large inventory of ballistic missiles at various ranges, from the DF-11 short-range ballistic missile with a range of 300 km to the DF-41 intercontinental ballistic missile with a range of 15,000 km, China is rapidly modernizing this inventory with the new missiles it is developing.[57] One of the most important strategic advantages of Beijing's recent missile development efforts is its greatly increased nuclear deterrence capacity. This has been achieved with the six Type-094 class nuclear ballistic missile submarines (SSBN) that China has built in recent years, and the 9,000 km range JL-2 ballistic missile carried by these submarines.[58]

China has also started to challenge the superiority of the U.S. in space, especially with the development it has shown in the last ten years. China became the fifth country to successfully launch a satellite into orbit in 1970.[59] With 207 launches between 2010-2019, Beijing has become one of the biggest players in the space race. In March 2020, about half of the 2,666 active satellites in space (1,327 satellites) belonged to the U.S., while 13.6 percent (363 satellites) belonged to China.[60] Competition for military satellites reveals the extent of Beijing's challenge more clearly. In 2015, China had 68 military satellites compared to the U.S.' 123 military satellites. By 2021, equality had nearly been achieved between the two countries in the field of military satellites: China currently has 132 military satellites compared to the U.S.' 141 military satellites.[61]

Its military transformation in the last decade has turned Beijing into the greatest threat to American hegemony. However, as Chinese President Xi Jinping pointed out, China's military power is in the process of modernization and American military power maintains its technological superiority over China. The basis of the threat from China to Washington's global hegemony is the growth rate of this power rather than Beijing's current military power. This speed may even increase, depending on the frequency of the crises China will experience with the U.S. and the size of the economic resources it will allocate to its military power.

Conclusion and Evaluation

When China's main economic and military indicators for the last 30-40 years are examined, it is clear that the challenge from this country to the international political system led by the U.S. is quite serious. However, looking at the unsuccessful challenges to the U.S.' economic and military superiority over

the past 50 years, it is also clear that one should not draw premature conclusions about China's challenge. Undoubtedly, the Chinese economy grew very fast and reached 70 percent of the U.S. GDP in 2020, largely closing the gap. However, Japan's GDP, which had grown very quickly in the past, had reached similar rates against the U.S. in 1995. In fact, the EU's GDP was greater than that of the U.S. in 2008. However, the rise of these actors was not continuous in the face of the economic superiority of the U.S. Both the Japanese economy after its peak in 1995 and the EU economy in the 2010s experienced serious problems and entered a shrinking process in relation to the U.S. At the end of this process, the ratio of Japan's GDP to that of the U.S. had decreased to 24 percent in 2020, and to 72 percent for the EU (Table 16).

In terms of military capacity, China has taken important steps in the last 30 years, although it has been less effective in closing the military power gap with the U.S.

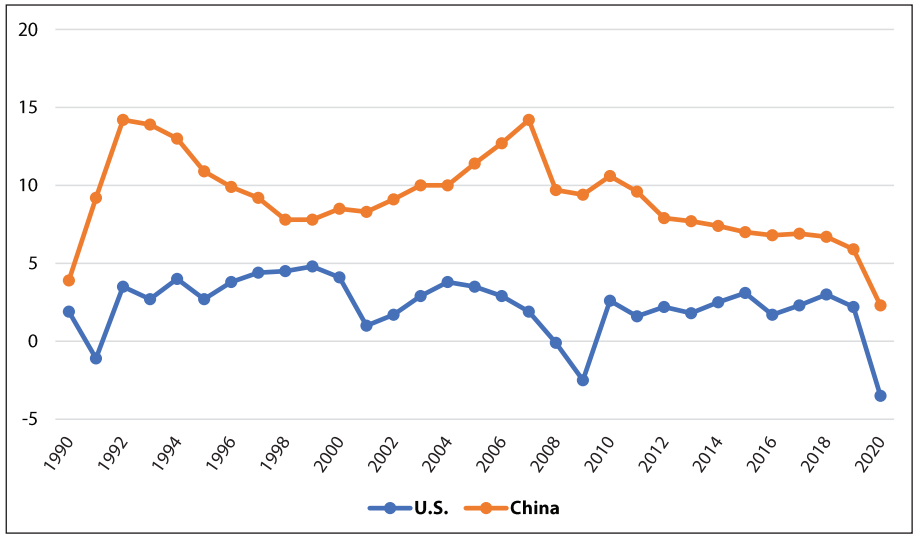
Table 16: GDP Ratio of Japan, the EU, and China to U.S. GDP (Percent)

