

Industrial Restructuring in China and in the EU and New Opportunities for China-EU Industrial Cooperation in the Context of a Changing Global Economy

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***Abstract:** Over the past few years, especially after the outbreak of international financial crisis, the global economy has entered in the doldrums and has gradually lost its momentum of returning to sustainable growth. Given that the effects of traditional macroeconomic policies have been much weaker than before, the structural instruments, with industrial restructuring being the core content, attract more and more attention of the governments of both developed and emerging economies. In these new circumstances, both China and the EU have launched their own strategies of industrial restructuring. With the gradual implementation of these strategies, new opportunities have emerged for reinforcing industrial cooperation between China and the EU. However, the negative effects of the increasing uncertainty, especially after the Brexit referendum, should not be underestimated. Both China and the EU should foresightedly reflect on the opportunities and challenges and try to achieve a win-win situation through a more forward-looking industrial cooperation.*

***Keywords:** global economy, industrial restructuring, China, the EU, industrial cooperation*

1. The situation of the world economy over the past few years and the new wave of industrial strategies

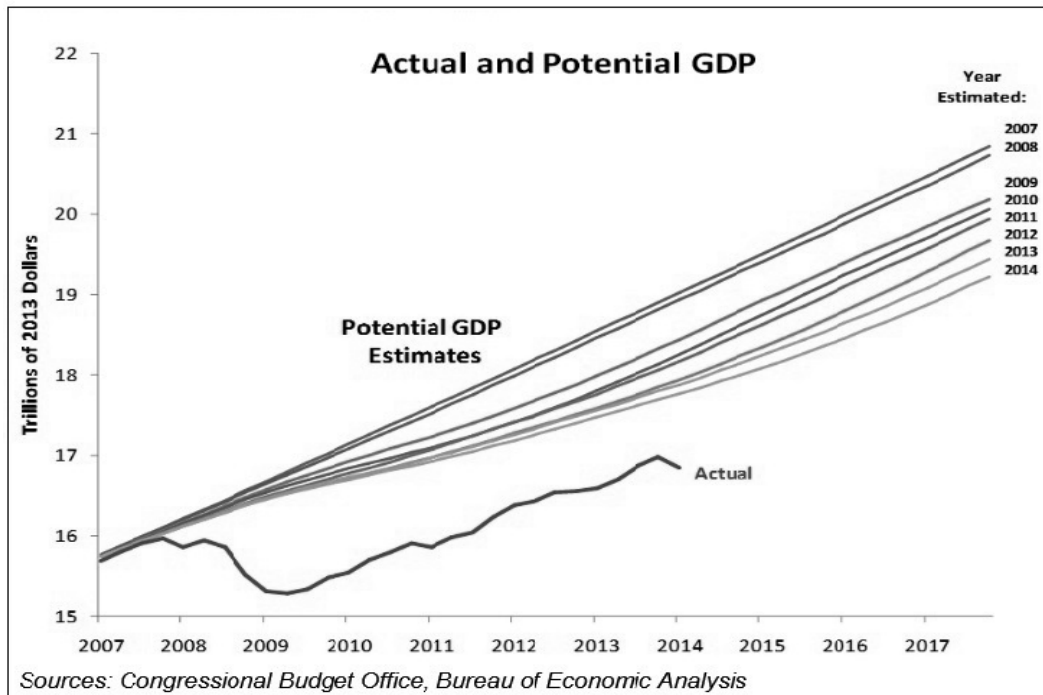
It has been over 8 years since the outbreak of the 2008 international financial crisis, and the world economy still remains in the doldrums. On the one hand, the economic recovery in the world's major developed economies including the US, the euro area and Japan has slowed down and the long-term economic growth tends to be at a low level. On the other hand, the emerging economies, with China as a typical representative, have been transferring from a high-speed growth into a medium-high or just a low-medium growth, facing the daunting challenge of how to escape the so-called "middle-income trap". The current situation of the global economy and its trend in the near future determines to a great extent the policy choices and actions of the governments.

