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China's international environment and development challenges

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ABSTRACT

The global economy faces a new complexity with slowing growth and persistent inflation, exacerbated by the pandemic, geopolitical disputes, and underlying structural factors. This paper first analyzes the economic development of the United States and the Eurozone. It then shifts its focus to China, discussing the current dynamics of its economic development landscape. The paper further analyses the Chinese economy's development challenges brought about by deglobalization trends, intellectual property litigation risks, and problems in industrial upgrading. Finally, the paper provides strategic policy recommendations to navigate these complexities. It emphasizes that China should actively engage in international cooperation, strengthen the development of market infrastructure, and enhance the legal protection for intellectual property rights.

KEYWORDS

Deglobalization; intellectual property litigation risk; industrial upgrading

JEL CLASSIFICATION

O11; O40; F63

1. Introduction

The global economy is confronted with intricacies characterized by decelerating growth and inflation, further intensified by the pandemic, geopolitical tensions, and underlying structural factors. Currently, China's external economic environment is dominated by deglobalization, coupled with the United States' implementation of trade protectionism, leading to a gradual accumulation of risks in emerging markets. For example, the imposition of tariffs by the United States will significantly impact the global economy and the Chinese economy. If global tax increases are implemented, it will seriously impact global investment confidence and international trade, possibly leading to a further drop in China's economic growth rates.

China's current demographic structure has lost its advantage, and the economy lacks internal momentum. Hence, the policy demand for stable growth has once again increased. China has made significant changes on the supply side in recent years, such as the de-stocking of the real estate market, supply-side reforms, and the rise of lifestyle service industries, indicating that the old mode of significantly stimulating infrastructure and real estate will not always be effective. One possible solution is to expand fiscal and monetary policies to inject liquidity, such as creating conditions for tax cuts, improving

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the financing environment for private enterprises, reshaping the economic structure, and making the internal economic environment more stable and capable of withstanding external risks.

The paper further analyzes the current development challenges faced by the Chinese economy, such as deglobalization trends, intellectual property litigation risks, and problems in industrial upgrading. In the complicated and dynamic international landscape, China must engage proactively in international cooperation to expand cross-border investment avenues through multilateral and bilateral mechanisms, thereby attracting foreign capital. Meanwhile, Chinese enterprises should enhance their foreign investments and strengthen their position in the global value chain. Furthermore, China should deepen the capital market reform, strengthen infrastructure construction, improve market efficiency and transparency, and enhance investor protection. In addition, intellectual property protection is key to innovation and technological progress; China should improve relevant legal systems, intensify law enforcement, increase the cost of infringement, and protect the fruits of innovation.

This paper first analyzes the economic development of the United States and the Eurozone in Section 2 and then discusses the current dynamics of China's economic landscape in Section 3. Section 4 further analyses the Chinese economy's development challenges, and Section 5 provides strategic policy recommendations for navigating these complexities.

2. The current global economic environment

The slowdown of the global economy has become a crucial widespread concern (Constantinescu, Mattoo, and Ruta 2020). Currently, the momentum of global economic growth appears to be weak, inflation shows stubbornness, and issues such as geopolitical conflicts and international trade frictions are occurring frequently (Leiva-León, Perez Quiros, and Rots 2024; Mena, Karatzas, and Hansen 2022). There is a lack of effective demand; enterprises face significant operational pressures, risks, and hidden dangers in key areas, all contributing to the difficulties and challenges in promoting stable economic operations. According to the United Nations Conference on Trade and Development (UNCTAD)'s 'Trade and Development Report 2024,' the global economy is expected to enter a new normal of slow growth in the coming years, with a growth rate of only 2.7% projected for 2024 and 2025. This figure is significantly lower than the average annual growth rate of 3.0% from 2001 to 2019. The deceleration of economic growth is not only a result of short-term economic fluctuations but also a reflection of deep-seated contradictions in long-term structural transformation. The background and reasons for the global economic deceleration include the weakness of economic recovery, the impact of supply chain crises, geopolitical uncertainties, and shifts in monetary policy.

2.1. U.S

2.1.1. GDP

The U.S. economic development has shown significant adaptability and resilience in recent years. In the face of global economic uncertainties and challenges, the U.S. economy has maintained a relatively robust state by strengthening domestic

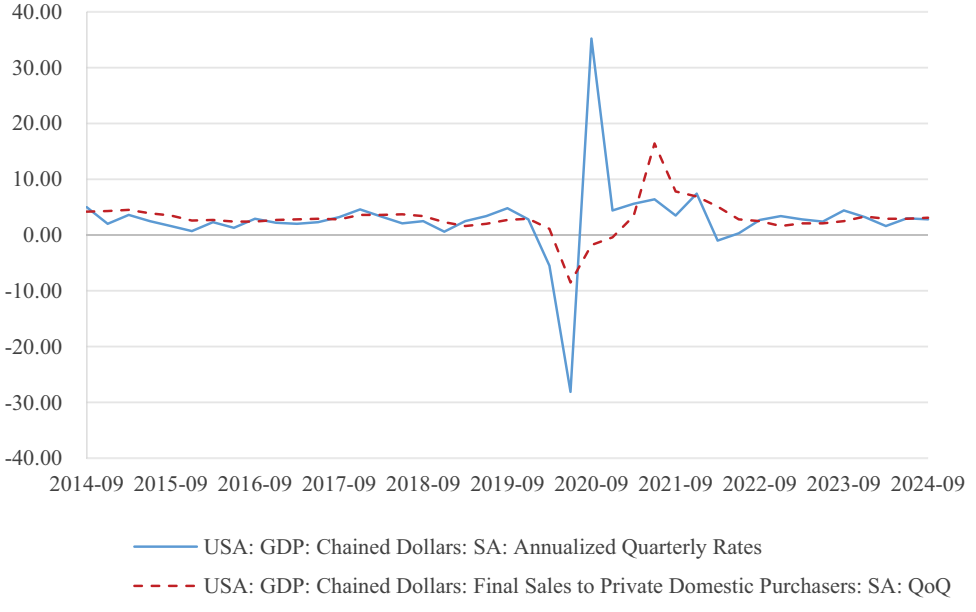

Figure 1. U.S. GDP. Source: Wind

demand, especially the growth in consumer spending and the service sector. This robustness in domestic demand has provided a cushion for the economy, mitigating the impact of external shocks. Figure 1 plots the changes in U.S. Annualized Quarterly GDP Growth Rate over time. The horizontal axis represents the timeline from the third quarter of 2014 to the third quarter of 2024, while the vertical axis denotes the percentage change. The data is sourced from Wind.