Years	Japan	EU	China
1980	38.6	115.6	6.7
1990	52.5	108.9	6.0
1995	71.3	108.6	13.4
2000	47.6	70.8	11.8
2008	34.2	110.3	31.2
2010	38.0	96.9	40.6
2020	24.2	72.5	70.3

Source: *Compiled from World Bank Data*[62]

The economic recession experienced by Japan and the EU after their economic rise against the U.S. shows that China may face a similar situation if it does not take the right steps. According to the economic growth figures of the last 10 years, the narrowing of the gap between China and the U.S. raises question marks on this issue. However, after a similar contraction in the 1990s, China widened the gap again during the 2000s and reached an average of 4-5 times the growth rate of the U.S. In fact, in 2009, when the American economy shrank by 2.5 percent during the world economic crisis, the Chinese economy achieved a growth rate of 9.4 percent. During the economic crisis caused by the COVID-19 pandemic, the Chinese economy faced the lowest growth figure since 1976 in 2020. However, while the pandemic-hit U.S. economy shrank by 3.5 percent, the fact that the Chinese economy achieved a growth rate of 2.3 percent indicates that the Beijing administration manages crises better than Washington (Graph 7).

Graph 7: Growth Rates of Chinese and U.S. Economies (1990-2020, Percent)



Source: *World Bank*[63]

In terms of military capacity, China has taken important steps in the last 30 years, although it has been less effective (than in the economic field) in closing the military power gap with the U.S. In 1990, China's military expenditures were only 3 percent of the U.S. military expenditures, while in 2020 this rate exceeded 32 percent. During this period, China's military expenditures increased approximately 25 times, making China the country with the highest military spending in the world after the U.S. Although this increase makes China the most important rival of the U.S. in terms of military capacity, the gap between the two countries needs to be closed even more in order to talk about an actual military challenge. Moreover, the closing of the gap, i.e., even if China's military expenditures were to exceed those of the U.S., does not indicate that China would assume the U.S.' leadership position in the international system. The USSR, which spent more on its military than the U.S. between 1976-1988 and whose military expenditures reached 152 percent of those of the U.S. in 1976, ultimately lost its power struggle against the U.S. (Table 17).

The fact that China did not keep its military expenditures high and is thus not repeating the mistake made by the USSR and Hitler's Germany, suggests that it plans to challenge the U.S. primarily in the economic field. From this point of view, it is possible to state that the Beijing administration expects to achieve a power that is superior to its rival economically, as the U.S. and England did in the fight against other great powers. To fight directly with power with a larger economy, as Germany and Japan did during WWII, or to enter an arms race with a country with an economy nearly three times its size, as the USSR did during the Cold War, are dubious strategies that China has wisely eschewed to date.

Table 17: Ratio of Military Spending of USSR, Russia, the EU, and China Compared to U.S. Military Spending (Percent)

	USSR/Russia	EU	China
1970	99.2	34.5	-
1976	152.1	63.8	-
1980	139.8	58.4	-
1990	44.3	44.3	3.1
2000	2.9	37.7	6.9
2010	7.9	29.1	14.3
2020	7,9	29,9	32,4

Source: *World Bank*[64]

Instead, the Beijing administration seeks to gain allies and increase its effectiveness in international institutions while conducting its global struggle against Washington in the economic field. The harsh attitude of the U.S. toward its allies and international institutions during the presidency of Donald Trump facilitated China's efforts in this area. The Biden Administration has expressed its intention to cooperate with U.S. allies and return the U.S. to international institutions, perhaps making China's international opening policy a little more difficult to realize. However, some influential lobbies in American politics, especially the Israel lobby, that push U.S. foreign policy out of a rational line will continue to make China's task easier.

It is a fact that the wrong decisions taken under the influence of lobbies have led to the deterioration of relations between many countries and the U.S. and created an opportunity for China to approach these countries. One clear example of this is Iran. The pressure and sanctions policies implemented against Tehran under the influence of the Israeli lobby brought Iran, which has the world's second-largest natural gas and fourth-largest oil reserves, closer to China, and gave Beijing a significant advantage in the global power struggle against Washington. Given the fact that energy resources are at the forefront of the areas in which China is most disadvantaged compared to the U.S., it is clear how valuable the increased cooperation with Iran is for Beijing, thanks to the misguided policies of the U.S.

