Economic Lessons from 70 Years of China's Development

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Executive Summary

This report distills ten fundamental economic lessons, some being positive and others negative, from the 70 years of economic development of the People's Republic of China, 1949—2019. These lessons revolve around the relationship between the government and the economy, some of which have not been given adequate attention in economics. Learning these lessons is not only essential for China's own continued economic development but also important for other countries which aspire to emulate China's success.

In analyzing lessons from China's economic performance, we separate the 70-year history of the PRC into the first 30 years and the subsequent 40 years, since they share the same goals and aspirations and yet there are substantial differences in the economic development strategies and systems, as well as mechanisms.

During the first 30 years of the People Republic of China, the country built a system of self-reliant and relatively comprehensive industries, laying the foundation for economic development over the next four decades; however, the improvement in living standard during the first 30 years fell behind those in many other comparable economies.

From the perspective of economics, there are two positive lessons distilled from the first 30 years of development: First, public health, elementary education and infrastructure are the foundations of sustainable future growth and China had great achievements in this regard; Second, as demonstrated by China's success in a few areas of science and technology during the first 30 years, indigenous innovation is possible, but the key to its success lies in learning with open-mindedness from advanced economies, attracting talents with good training in science and technology and efficiently utilizing the skills of such talents. In addition to these two positive lessons, however, there are three painful lessons that are worthy of learning and remembering. First, the full replacement of the market by the government causes extremely low economic efficiency of economic development. China most got it wrong during the first 30 years. Second, economic development cannot be achieved without providing appropriate incentives to government officials. In the first 30 years, government officials were mostly focusing on political correctness in non-stop political campaigns, mostly ignoring economic performance. Third, the over-centralization of power leads to disasters in strategic decision making, as evidenced by the Great Leap Forward and the Cultural Revolution.

Over the past 40 years, thanks to the Reform and Opening Up, China has created the largest magnitude of economic growth in human history. In our view, China's 40 years of Reform and Opening-up has implied general economic lessons in five areas. First, rapid economic growth happens with rapid establishment and development of new businesses, requiring enthusiastic support of motivated local governments to foster a

robust business environment. Second, rapid conversion of the use right of land is a key to economic rapid growth, which means that local governments need to be incentivized to help facilitate the transaction of converting agricultural land into industrial land. Third, the financial deepening as measured by the ratio of financial asset to GDP plays a crucial role in converting household savings into funding for real economic investments, which relies on careful management of a country's financial stability. Fourth, the fundament impact of opening-up is learning from advanced economies, rather than simply realizing comparative advantages or utilizing foreign funds and technology. A well-managed opening-up process promotes the process of economy-wide learning. Fifth, the rational behavior of micro-economic entities may create violent forces causing massive macroeconomic fluctuation in a rapid growing economy. Therefore, the central government should adopt comprehensive approaches combining market instruments, administrative measures, and reforms programs to proactively mitigate macroeconomic volatility. Market instruments such as interest rate cannot do the job.

The last part of the report is an outlook of the Chinese economy for the next three decades. We expect that by 2025, China will join the ranks of high-income countries according to the classification of the World Bank. Over the next 30 years, the Chinese economy is positioned to continue growing, becoming the world's largest economy. The Chinese economy will likely become a hub of research and development. By 2050, the Chinese economy will likely rank among the world's most developed economies. At the same time, China's market economic institution will evolve into one with a few distinctive characteristics, serving as a significant alternative to those in the West. However, in order for these to happen, China will have to overcome a few key challenges, such as how to maintain long-lasting momentum for industrial upgrading and high quality economic growth, to push for continued reform of its market institutions, and to play an appropriate leadership role in the changing world.

Keywords: 70 Years of China's economic development, Reform and Opening-up, Government and Economics

Table of Contents

Economic Lessons from the First 30 Years of China's Development (1949-1978)

OVERVIEW OF ECONOMIC DEVELOPMENT

1. Six stages of economic development

In the early years of the People's Republic of China, the Chinese economy was dominated by agriculture and was marked by low productivity. With thirty years of development and exploration before the Reform and Opening-up, China established an independent, complete industrial system and national economic system within a relatively short period of time. In a sense, the economic development during this period laid the foundation for economic development in the following period and for China's great transformation from an agricultural country to the world's largest manufacturing power. More importantly, numerous explorations on economic development and reform in three decades before the Reform and Opening-up have accumulated ample experience and lessons for the Reform and Opening-up as a historic turn and for economic development and deepening reform since the Reform and Opening-up.