As shown in Figure 1, despite experiencing a significant downturn at the beginning of 2020, the U.S. economy quickly rebounded, demonstrating considerable resilience. This indicates that the domestic demand within the U.S. economy has a solid foundation. Furthermore, the data in Figure 1 suggests that by the third quarter of 2024, the U.S. economy's growth rate is expected to rise further, reflecting a sustained strength in domestic demand and a trend toward an accelerated rebound. During the third quarter of 2024, the U.S. GDP's annualized quarter-over-quarter growth rate showed a modest decrease from the second quarter's figures. However, there was an uptick in the growth of domestic demand components. Although the GDP growth rate of 2.8% fell short of the anticipated 3%, final sales to private domestic purchasers displayed a recovery trend. It jumped from 2.9% in the previous quarter to 3.1%, the highest quarterly growth rate observed this year. This category includes personal consumption expenditure and private fixed investments, excluding inventory changes.

2.1.2. PMI

The Manufacturing PMI is a composite index that measures the economic condition of the manufacturing sector. It is based on five key components: new orders, inventory, production, supplier delivery times, and employment. The

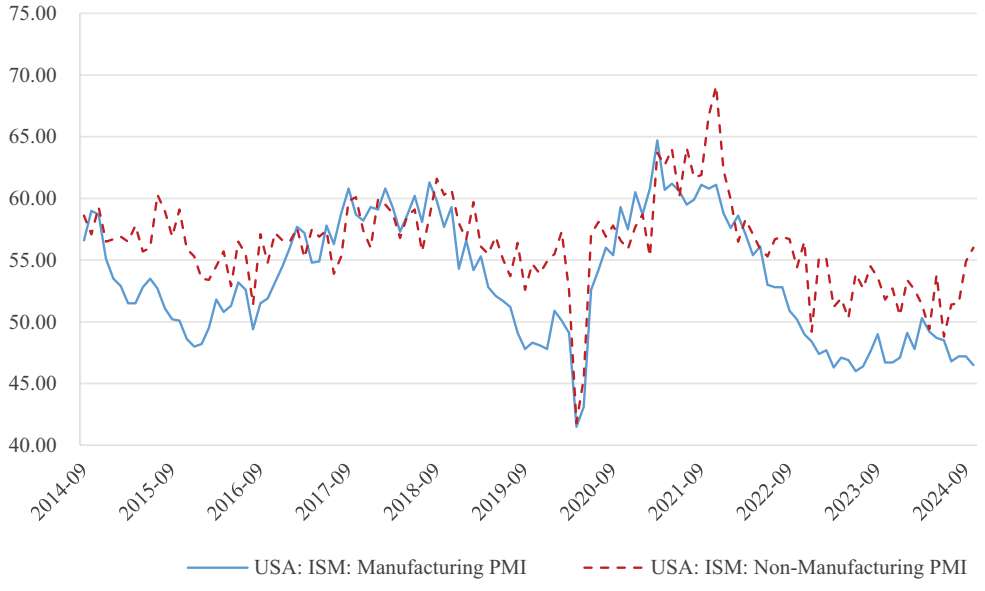

Figure 2. US industrial prosperity index. Source: Wind

PMI value typically uses 50 as the dividing line between economic expansion and contraction; a value above 50 indicates that the manufacturing sector is expanding, while a value below 50 signifies a contraction (Mukherjee, Panayotov, and Shon 2021).

Figure 2 displays the trend of the Manufacturing PMI released by the Institute for Supply Management (ISM) in the United States, covering the period from September 2014 to October 2024. From the Figure, it is evident that the Manufacturing PMI fluctuated significantly from 2014 to 2019. Still, it generally remained above 50, indicating that the manufacturing sector expanded during this period. At the beginning of 2020, there was a sharp decline in the Manufacturing PMI, which was related to the outbreak of the COVID-19 pandemic and the subsequent economic lockdowns. Subsequently, the Manufacturing PMI rebounded rapidly, surpassing pre-pandemic levels, demonstrating a solid recovery in the manufacturing sector.

In recent years, the Manufacturing PMI has continued to contract while the Non-Manufacturing PMI has continued to expand. The PMI for the U.S. manufacturing sector in August, September, and October 2024 were 47.2, 47.2, and 46.5, respectively, reentering the contraction territory after a brief expansion in March of this year. Among these, the new orders index rebounded to 47.1 but remained in the contraction range; the employment index increased to 44.4. The Non-Manufacturing PMI was 51.5, 54.9, and 56, respectively, expanding for three consecutive months, with the expansion rate in October being the fastest since February 2023, although the fluctuations were quite volatile. Among these, the new orders index jumped by 2 points to 57.4, and the employment index increased to 53. In October, the gap between the U.S. Non-Manufacturing PMI and the Manufacturing PMI rose to 9.5 points, the most significant difference since the end of 2019, highlighting the severe divergence in the U.S. economy.

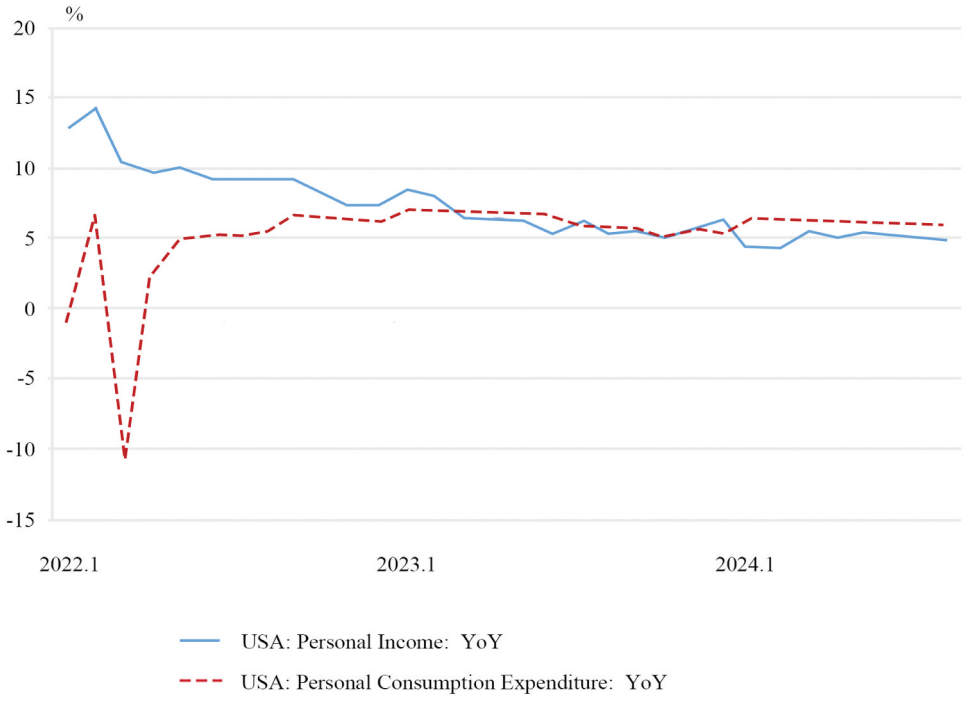

Figure 3. Personal consumption and expenditure in the United States. Source: Wind, CEEM

Historical experience has shown that a prolonged downturn in the manufacturing sector often leads to a subsequent downturn in the service sector.