Despite all of these factors in its favor in terms of its rivalry with the U.S., China's management of the problems in East Turkestan, Tibet, and Hong Kong indicate that Beijing has its own serious weaknesses in dealing with internal crises. Beijing's repressive policies in these regions pose a risk to China's internal stability, both by increasing domestic tension and by opening a space for the intervention of other global actors.

As a result, the outcome of China's challenge to the U.S.-led international political system will largely be determined by the development of the economic and military capacities of these two actors. However, how the economic and mili-

tary power of both countries will be shaped in the next period will be closely related to how successful the Beijing and Washington administrations are in preserving their internal stability, approaching the right alliances, engaging inappropriate modes of cooperation, and correctly managing international crises.

Endnotes

1. Goedele De Keersmaeker, *Polarity, Balance of Power and International Relations Theory: Post-Cold War and the 19th Century Compared*, (Palgrave Macmillan, 2017), p. 90.

2. Angus Maddison, *The World Economy: A Millennial Perspective (Volume 1) and Historical Statistics (Volume 2)*, (OECD Publishing, 2006), p. 641; Keersmaeker, *Polarity, Balance of Power and International Relations Theory,* p. 90.

3. W. W. Rostow, *The World Economy: History and Prospect*, (London: The Macmillan Press, 1978), p. 67.

4. Maddison, *The World Economy*, p. 97.

5. John Darwin, *The Empire Project: The Rise and Fall of the British World-System 1830-1970*, (Cambridge and New York: Cambridge University Press, 2009), p. 116.

6. Paul M. Kennedy, *The Rise and Fall of British Naval Mastery*, (UK: Penguin Books, 1976), p. 209.

7. George Modelski and William R. Thompson, *Sea Power in Global Politics 1494-1993*, (London: Palgrave Macmillan Press, 1988), pp. 70-82.

8. Ivan T. Berend, *An Economic History of Nineteenth Century Europe: Diversity and Industrialization*, (Cambridge: Cambridge University Press, 2013), p. 192.

9. Werner Abelshauser, "Kriegswirtschaft und Wirtschaftswunder," *Vierteljahrshefte für Zeitgeschichte*, Vol. 47, No. 4 (1999), p. 504.

10. Walter Hoffman, "Kapitel: Die Produktion von Industrie und Handwerk," in Walther G. Hoffmann (ed.), *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19 Jahrhunderts*, (Berlin, Heidelberg, New York: Springer, 1965), pp. 344-395; https://histat.gesis.org/histat/de/table/details/0B62D8EC-771D20313A03F1C335A55C2A#tabelle.

11. Abelshauser, "Kriegswirtschaft und Wirtschaftswunder," p. 506.

12. Michael Wildt, "Der Weg in den Krieg," *Bundeszentrale für Politische Bildung*, No. 316 (2012).

13. Jörg Lichter, "Kanonen Statt Butter," *Handelsblatt*, (June 25, 2007), retrieved from https://www.handelsblatt.com/politik/konjunktur/oekonomie/nachrichten/wirtschaftshistoriker-bewerten-hitlers-wirtschaftspolitik-neu-kanonen-statt-butter/2826738.html.

14. "Deutsche Staatsausgaben und Volkseinkommen 1928-1938," *GESIS – Leibnitz Institut für Sozialwissensachaften,* retrieved September 27, 2021, from https://histat.gesis.org/histat/de/table/details/8CB941157DF2DF420184AF7AA353E1B2.

15. "Deutsche Staatsausgaben und Volkseinkommen 1928-1938," *GESIS – Leibnitz Institut für Sozialwissensachaften*.

16. Paul Kennedy, *Aufstieg und Fall der Grossen Mächte*, (Frankfurt am Main: Fischer Verlag, 1991), p. 489.

17. Kennedy, *Aufstieg und Fall der Grossen Mächte*, p. 489.

18. Alan S. Milward, *War, Economy and Society 1939-1945*, (Berkeley: University of California Press, 1979), p. 25.

19. Milward, *War, Economy and Society 1939-1945*, p. 25.

20. Philip Hanson, *The Rise and Fall of the Soviet Economy: An Economic History of the USSR from 1945,* (London: Routledge, 2003), p. 5.