Firstly, having a look at the trend of economic growth in developed countries since 2008 can be seen that the "secular stagnation" hypothesis proposed by some economists, especially by the American economist Larry Summers, seems to be gradually verified. The "secular stagnation" hypothesis was initially proposed by the American economist Alvin Hansen in 1930s and was borrowed by Larry Summers in 2013. Using this old phrase, Summers (2016) predicted that the developed economies, especially the US and the Eurozone, will probably go through a long-term stagnation for ten, or even for twenty years. In Summers' opinion, the "secular

stagnation” implies that a long-term period of near-zero growth rate is inevitable and persistent. In short, the phenomena that made the long-term stagnation be refocused on mainly include: 1) the real economic growth is lower than expected long-term growth rate, 2) the expected growth rate continues to drop, and 3) the trend of real interest rates continues to decline (Summers, 2016).

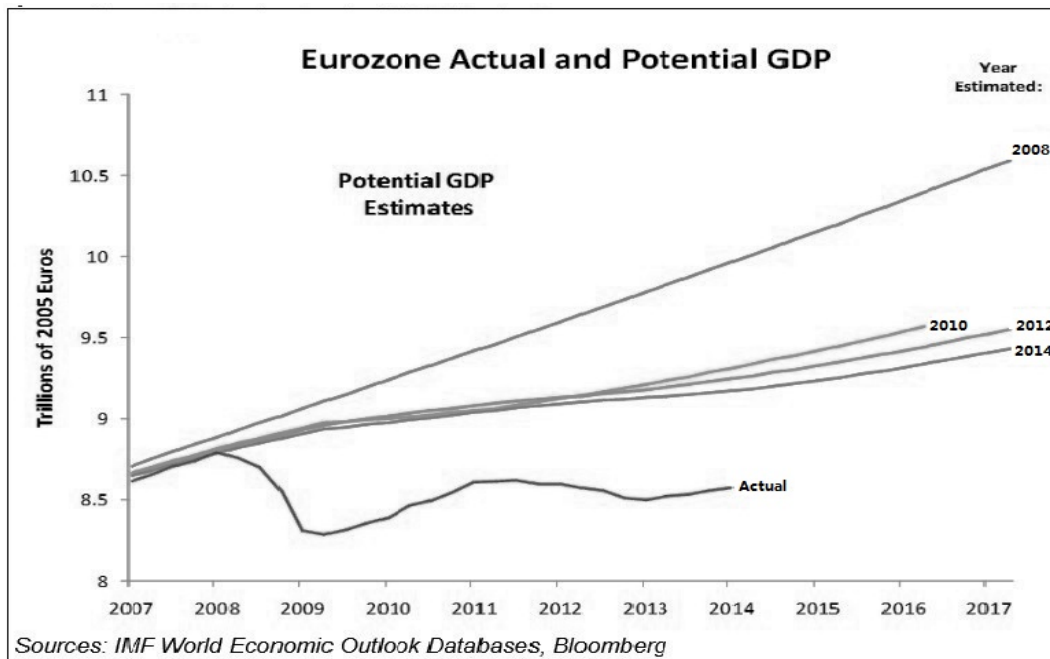
Although the “secular stagnation” hypothesis has been controversial in the past few years, the data of economic growth in developed countries show that this hypothesis seems to become reality. Just like Larry Summers wrote in his article of February 2016 “I am increasingly convinced that it captures what is going on in the industrialized world and that the risks of long term weakness on the current policy path are growing. Unfortunately, since I put forward the argument in late 2013, the data have been all too supportive” (Summers, 2016). Fig. 1 and Fig. 2 provide the comparison of the actual and potential economic growth rates since 2007, separately in the US and in the Eurozone. These two figures show that, on the one hand, the real growth rate has been lower than the long-term potential rate, both in the US and in the euro area, and, on the other hand, the potential growth rates in these two economies have been revised downwards.

Fig.1 Actual and potential GDP in the US (2007-2017)



Source: Congressional Budget Office (2017), Bureau of Economic Analysis (2017)

Fig. 2 Actual and potential GDP in the Eurozone (2007-2017)



Source: IMF World Economic Outlook Database (2017), Bloomberg (2017).

The above mentioned “secular stagnation” and the policy experience in developed economies in the past few years show that the traditional macroeconomic policies have become either much less effective, or even toothless. The space for pushing the economy back to a sustainable growth track, relying on monetary policy (conventional or unconventional measures) and on fiscal policy is becoming much narrower.