2.1.3. Consumer demand

Figure 3 illustrates the U.S. consumer demand, which includes the year-over-year growth rates of personal income and personal consumption expenditure. The solid line represents the year-over-year growth rate of U.S. personal income. The dashed line represents the year-over-year growth rate of U.S. personal consumption expenditure. The chart shows that from July to August 2024, the year-over-year growth rates of U.S. personal income were 5.9% and 5.6%, respectively, while the year-over-year growth rates of U.S. personal consumption expenditure were 5.3% and 5.2%, respectively. Personal income and consumption expenditure growth rates are steadily and gradually decreasing.

2.1.4. Inflation

Figure 4 illustrates the inflation situation in the United States from September 2019 to October 2024, showcasing two key indicators: The Consumer Price Index (CPI) and the Core Consumer Price Index (Core CPI), represented as year-over-year growth rates not adjusted for seasonality. The solid line represents the price changes for various goods and services, including food, energy, housing, and transportation. The graph indicates that the CPI began to rise significantly at the start of 2021, reaching a peak, then declining in mid-2022. The dashed line excludes the more volatile

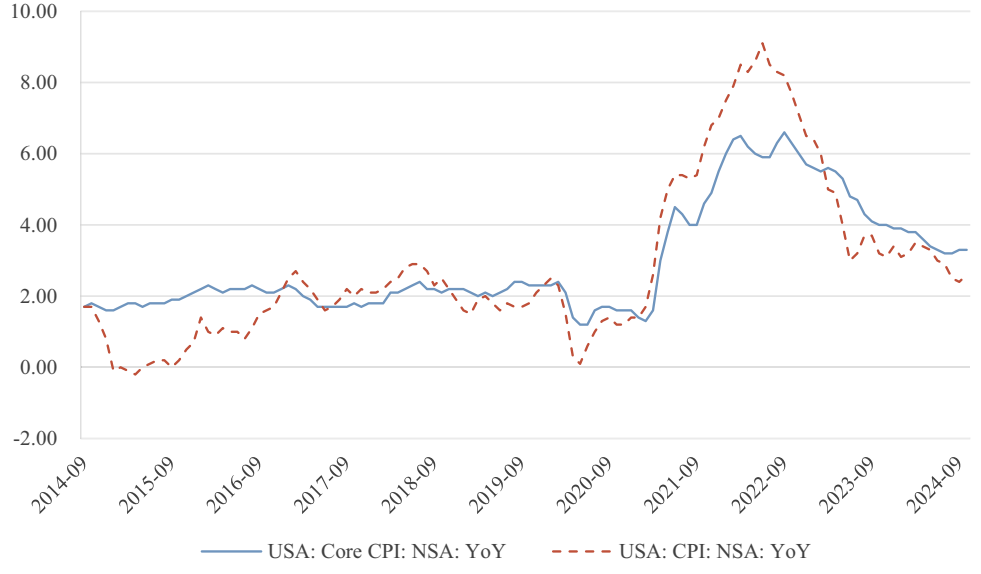

Figure 4. Inflation situation in the United States. Source: Wind

components of food and energy prices, reflecting a more fundamental and persistent trend in inflation. The growth trend of Core CPI is similar to that of CPI but with smaller fluctuations, indicating a more stable pattern of increase. The results in Figure 4 suggest that after a period of lateral movement in the first quarter, the U.S. inflation rate moved downward again in the second quarter. However, core inflation still shows a certain degree of stickiness.

The United States' overall CPI for October rose by 0.2% on a seasonally adjusted month-over-month basis (previous value 0.2%) and rebounded to 2.6% on a year-over-year basis (previous value 2.4%); the core CPI rose by 0.3% month-over-month (previous value 0.3%), and remained unchanged year-over-year at 3.3%, all in line with market expectations. In the future, the main source of upward risk for future inflation is the policy trajectory following Trump's assumption of office. If Trump adopts relatively moderate policies, the upward risk of U.S. inflation is still controllable. However, if he aggressively pursues policies such as additional tariffs on foreign goods and expulsing immigrants, it will increase the cost of goods and services in the United States, bringing a higher inflation risk.

2.2. Eurozone

2.2.1. GDP

Figure 5 presents the year-over-year growth rate of the Eurozone's GDP at constant prices from the third quarter of 2014 to the third quarter of 2024. The curve on the chart reflects the quarterly growth fluctuations of the Eurozone economy over this period. From 2014 to 2019, the Eurozone's GDP growth rate was relatively stable, with minor fluctuations, hovering around 1% to 2%. In the second quarter of 2020, a significant negative growth rate was associated with the outbreak of the COVID-19 pandemic and

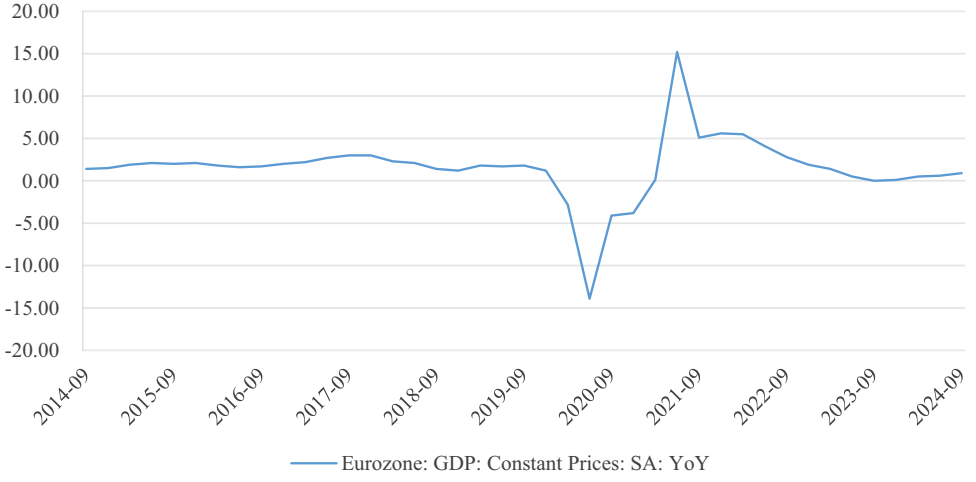

Figure 5. Eurozone GDP. Source: Wind

a substantial decline in economic activity. Subsequently, in the third quarter of 2020, the GDP growth rate rebounded swiftly, indicating a rapid economic recovery following the initial impact of the pandemic. In the second quarter of 2024, the Eurozone's GDP grew by 0.6% every quarter, which was in line with expectations, up from the previous quarter's growth of 0.4%.