21. Hanson, *The Rise and Fall of the Soviet Economy,* p. 244.

22. Christopher Davis, "Country Survey XVI the Defense Sector in the Economy of a Declining Superpower: Soviet Union and Russia, 1965-2001," *Defence and Peace Economics*, Vol. 13, No. 3 (2002), p. 153.

23. Brian Benjamin Crisher and Mark Souva, "Power at Sea: A Naval Power Dataset, 1865-2011," *International Interactions*, Vol. 40, No. 4 (May 2014), p. 626.

24. David M. Walsh, *The Military Balance in the Cold War: US Perceptions and Policy, 1976-1985*, (London: Routledge, 2008), p. 132.

25. While the U.S. naval power largely focused on developing the power projection capacity with its large number of aircraft carriers, the USSR naval power largely tried to increase its submarine capacity; Crisher and Souva, "Power at Sea," p. 622.

26. A Steven J. Zaloga, *The Kremlin's Nuclear Sword: The Rise and Fall of Russia's Strategic Nuclear Forces, 1945-2000*, (Washington: Smithsonian Institution Press, 2002), p. 60.

27. George Modelski, *Long Cycles in World Politics*, (London: The Macmillan Press, 1987), p. 11.

28. Modelski, *Long Cycles in World Politics*, p. 11.

29. Mark Harrison, *The Economics of World War II: Six Great Powers in International Comparison,* (Cambridge: Cambridge University Press, 1998), pp. 3, 10.

30. World Bank; UN Data; Kennedy, *Aufstieg und Fall der Grossen Mächte*, p. 550; Harrison, *The Economics of World War II,* pp. 3, 10.

31. "Vergleich der Verteidigungsausgaben der USA und der USSR in den Jahren von 1950 bis 1990," *Statista*, retrieved from https://de.statista.com/statistik/daten/studie/935886/umfrage/verteidigungsausgaben-der-usa-und-der-udssr/.

32. "GDP Growth (Annual Percent) – China, United States," *The World Bank*, retrieved October 14, 2021, from https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2020&locations=CN-US&start=1974.

33. "GDP (Current US$) – China", *The World Bank*, retrieved October 14, 2021, from https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=CN; "GDP, PPP (Current International $) – China" *The World Bank*, retrieved from https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD?locations=CN; "BP Statistical Review of World Energy 2021," *BP*, (2021), retrieved from https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf.

34. "GDP (Current US$) – China, United States", *The World Bank*, retrieved October 14, 2021, from https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=CN-US; "GDP, PPP (Current International $) – China United States" *The World Bank*, retrieved from https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD?locations=CN-US; "BP Statistical Review of World Energy 2021," *BP*, (2021), retrieved from https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf.

35. "GDP, PPP (Current International $) – China, United States," *The World Bank*, retrieved from https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD?end=2020&locations=CN-US&start=2010.

36. "BP Statistical Review of World Energy 2021," *BP*, (2021), retrieved from https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf.

37. Enerdata, https://yearbook.enerdata.net/total-energy/world-import-export-statistics.html

38. "BP Statistical Review of World Energy 2021."

39. "BP Statistical Review of World Energy 2021."

40. Paul Heney, "2021 Global R&D Funding Forecast Released," *R&D World*, (February 22, 2021), retrieved from https://www.rdworldonline.com/2021-global-rd-funding-forecast-released/.

41. "Fortune 500," *Fortune*, (January 30, 2021), retrieved from https://fortune.com/fortune500/.

42. "General Government Debt," *OECD,* (October 1, 2021), retrieved from https://data.oecd.org/gga/general-government-debt.htm#indicator-chart.

43. Yen Nee Lee, "Investing in Super Trends: These Charts Show the Dramatic Increase in China's Debt," *CNBC*, (June 28, 2021), retrieved from https://www.cnbc.com/2021/06/29/china-economy-charts-show-how-much-debt-has-grown.html.

44. M. Taylor Fravel, "China's "World-Class Military," Ambitions: Origins and Implications," *The Washington Quarterly*, Vol. 43, No. 1 (March 19, 2020), p. 85.