From the perspective of monetary policy, just as Summers concluded in his article “Despite monetary policy being much more expansionary than was expected and medium term interest rates falling rapidly, growth and inflation throughout the industrial world have been much lower than anticipated” (Summers, 2016). There are several explanations for this phenomena: 1) shocked by the crisis in the past several years, the confidence of investors in developed countries has been severely depressed and investment demand is still insufficient even if interest rates have already reduced to a historical low level; 2) the maturation of economies, in which the basic industrial structure no longer needs to be built up from scratch, but simply reproduced (Foster, 2008); 3) the absence, for long periods, of any new technology that generates epoch-making stimulation and transformation of the economy, such as with the introduction of the automobile (even the widespread use of computers and the Internet has not had the stimulating effect on the economy of the earlier transformative technologies) (Gordon, 2014); 4) growing inequality of income and wealth, which limits consumption demand at the bottom of the economy, and tends to reduce investment as unused productive capacity builds up and as the wealthy speculate more with their funds instead of investing in the “real” economy - the goods and services producing sectors. Overall, this is the situation the US and the Eurozone are currently experiencing. And a too loose monetary policy is likely to cause delays in structural reforms.

Now let’s look at the fiscal policy. Even though Summers has been trying to encourage more government spending, the space to employ the fiscal policy in developed economies is also very limited because of many constraints. In theory, in economic downturn, government expenditure can compensate for the lack of private spending and promote economic growth. According to macroeconomic theories, the government

expenditure multiplier may be substantially larger when monetary policy is near, or at the zero bound. Here the standard argument is that deficit spending can serve as a bridge across a temporary problem, supporting demand while households pay down debt and restore the health of their balance sheets, at which point they begin spending normally again. Once that has happened, monetary policy can take over the job of sustaining demand while the government goes about restoring its own balance sheet. But what if a negative real natural rate isn't a temporary phenomenon? For the developed countries that have high public debt, it is difficult to employ this kind of measures (Krugman, 2014). If we look at the EU countries, considering the already high public debt level in many member states, although austerity has been loosened in these two years, it's still the mainstream of the fiscal policy ideology.

Turning to the emerging economies, we can find that the emerging economies have entered a transformation period. As the result of a global economic downturn, the economic growth in emerging economies slowed down in the past few years. Let's cast a glance at China, which is the representative of emerging economies. Over the past several years, Chinese economy has shown new phenomena that never appeared before, since the beginning of reform and opening-up policy in late 1970s. The "dividends" from this reform, globalization and population have been diminishing. At present, China is in a transformation period, so called "economic growth shifting" or "economic structural adjustment", which exposes many institutional shortcomings and structural contradictions in Chinese economic system. In China we call this situation as a "New Normal", and how long this "New Normal" will last is still a question. Additionally, China is also facing the problem of insufficient investment in the real economy. In addition, the effects of monetary policy and fiscal policy have been weaker and weaker.

Considering the above situation, in developed and emerging economies, promoting the economy back to a sustainable growth path is a common question. Given the traditional macroeconomic policies, i.e. the demand management policies that have no more space, the governments have turned to supply side. In this context, to promote the industrial restructuring process has become the consensus of increasingly more countries, including both developed and emerging economies. This consensus implies a gradual but a significant change of policy orientation, particularly in developed countries. The change is about the role of government, that is the governments should begin to think big, not limited to fixing market failures any more, but also to try to actively promote innovation and industrial upgrading. In the field of innovation and industrial policy, governments can not only create the conditions, but also can "crowd-in" private investment and create the visions. In this context, developed and emerging economies unveiled their new industrial strategies one after another. Industrial strategies come back to the stage again.

2. The new industrial strategies of the EU and China

Over the past few years, the world is undergoing a new round of an industrial restructuring process. Besides the motives discussed above in section 1, there are two other reasons that promoted this process and should also be paid more attention to. Firstly, the international financial crisis forced many countries to deeply reflect the relative positions of industry and services, to begin to attach more importance to industry and to launch "re-industrialization" one after another. Secondly, the concept of the new industrial revolution sprung up in Europe and in the US and spread very rapidly to the whole world. In sum, promoted by all these important factors, the key characteristic of this round of industrial restructuring is to put manufacturing and industry at the cornerstone position, regarding them as the source of innovation and productivity growth again.

In this context, the EU (and its main member states) and China also launched their own new strategies of industrial restructuring. Let's have a look at the EU. The European Commission introduced its re-industrialization strategy in 2012 and industrial renaissance initiative in 2014. At the member states level, Germany launched its Industry 4.0 initiative in 2013, which is already well-known in China. In 2013, the UK announced its British Manufacturing 2050 and France proposed its New Industrial France Initiative. Given the page limits, this article will only make a brief review on the EU re-industrialization strategy.