2.2.2. Industrial production index

Figure 6 presents the Eurozone 20 Countries Industrial Production Index, which is the year-over-year growth rate represented by the solid line and the seasonally adjusted month-over-month growth rate depicted by the dashed line. The time series spans from October 2014 to August 2024. According to data released by the European Union's

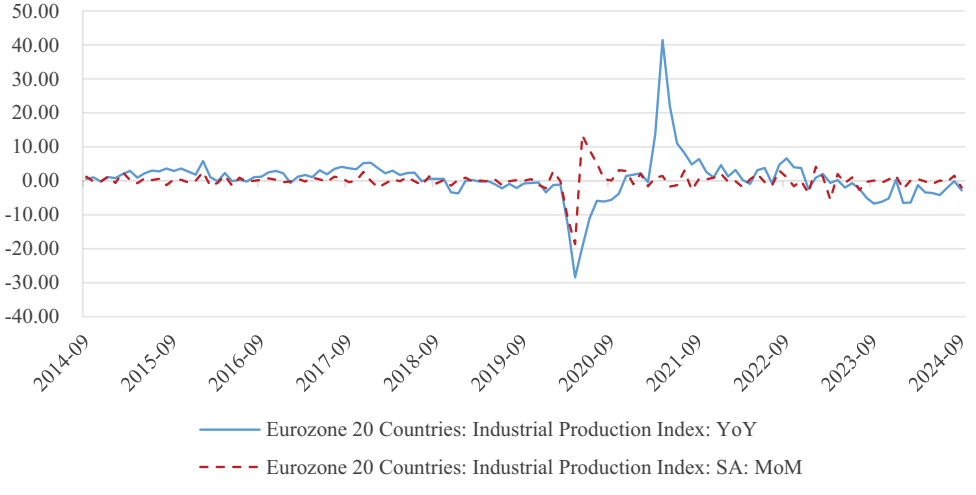

Figure 6. Eurozone industrial index. Source: Wind

statistical office on October 15, the industrial production index in the euro area for August showed a seasonally adjusted month-over-month increase of 1.8% (the previous value was −0.5%) and a year-over-year increase of 0.1% (previous value was −2.1%), which exceeded expectations and indicated a warming trend in the industrial production index of the euro area.

2.2.3. Consumer confidence indicator and Retail Sales Index

Figure 7 illustrates the changing trends of two economic indicators for the Eurozone's 20 countries. The solid line represents the seasonally adjusted Consumer Confidence Indicator, which reflects the overall perception of consumers regarding the economic conditions, including their assessments of personal financial status, the job market, and the general economic environment. An increase in consumer confidence is typically associated with a rise in consumer spending and vice versa. The dashed line indicates the year-over-year growth rate of the Retail Sales Index, which measures the percentage change in consumer purchasing behavior in the retail market compared to the same period of the previous year. This index is crucial for gauging consumer expenditure and the economy's health.

Between 2014 and 2019, the Consumer Confidence Indicator and the year-over-year growth rate of the Retail Sales Index were relatively stable. However, the Consumer Confidence Indicator experienced smaller fluctuations, while the Retail Sales Index saw more significant volatility. At the beginning of 2020, both indicators plummeted significantly, which is the result of the outbreak of the COVID-19 pandemic and the subsequent economic lockdowns. Subsequently, both the Consumer Confidence Indicator and the year-over-year growth rate of the Retail Sales Index rebounded swiftly, demonstrating a rapid economic recovery following the initial impact of the pandemic.

In October 2024, the Consumer Confidence Indicator for the Eurozone's 20 countries stood at −12.50, indicating that consumers remain pessimistic about the Eurozone's

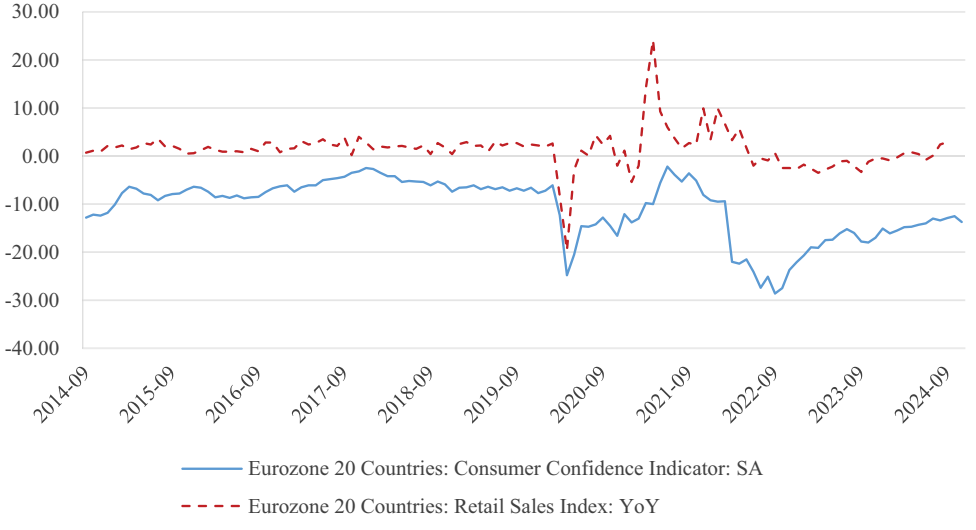

Figure 7. Consumption situation in the Eurozone. Source: Wind

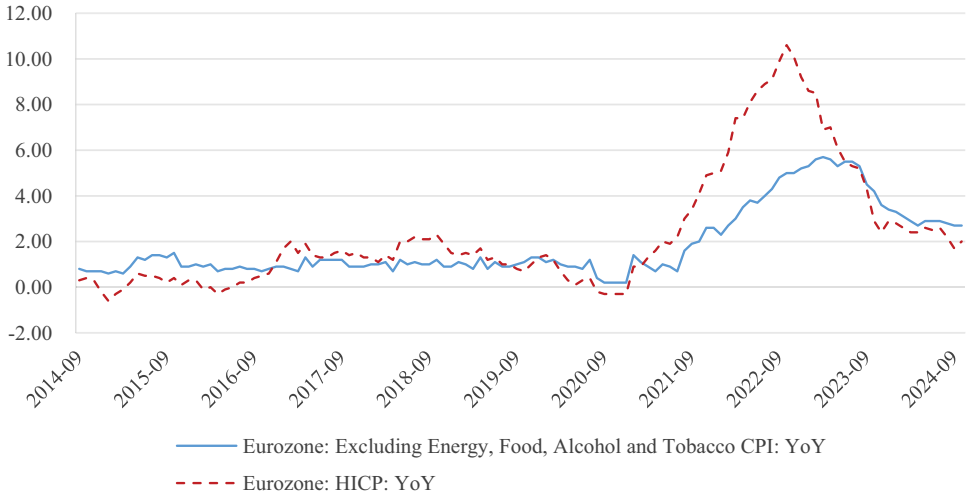

Figure 8. Inflation situation in the Eurozone. Source: Wind

economy. However, compared to the previous value of −12.9, the preliminary value of the Consumer Confidence Indicator for October is −12.50, which shows some improvement. This suggests that consumers' pessimism about the Eurozone's economy has eased, even though it is still in the negative range. The increase in the index may imply that consumers' expectations for the future are beginning to stabilize or show slight improvement. Over the past nine months, the Consumer Confidence Indicator has fluctuated between −13 and −16 but has been gradually recovering.