45. Nan Tian, Diego Lopes da Silva, and Alexandra Marksteiner, "Trends in World Military Expenditure, 2020," *SIPRI*, (April 2021), p. 2; "Military Expenditure (Current USD)," *The World Bank*, retrieved from https://data.worldbank.org/indicator/MS.MIL.XPND.CD; "Military Expenditure (Current USD) – United States, China," *The World Bank*, retrieved from https://data.worldbank.org/indicator/MS.MIL.XPND.CD?locations=US-CN.

46. "The Military Balance: The Annual Assessment of Global Military Capabilities and Defence Economics 2021", *The International Institute for Strategic Studies*, (Londra: Routledge, February 2021), p. 232; "The Military Balance 2010: The Annual Assessment of Global Military Capabilities and Defence Economics", *The International Institute for Strategic Studies*, p. 377.

47. Abraham Ait, "What's Next for China's Fifth Generation Fighter Jet?" *The Diplomat*, (February 9, 2019).

48. "Is China at the Forefront of Drone Technology?" *CSIS*, retrieved October 4, 2021, from https://chinapower.csis.org/china-drones-unmanned-technology/.

49. "China's Most Advanced Stealth Drones Make Air Show Debut," *Global Times*, (September 28, 2021), retrieved October 4, 2021, from https://www.globaltimes.cn/page/202109/1235398.shtml.

50. Sukjoon Yoon, "Implications of Xi Jinping's 'True Maritime Power': Its Context, Significance, and Impact on the Region," *Naval War College Review*, Vol. 68, No. 3 (Summer 2015), p. 42.

51. "The Military Balance, 2021", *The International Institute for Strategic Studies*, (London: Routledge, February 2021), pp. 28, 29; "The Military Balance: The Annual Assessment of Global Military Capabilities and Defense Economics 2015", *The International Institute for Strategic Studies*, pp. 24, 25; "The Military Balance: The Annual Assessment of Global Military Capabilities and Defense Economics 2005-2006", *The International Institute for Strategic Studies*, pp. 25-29, 274.

52. In 2020, the Chinese navy had 350 ships, while the U.S. navy had 293; John Grady, "Pentagon Report: China Now Has World's Largest Navy as Beijing Expands Military Influence," *USNI*, (September 1, 2020), retrieved August 26, 2021, from https://news.usni.org/2020/09/01/pentagon-report-china-now-has-worlds-largest-navy-as-beijing-expands-military-influence.

53. Vertical launch systems are one of the most important indicators that reflect the firepower of modern warships. The most important advantages of vertical launch systems are that they can use multiple and different types of missiles.

54. "The Military Balance, 2021," p. 27.

55. Type-055 destroyers are the most advanced warships of the Chinese navy, equipped with 112 vertical launch system cells. They were first put into service in 2020, The Arleigh Burke class destroyers, which are the backbone of the U.S. Navy, have 96 vertical launch system cells.

56. Ronald O'Rourke, "China Naval Modernization: Implications for U.S. Navy Capabilities – Background and Issues for Congress," *CRS,* (August 3, 2021), retrieved from https://sgp.fas.org/crs/row/RL33153.pdf, p. 10.

57. "Missiles of China," *CSIS*, (April 12, 2021), retrieved from https://missilethreat.csis.org/country/china/.

58. Matthew P. Funaiole, Joseph S. Bermudez Jr., and Brian Hart, "A Glimpse of Chinese Ballistic Missile Submarines," *CSIS*, (August 4, 2021), retrieved October 4, 2021, from https://www.csis.org/analysis/glimpse-chinese-ballistic-missile-submarines.

59. "How Is China Advancing Its Space Launch Capabilities?" *CSIS*, retrieved October 5, 2021, from https://chinapower.csis.org/china-space-launch/.

60. "How Is China Advancing Its Space Launch Capabilities?"

61. "The Military Balance, 2021," pp. 41, 238; "The Military Balance: The Annual Assessment of Global Military Capabilities and Defense Economics 2015," pp. 48, 250.

62. "GDP (Current US$) – Japan, China, United States, European Union," *The World Bank*, retrieved October 9, 2021, from https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2020&locations=-JP-CN-US-EU&start=1980.

63. "GDP Growth (Annual Percent) – China, United States."

64. "Military Expenditure (Current USD) – China, United States, Russian Federation, European Union", *The World Bank*, retrieved October 9, 2021, from https://data.worldbank.org/indicator/MS.MIL.XPND.CD?locations=CN-US-RU-EU.