In October 2012, the European Commission published a communication titled "A Stronger European Industry for Growth and Economic Recovery" which marks the introduction of the EU's re-industrialization strategy (European Commission, 2012). In short, the core content of the strategy can be summarized into the following aspects.

Firstly, with this renewed industrial strategy, the EU's re-industrialization strategy seeks to reverse the declining role of industry in Europe from the level of around 16% of GDP in 2012 to as much as 20% by 2020. This objective shows that the mainstream attitude of the EU towards industry has already transferred from the concern about "de-industrialization" at the beginning of this century to "re-industrialization". The position of industry has been promoted to a strategic level, which highlights some "qualitative change" of the direction of its industrial restructuring.

Secondly, although the overall objective relates to a clear indicator, the EU's strategy does not try to increase the proportion of the industry and the manufacturing based on the current industrial structure, but attempts to promote the birth and development of a number of emerging industries, while strengthening the existing industries in high value-added parts. The core of the strategy is to seize the opportunity of "new industrial revolution" to reconstruct the value chain of manufacturing and industry.

Thirdly, the EU developed a comprehensive and systemic implementation framework for this strategy, which is generally in line with the EU's current industrial and macroeconomic situation. The European Commission has done a lot of research on "how to stimulate investment" and "how to combine the investment and industrial structure upgrading" in the post-crisis doldrums and accordingly it designed an implementation framework consisting of "four pillars" and "six priority areas" for the strategy. The "four pillars" are: 1) to facilitate investment in new technologies and innovation; 2) access to markets; 3) access to finance and capital markets; 4) the crucial role of human capital. The "six priority areas" are: 1) advanced manufacturing technologies for clean production; 2) key enabling technologies; 3) bio-based products; 4) sustainable construction and raw materials; 5) clean vehicles and vessels; and 6) smart grids.

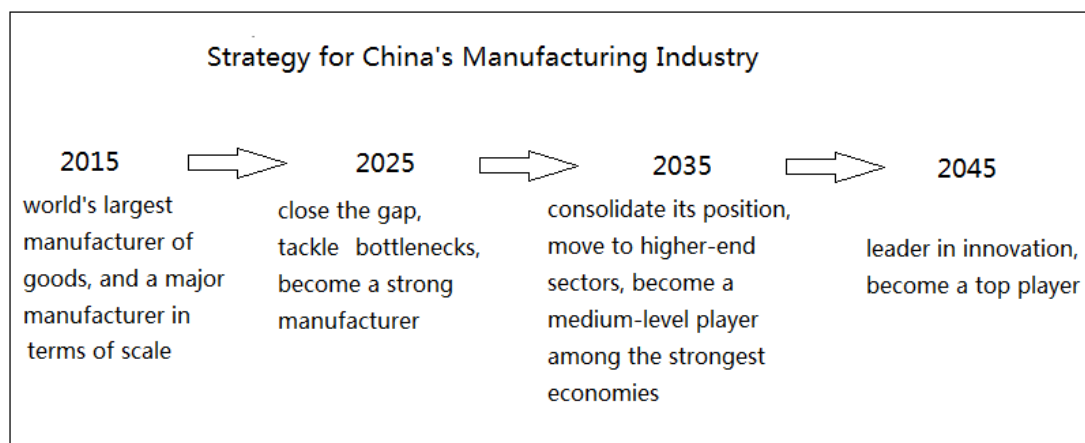
In response to the changing global and domestic economic situation, China also launched new industrial strategies. In 2012, Chinese government issued the "12th Five-Year Development Plan for National Strategic Emerging Industries (SEIs)". This plan not only identified the specific industries (1. energy efficiency and environment technologies; 2. next generation information technology (IT); 3. biotechnology; 4. high-end equipment manufacturing; 5. new energy; 6. new materials; 7. new-energy vehicles) the central government would target at, but also established a quantitative target for SEIs to account for 8% of GDP by 2015 and 15% by 2020. In 2015, Chinese government unveiled its "Made in China 2025" initiative (hereinafter referred to as MiC2025). MiC2025 aims to remedy China's manufacturing problems through comprehensive upgrading of the sector (the State Council of China, 2015). The plan draws inspiration from Germany's Industry 4.0 as China aims to make use of technologies like the Internet of Things, cloud computing and big data to upgrade its manufacturing. The initiative spans the entire manufacturing industry, including processes, standards, intellectual property rights and human capital, and has a strong focus on integrating industry chains. Fig. 3

shows the roadmap of the objectives of the strategy from which we can see the great ambition of China. Actually, we can see that it's not just a ten-year strategy, but has a 30-year vision.