2.2.4. Inflation

Figure 8 illustrates the year-over-year growth rates of two different Consumer Price Indices CPI in the Eurozone from October 2014 to September 2024. The solid line represents the CPI growth rate excluding energy, food, alcohol, and tobacco. The dashed line represents the year-over-year growth rate of the Eurozone's Harmonized Index of Consumer Prices (HICP). According to data released by the European Union on October 17, the final September HICP in the Eurozone was −0.1% month-over-month, meeting expectations of −0.1%, with a preliminary value of −0.1%, and a previous value of 0.1%; the final September HICP year-over-year was 1.7%, lower than expected at 1.8%, and a previous value of 1.8%; the final September core HICP year-over-year was 2.7%, in line with expectations and preliminary value of 2.7%, and a previous value of 2.8%. As of September 2024, the core CPI in the Eurozone grew by 2.7% year-over-year, and the HICP grew by 1.7% year-over-year.

Economic data indicates that business activity in the Eurozone unexpectedly contracted in September, while the just-released CPI data shows that inflation in the Eurozone is cooling, with the September HICP year-over-year final value falling below the European Central Bank's 2% target for the first time since 2021. Even the President of the European Central Bank, Christine Lagarde, has hinted at interest rate cuts, stating that confidence in the decline of inflation will be reflected in the bank's decisions. Traders anticipate a roughly 90% probability that the European Central Bank will cut interest

rates by 25 basis points, a significant increase from the 20% probability at the September meeting. Concurrently, Wall Street economists believe this marks the beginning of a series of interest rate cuts by the European Central Bank.

3. The current economic development situation in China

China's current economic development situation exhibits a variety of characteristics. Firstly, the overall growth rate of consumption remains relatively slow, which may be related to insufficient domestic effective demand, restricting the pace of economic recovery. Secondly, the growth rate of China's exports has declined, which has affected the momentum of economic growth to a certain extent. In terms of exports, supported by the lag effect of exports and large-scale equipment renewal and transformation policies, manufacturing investment maintains a relatively high growth rate. This not only helps to enhance the competitiveness of the manufacturing industry but also provides new impetus for economic growth. In addition, China's Belt and Road Initiative has offered substantial motivation for Chinese companies to accelerate their internationalization (Li, Liu, and Qian 2019).

3.1. GDP

Figure 9 provides an overview of China's GDP growth rates from the third quarter of 2014 to the third quarter of 2024, as measured by two different indicators: GDP at constant prices and GDP at current prices, both on a year-over-year basis. In the third quarter of 2024, GDP slightly improved quarter-over-quarter, but prices remained relatively weak. In terms of quantity, the GDP growth rate for the third quarter was 4.6%, lower than 4.7% in the second quarter, with a quarter-over-quarter growth of 0.9%,

Figure 9. China's GDP situation. Source: Wind

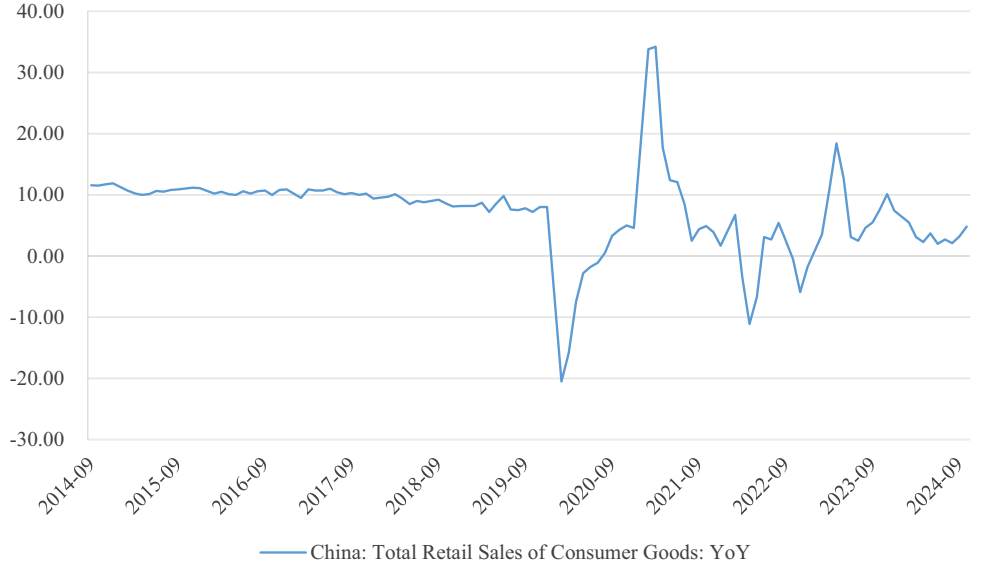

Figure 10. Total retail sales of consumer goods. Source: Wind

higher than 0.5% in the second quarter but still relatively low. Regarding price, the deflator for the third quarter's GDP decreased by 0.6% YoY, an improvement from the 0.7% decrease in the second quarter. In September, there was an improvement in the production side compared to August, demonstrating an end-of-quarter surge effect.

3.2. Consumption

Figure 10 presents the year-over-year growth rate of China's total retail sales of consumer goods from September 2014 to October 2024. From the end of 2019 to the beginning of 2020, the chart shows a significant decline, which may be related to the outbreak of the COVID-19 pandemic, as the epidemic had a significant impact on global economic activity. In the middle of 2020, the growth rate rebounded rapidly, indicating a recovery in economic activity. After 2020, the growth rate continued to exhibit volatility, which may reflect the uncertainty and market fluctuations during the economic recovery process. As of October 2024, the growth rate appears to have stabilized, but the overall level is lower than before the pandemic.

3.3. International trade

Figure 11 illustrates the year-over-year growth rates of China's exports and imports from September 2014 to October 2024. The solid line represents the export growth rate, while the dashed line represents the import growth rate. The growth rates of exports and imports were significantly affected by the pandemic in 2020 and then recovered in 2021. Since the middle of 2021, both growth rates have shown a declining trend, which may reflect changes in the global economic environment and the challenges faced by China in international trade. As shown in Figure 11, in

Figure 11. China's import and export situation. Source: Wind

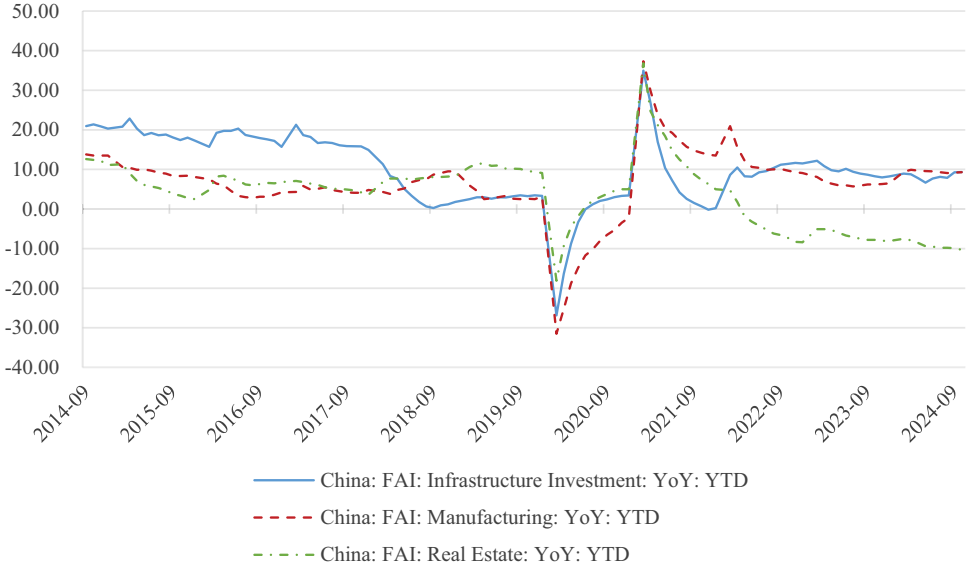

Figure 12. Fixed assets investment. Source: Wind

October 2024, exports increased by 12.7% year-on-year (compared to a 2.4% increase in September 2024), while imports decreased by 2.3% year-on-year (compared to a 0.3% increase in September 2024). Compared with Bloomberg's market expectations, exports exceeded market expectations, and imports fell short of market expectations (Bloomberg's market expectations for exports and imports were + 5.0% and −2.0%, respectively).

3.4. China's investment overview: infrastructure, manufacturing, and real estate

Figure 12 represents infrastructure, manufacturing, and real estate investments. All three sectors have seen marginal improvements, but the overall trend still shows infrastructure and manufacturing as the main growth drivers, with real estate remaining relatively weak. It reflects the strengthening effect of policies, with broad infrastructure investment growing by 9.3% year-on-year from January to October. In terms of specific sectors, from January to October, the year-on-year growth rates for public utilities, transportation, water conservancy, and public facility management were 24.1%, 7.7%, and 3.1%, respectively (compared to 24.8%, 7.7%, and 2.8% from January to September). Looking ahead to the fourth quarter, according to recent statements by the Ministry of Finance at a press conference, efforts will be made to achieve the initial budget target of 28.5 trillion yuan for public expenditures for the year. It is expected that fiscal spending will continue to accelerate in the fourth quarter, and the growth rate of infrastructure investment is likely to remain high.

The lag effect of exports and large-scale equipment renewal and upgrading policies have supported the manufacturing sector to maintain a high growth rate, with a year-on-year increase of 9.2% from January to September, a slight improvement from the 9.1% growth from January to August. By industry, from January to September, the year-on-year investment growth rates for general-purpose equipment, transportation equipment, and automobiles increased by 1.1% points, 1.1% points, and 0.4% points, respectively, compared to the period from January to August. In contrast, investments in food, non-ferrous metals, and electrical machinery decreased by 2.6% points, 1.4% points, and 1.3% points, respectively. It is anticipated that although exports may marginally decline, the continuous implementation of large-scale equipment renewal and upgrading policies will support manufacturing investment as a major component of overall fixed asset investment.

In September, real estate sales and investment remained weak, with the effects of policies yet to be fully realized. The year-on-year decline in the sales area and amount of commercial housing nationwide slightly narrowed, from −12.6% and −17.2% in August to −11.0% and −16.3%, respectively. However, the year-on-year growth rates for new and secondhand housing prices in 70 cities further declined from −5.7% and −8.6% in August to −6.1% and −9.0%, respectively. The concentrated land supply in September, combined with a low base from the previous year, led to an increase in the year-on-year growth rates for land transaction area and value in 300 cities from −45% and −56% in August to −12% and 5.8%, respectively. The decline in new residential starts widened (−19.9% in September, compared to −16.7% in August), while the decline in completions slightly narrowed (−31.4% in September, compared to −36.6% in August), and the decline in construction remained relatively stable (−12.2% in September, compared to −12.0% in August). The decline in sources of development funds widened from −10.6% to −18.4%, with all types of funding sources seeing a broader decline. The year-on-year decline in investment was slightly mitigated by nonresidential investments (office buildings and commercial housing), with the decline narrowing from −10.2% to −9.4%.

Figure 13. CPI and PPI month-on-month growth rate. Source: Wind

3.5. China's inflation

Figure 13 presents the year-over-year growth rates of China's Consumer Price Index (CPI) and Producer Price Index (PPI) from September 2019 to October 2024. The solid line represents the growth rate of CPI, and the dashed line represents the growth rate of PPI. From 2019 to the beginning of 2020, the CPI growth rate was relatively stable, with minor fluctuations. Subsequently, the CPI growth rate experienced a decline, but it remained in positive territory overall, indicating a moderate increase in consumer prices.

From 2019 to the beginning of 2020, the PPI growth rate fluctuated significantly, with an overall downward trend. In the middle of 2020, the PPI growth rate began to rise sharply, likely due to global pandemic-induced supply chain disruptions and increases in the prices of raw materials. By the middle of 2021, the PPI growth rate peaked and then declined rapidly, which may reflect the impact of economic recovery post-pandemic and the gradual restoration of supply chains. Starting in 2022, the PPI growth rate in China continued to decline, even experiencing negative growth at certain times. It is related to a global economic slowdown, weakened demand, and volatility in the prices of raw materials.

4. Challenges faced by China's economy

4.1. Deglobalization and global supply chains

In the wave of globalization, China has gradually become a key node in the global supply chain (Krueger 2008). However, the deglobalization trends have become increasingly apparent (James 2018; Witt 2019) and are affecting the global value chain from both the 'demand' and 'supply' sides, presenting challenges and opportunities for China.