Like previous Chinese plans, the many goals that MiC2025 aims to achieve have been clearly spelled out. While the plan aims to advance Chinese industry, making it more efficient and integrated, it also seeks to foster innovation through the creation of 15 innovation centers by 2020, and 40 by 2025. Localization is another goal, with the plan aiming to raise the domestic content of core components and materials to 40% by 2020, and 70% by 2025.

Similar to previous plans, 10 priority industries have been highlighted in MiC2025. These include 1) new information technology; 2) high-end numerically controlled machine tools and robots; 3) aerospace equipment; 4) ocean engineering equipment and high-end vessels; 5) high-end rail transportation equipment; 6) energy-saving cars and new energy cars; 7) electrical equipment; 8) farming machines; 9) new materials; and 10) bio-medicine and high-end medical equipment.

Fig. 3 The strategy roadmap for China's manufacturing development



Source: "Made in China 2025" initiative (2015)

Comparing to China's previous industrial strategies, "Made in China 2025" is different in multiple respects: 1) It focuses on the entire manufacturing process and not just on innovation; 2) It promotes the development not only of advanced industries, but as well of traditional industries and modern services; 3) There is still a focus on state involvement, but market mechanism is more prominent. For example, instead of focusing on top-down, unique domestic technical standards, the attention is on self-declared standards and the international standards system; and 4) There are clear and specific measures for innovation, quality, intelligent manufacturing, and green production, with benchmarks identified for 2013 and 2015 and goals set for 2020 and 2025 (Kennedy, 2015).

Overall, China and the EU are at different development stages; as a whole, China's manufacturing industry is in a relatively backward position. However, for China and the EU, in order to achieve the goals of their own industrial strategies, besides improving their ability in innovation, it's also essential to strengthen international cooperation. In the future, even though the competition will become more intense, there is still a lot of space of complementarities. For the EU, China will still be an increasingly important market and also a source of FDI; for China, the EU's position as the first technology source will remain for a long period. Given this context, the new industrial development strategies in China and the EU indeed create some new space for strengthening bilateral industrial cooperation between the two sides.

3. The industrial cooperation between China and the EU in new circumstances

It's not difficult to foresee that with the implementation of the new industrial strategies in the EU and China, there must be more new possibilities for industrial cooperation between the two sides. Based on an analysis of MiC2025, the EU's re-industrialization strategy and the relative competitiveness of the two sides, we can roughly give the main directions and fields of strengthening industrial cooperation between the two sides in the future.

When looking at the directions of strengthening cooperation, the expected directions could be classified into two categories:

Firstly, there is a great potential of cooperation in improving manufacturing innovation, strengthening establishment of standard system, promoting intelligent manufacturing and strengthening industrial base, and so on. In these areas, the EU as a whole is in a leading position and has accumulated a rich experience, so Chinese enterprises are expected to quickly improve their technology and management ability through cooperation.

Secondly, in the fields such as promoting the commercialization of research achievements, coordinating the development of manufacturing and services, promoting technological transformation in traditional industries, promoting the collaborative development of large, medium-sized and small enterprises, the situation of China and the EU are both facing many real difficulties. There is a great space for the two sides to overcome difficulties and achieve mutual benefit through cooperation and learning from each other.

When looking at concrete areas and industries, we can find that there are a lot of similarities in the priority areas defined by both China and the EU, therefore there is a great cooperation potential. Based on technology competence and industrial competitiveness, we can also classify these areas into two categories.

Firstly, in the areas such as high-end numerically controlled machine tools and robots, aerospace equipment, ocean engineering equipment and high-end vessels, energy-saving cars and new energy cars, electrical equipment, new materials, bio-medicine and high-end medical equipment and so on, the EU countries as a whole have a strong advantage and will continue to regard these areas as a focus of development. China is in a relative disadvantageous position from the technology and management perspective in these areas and urgently needs to transform and upgrade them. Therefore, there is a large space for strengthening complementary cooperation between the two sides.

Secondly, among the areas of new information technology industry, aerospace equipment, high-end rail transportation equipment, there are some in which China and the EU both face pressure of upgrading, and others in which China has already leapt to the forefront in technology. In these areas, the room for joint development and cooperation between two sides is very large.

In the past two years, driven by the implementation of the industrial strategies of both sides and pushed by "One Belt One Road Initiative", China has carried out a series of industrial cooperation with Germany, France, Italy and many other EU member states. At present, the MiC2025 is still in the process of refinement. In July 2016, China's Ministry of Industry and Information Technology unveiled "Industrial Green Development Plan (2016-2020)", which can be seen as an important progress in refinement of MiC2025. Given the facts that many EU member states have accumulated a lot of institutional and technological advantages and valuable experience in green economy, there must be more space of cooperation in the future.

Regarding the channels and forms of reinforcing industrial cooperation between China and the EU, the following would be paid more attention, in the future several years.

Firstly, from China side, there is still much room to absorb FDI from the EU countries. In the future 10 years, catching up will still be the focus of China. From the EU side, the main member states are transforming

from Industry 3.0 towards 4.0, there is much space that the EU countries will transfer outwards more technologies of 2.0 and 3.0 level. This will provide Chinese manufacturing with opportunities to actively introduce required technology and equipment and ultimately enhance the capability of indigenous innovation. Therefore, China will continue to try to attract the industrial investment from the EU, especially the investment which is helpful for its manufacturing upgrading.

Secondly, there is great potential of cooperation between Chinese enterprises and the EU's SMEs. In many manufacturing sectors such as energy efficiency and environmental protection, new materials, biomedicine, high-end medical equipment and automobile in which the EU countries have advantages, in the so-called "traditional sectors" including textile, food and other light industries, and in some emerging fields like 3D printing, the mainstay of the EU competitiveness are actually small and medium-sized enterprises. Over the past few years, under the pressure of the crisis, the willingness of the EU's SMEs to strengthen foreign cooperation has obviously become stronger and the industrial clusters on which the SMEs rely are also becoming more open, which have provided more cooperation opportunity for China-EU industrial cooperation.

Thirdly, China's FDI towards Europe will also contribute to industrial structure upgrading of both China and the EU. Over the past two years, Chinese investment in the EU countries has been increasing rapidly, especially the investment in the UK, Germany, Italy and France increased most rapidly, which provides more choices for reinforcing industrial cooperation between China and the EU. In particular, the Chinese investors in the EU market have been diversifying, they include both state owned enterprises and private ones, and the target fields of investment have begun to expand into manufacturing industry, which is a good trend.

4. Conclusion and outlook

Firstly, in order to adapt to the profound changes in the world economy in the post-crisis era and to avoid a "secular stagnation", many countries introduced strategies of industrial restructuring, hoping to promote sustainable growth through economic transformation and upgrading.

Secondly, the introduction of new industrial strategies means that the role of governments is undergoing a gradual but significant change, especially in developed countries. These strategies show that governments have begun to think big and not just try to fix market failures, but also try to actively promote innovation and industrial upgrading. In the field of innovation and industrial policy, the government can not only create the conditions, but also can "crowd-in" private investment and can create the visions. So it's an attempt. Whether it's good or not, its long-run impact and what role the government should play in the future still remain to be observed.

Thirdly, the EU (including its important member states) and China are at different stages of development, but the motivations behind their industrial strategies are similar and both sides are trying to seize the opportunity of current world industrial restructuring. The EU's re-industrialization and Made in China 2025 have created new space for the two sides to strengthen industrial cooperation.

Fourthly, in the long run, the implementation of the industrial strategies of the EU and China will help to promote the world economy back to the path of sustainable growth. However, so far, private investment is still in the doldrums, which brings new challenges to carrying out the strategies. This requires the government not only to put forward new industrial strategies, but also to actively guide and even participate in the process of innovation.

In the future, the negative effects of increasing uncertainty should not be underestimated, especially the impact of Brexit referendum and the subsequent reactions. Additionally, the current situation of the European

banking system has attracted a lot of attention and concern. Both China and the EU countries should foresightedly reflect on the opportunities and challenges and should try to achieve a win-win situation through a more pragmatic industrial cooperation.

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