Geopolitical risk is a significant factor affecting the global economy, including reducing investment and employment, increasing the probability of economic disasters, lowering expectations for GDP growth, and bringing downside risks to

economic growth (Caldara and Iacoviello 2022). It led to a slowdown in global economic growth and brought uncertainty to the international supply chain (Benguria et al. 2022; Huang et al. 2023). Geopolitical risks often result in increased trade barriers between nations. Taking the US-China trade war during the Trump era as an example, it has significant impact on real economic outcomes, such as import prices or value (Amiti, Redding, and Weinstein 2019; Fajgelbaum et al. 2020) and export prices or quantities (Jiao et al. 2022), affecting multiple industries ranging from agriculture to high-tech products, which is the period with the highest levels of global financial value at risk (Engle and Campos-Martins 2023). The increase in trade barriers not only hinders the free flow of goods and services but also strikes at the efficiency of the global supply chain, leading to increased production costs for businesses in various countries, reduced consumer choices, and a slowdown in global economic growth.

In addition, the decoupling trend between China and the U.S. has led to a weakening of cooperation in the economic and trade fields, with some countries beginning to promote the localization and regionalization of supply chains to reduce their dependence on China. Especially in the high-tech sector, Western restrictions on technology exports to China have exacerbated China's challenges in the global supply chain. The decoupling between China and the US not only accelerates the 'decoupling' of the economic relationship between the two countries but also impacts the stability of the global supply chain.

Figure 14 shows the trend of the Global Uncertainty Index (weighted by GDP) from 2008 to 2023. The Global Uncertainty Index is commonly used to measure global uncertainty caused by economic, political, or other factors (Caldara and Iacoviello 2022). It can be seen from Figure 14 that when events against globalization occur, the Global Uncertainty Index tends to be high, hurting the global economy. For example, during the Brexit referendum in 2016, the uncertainty index showed a significant peak. In

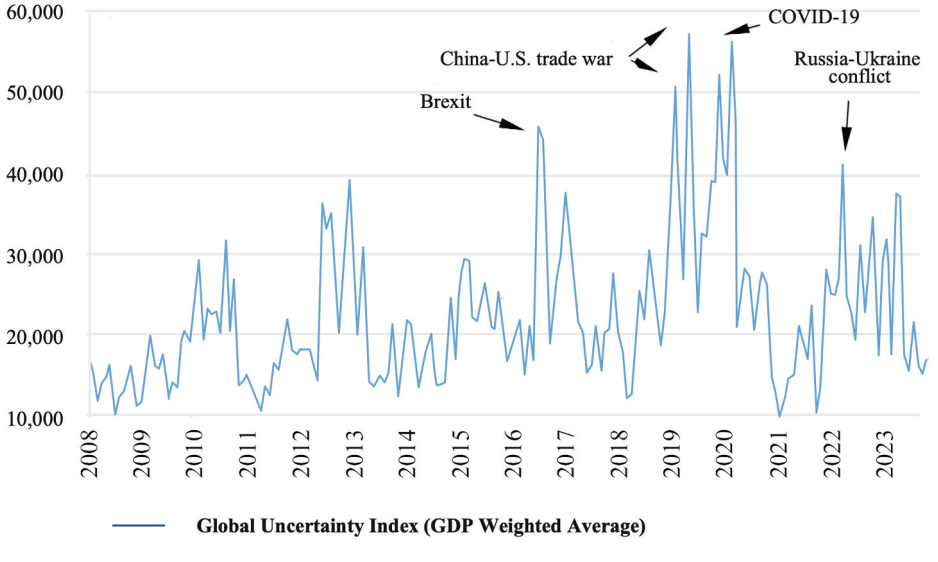

Figure 14. Global uncertainty index. Source: Wind

2018 and 2019, the trade war between China and the United States led to several increases in the uncertainty index.

Deglobalization profoundly impacts the supply and demand of the global supply chain. China must deeply understand and respond to these changes as an important part of the global supply chain. From the supply side, deglobalization leads to the restructuring and reorganization of the global supply chain. Out of consideration for national security and economic interests, some countries have begun to promote the localization and regionalization of supply chains, reducing dependence on countries like China. This trend is particularly evident in high-tech fields like semiconductors and artificial intelligence. Western countries have restricted technology exports through legislation to curb China's technological progress and industrial upgrading. This challenges the stability of China's supply chain and threatens China's position in the global value chain. From the demand side, deglobalization hinders global trade flows through trade protectionist measures, such as raising tariff barriers and implementing export restrictions. These protectionist policies reduce the international market demand for Chinese products and increase global trade uncertainty, challenging China's export-oriented economic growth model. At the same time, the slowdown in global economic growth and the contraction of market demand also put pressure on China's export enterprises.

4.2. Intellectual property litigation risk

Intellectual property (IP) protection is widely recognized in the literature for its critical role in economic development (Kim et al. 2012; Schmiele 2013). Against the backdrop of Sino-American tech frictions, IP litigation has had a profound impact. This friction is not just about trade surpluses but also about competition in high-tech industries and the contest of technological strength centered around intellectual property rights. Within the trade remedy laws imposed by the U.S. government, Section 337 investigations focus on claims of imported goods infringing on U.S. intellectual property, including patents, copyrights, and registered trademarks. The primary goal is to protect domestic businesses and industries from harm or threats caused by infringement of U.S. intellectual property by restricting or preventing unfair competition in import trade and subsequent product sales in the U.S. As an effective way to safeguard domestic technology companies, the USITC has initiated 324 section 337 investigations targeting China since 1995. IP protection by technologically advanced countries acts as a technological barrier, severely hindering the exports of developing countries with lower levels of technology (Shin, Lee, and Park 2016). The U.S. uses IP to curb China's technological competitiveness in the new technological revolution, posing a challenge to China's development.

Figure 15 plots the IP numbers in the United States and China. The data is from the World Intellectual Property Organization. Since 2000, China has shown a significant upward trend in intellectual property rights (IPR), with an accelerated increase after 2008. However, in 2018, there was a decline in the number of IPRs in China, likely related to the outbreak of the Sino-American trade war that year. The trade war has impacted many aspects of China's economy, including applying and protecting intellectual property. In 2018, the United States increased export tariffs on Chinese goods, which may

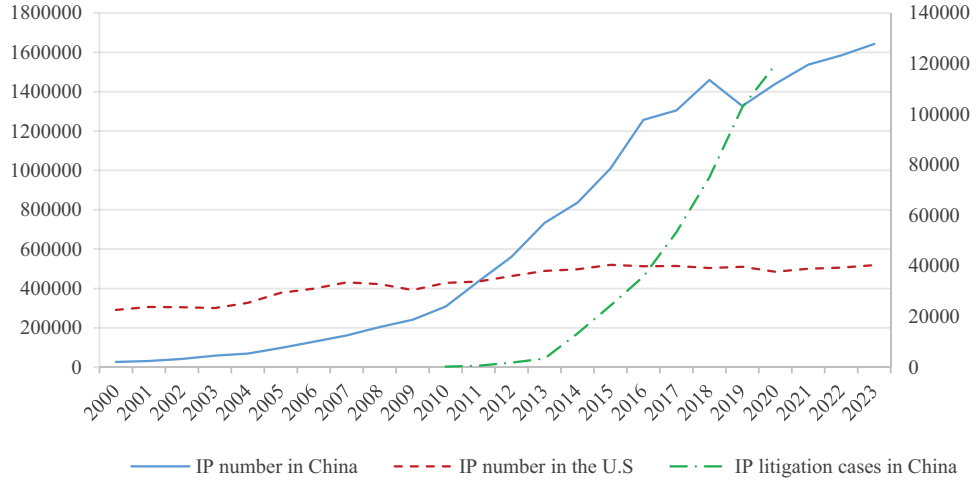

Figure 15. IP situation in the U.S. and China. Source: WIPO

have reduced innovative activities by Chinese companies, including patent applications and research and development (R&D) investments. The imposition of export tariffs has had a significant negative impact on the innovative activities of Chinese enterprises. Furthermore, during the trade war, the U.S. imposed export restrictions on high-tech products from China, which could have further affected intellectual property development in China's high-tech sectors. Facing IP litigation in the U.S., Chinese companies encounter high compensation demands, loss of market and business opportunities, and a significant drain on the time and energy of management and core technical personnel.

As intellectual property increasingly makes up a significant portion of a company's assets, its importance for market valuation, the creation of technological barriers, and regulatory scrutiny grow (Gao and Chou 2015). Intellectual property disputes may reduce or even stop the positive influence that a company's innovative efforts have on its long-term success (Manso 2011). For Chinese companies, the risks and challenges of IP litigation involve economic losses, market access restrictions, reputational damage, and strategic impacts on future corporate development. The green line in Figure 15 plots the IP litigation cases in China from 2010 to 2020. The data is obtained from 'Chinese Judgement Online'. As shown in the figure, IP litigation is increasing. In this situation, China needs to enhance its ability to innovate independently, actively integrate into the global innovation system, explore the sharing of innovation outcomes, and break down international market barriers to applying new technologies to meet these challenges effectively.

4.3. Problems in industrial upgrading

With the changing global economic landscape, analyzing the direction of China's industrial upgrading, the development trends of strategic emerging industries, and the potential opportunity for future industries is of great significance for grasping the future development of China's economy. Romer (1990) pointed out that new technological

developments are increasingly important in industrial production and economic growth. Integrating knowledge brings cutting-edge technologies and related skills (Guan and Liu 2016), promoting technological innovation and industrial upgrading. However, China's industrial upgrading is at a critical time, and various problems are facing it.

After over a decade of development, various regions in China have successfully cultivated signature strategic emerging industry clusters. However, there are still a series of prominent issues in building these clusters, and the foundation for achieving high-quality cluster development is still insufficient compared to the goal. Firstly, the development space for clusters in some areas is limited, particularly in first-tier cities like Beijing, Shanghai, and Shenzhen, where the scarcity of available land resources significantly constrains the expansion of strategic emerging industry clusters. Secondly, leading enterprises cannot integrate upstream and downstream companies and play a leading role, failing to form a complete industrial chain, which results in a lack of effective division of labor and coordination among enterprises and weak industrial organization. Additionally, small and medium-sized enterprises (SMEs) are often small in scale, with their products mainly concentrated in the mid-to-low-end market, and there is a relative scarcity of products with high technological content, high added value, and strong competitiveness.

Problems are also caused by the intensification of international competition, particularly the technological blockade by developed countries and competitive pressures from emerging economies, creating the so-called 'sandwich' effect. This effect squeezes China from both ends of the global market. For instance, the United States' technological blockade against China, especially in the high-end chip sector, has severely impacted the integrity of China's industrial chain and economic development. Moreover, China's industrial upgrading is also facing the challenge of escalating great power rivalry. To maintain its superpower status, the U.S. has adopted various policy measures against China, including technological decoupling, U.S. trade war, and suppression of leading Chinese enterprises, which poses risks to the stable operation of China's industrial and supply chains (Benguria et al. 2022; Huang et al. 2023).

The external pressure compels China to accelerate independent innovation to reduce dependence on external technologies. Lin and Wang (2020) reveal that industries at or near the forefront of world technology must rely on their innovation. China is actively addressing the dual shortage of talent and technology in key areas such as foundational software. To tackle this issue, China needs to intensify the cultivation of science and technology talents with a global perspective and promote the innovative development of domestic enterprises since talents can motivate technology convergence and hence facilitate innovation (Zhang et al. 2023). Therefore, China must open up space for technological and management innovation through institutional innovation, with supply-side structural reforms as the main thread, to improve the quality and efficiency of the entire supply system.

5. Conclusion and policy implications

In the long run, the global economy is entering a new normal characterized by an upward shift in inflation and a downward shift in economic growth. The pandemic has merely

acted as a catalyst for accelerating this transformation. At the same time, structural factors such as the reversal of the global population support ratio, the interruption of globalization processes, and the slowdown in technological progress had already pressured global economic growth before the pandemic. Regional value chains based on geopolitics and geographical location will reduce efficiency and increase costs. At the same time, the intensification of government debt pressures and the narrowing of fiscal space have trapped governments in a dilemma between the rising demand for fiscal stimulus and the shrinking fiscal resources. The United States and the Eurozone face greater inflationary pressures, with businesses enduring higher energy, transportation, and labor costs.

Under these complex circumstances, China should actively participate in international cooperation, utilizing multilateral and bilateral mechanisms to expand cross-border investment channels and attract more foreign capital into the Chinese market. At the same time, Chinese companies should strengthen foreign investments by professionalizing and internationalizing their operations to enhance China's position in the global value chain. In addition, China's state should deepen economic cooperation with other countries, promote regional economic integration, and help Chinese companies build a more diversified and stable global supply chain.

Secondly, China should continue to deepen the capital market reform and strengthen the construction of market infrastructure to improve market efficiency and transparency. Developing a multi-tier capital market is important in promoting capital formation and optimizing resource allocation. China needs to strengthen investor protection, improve the disclosure system, crack down on illegal and irregular behavior, and ensure the fairness and effectiveness of the market. At the same time, it is essential to enhance corporate governance, improve the quality of listed companies, and enhance the attractiveness and vitality of the market to provide a more stable investment environment for investors.

Lastly, intellectual property protection is key to stimulating innovation and technological progress. To create a favorable environment for innovation and business operations, China should further improve the legal system for intellectual property rights, increase law enforcement, raise the cost of infringement, and protect innovative achievements. At the same time, China's state should strengthen international cooperation, actively participate in global intellectual property governance, and promote a more just and reasonable international intellectual property protection system to support the international competition of Chinese enterprises. By enhancing domestic innovation capabilities to improve the competitiveness of products and services, Chinese companies will occupy a more favorable position and be more resilient in the global value chain.

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