We divide the thirty years before the Reform and Opening-up into the following six stages: economic reform and national economic recovery after the founding of the People's Republic of China (1949-1952); establishment of planned economy and initiation of industrialization of the country (1953-1957); reform exploration and failure of "Great Leap Forward" (1958-1960); adjustment and economic development in 1960s (1961-1965); Ten Years of Chaos and tortuous economic development (1966-1976); and economic adjustment after bringing order out of chaos (1977-1978).

(1) First stage: National economic recovery after the founding of the People's Republic of China (1949-1952)

For the Chinese economy in 1949, the level of productivity was extremely low. Though over 80% of national population was engaged in agriculture, China was not self-sufficient in food production and it had to import grain and cotton in large quantities each year. China's agricultural output value dropped more than 20% as compared with the highest level before 1949 ; China's industrial development was backward, its pig iron and steel output was merely 13.9% and 17.1% of the highest annual figure before liberation, and China lagged far behind the US, UK, Soviet Union and Japan at that time by output of major industrial products. With the US as an example,

in 1949, the year when the People's Republic of China was founded, American per capita output of electricity, raw coal, pig iron, steel and cotton was 141 times, 41 times, 144 times, 418 times and 8.4 times China's corresponding figure respectively. MAO Zedong once sighed, "what can we make now? We can make tables and chairs. We can make teapots and teacups. We can grow grains, and we can grind them into flour. We can also make paper. However, we cannot make one car, one airplane, one tank or even a tractor" . What's worse, China's economic development was extremely imbalanced. Its industrial production was mainly concentrated in Northeast China and major eastern coastal cities, and more than 90% of power plants were concentrated in Northeast China and several major coastal cities; over 70% of knitting spindles and looms were concentrated in Shanghai, Qingdao and Tianjin; more than 75% of wool spinning was concentrated in Shanghai.

Exhibit 1 Comparison between per capita output of major products in China and in other major countries in 1949

Product	Unit	Per capita output				Ratio of the relevant country's per capita output to China's corresponding figure (times)		
		China	Former Soviet Union	United States	United Kingdom	Former Soviet Union	United States	United Kingdom
Electricity	kWh	7.9	219.5	1144.6	514.9	27	141	63
Raw coal	kg	83.0	761.0	3498.0	4938.0	9	41	58
Pig iron	kg	1.7*	84.4	244.5	165.9	50	144	9
Steel	kg	0.9	95.3	376.3	255.2	106	418	281
Cotton cloth	kg	7.34*	20.28	61.42	70.38	2.8	8.4	9.6

* Includes the output of individual handicraft industry

Data source: data compilation of statistical reports on national economy: *China's National Economic Construction and People's Life*, China Statistics Press (1958), P6.

After the founding of the People's Republic of China in 1949, against such background as blockade and embargo against China by Western countries and their control and freeze of their properties in China as well as the Korean War, the Chinese

government began to adopt a common currency, rectify the financial market, confiscate bureaucratic capital and establish State-owned enterprises, stabilize commodity prices, and endeavor to resume and develop industrial and agricultural production. More specifically, in terms of agricultural recovery and development, China increased governmental investment in and material supply for agriculture, launched water conservancy projects, conducted land reform and land reclamation, opened up urban-rural communication, increased the parity rate of agricultural products, developed agricultural producers' mutual aid teams, popularize agricultural techniques for scientific farming, and improved agricultural productivity; in terms of industrial recovery and development, China confiscated bureaucratic capital and foreign capital, established State-owned enterprises, allowed the co-existence of multiple ownership systems, respected the law of value, and mobilized the enthusiasm for production; in terms of fiscal and tax reforms, China strengthened tax collection and management, strengthened the financial management of State-owned enterprises, issued government bonds and received aids on external debts, and thus improved the country's financial situation. In the financial aspect, China included the deposit and loan business in state planning, strengthened foreign exchange management, realized the balance of foreign exchange receipts and expenditure, and took the lead in socialist transformation and nationalization of the private financial industry. By 1949, Chinese state-owned economy had already played a leading role in such fields as finance, modern industry and transportation[1]. By 1952, China's national economy recovered well and its industrial and agricultural output had exceeded the highest levels before liberation.

Exhibit 2 Economic growth of China's economic sectors in 1950-1952 (Unit: %)

	Total: industry and agriculture	Agriculture	Industry		
			Subtotal	Light industry	Heavy industry
Average growth rate	21.1	14.1	34.8	29.0	48.5

[1] DENG Yougui (chief editor): *The Economic History of the People's Republic of China (1949-2012)*, Contemporary China Publishing House (2016), P12.

YoY growth rate (with previous year as 100)					
1950	123.3	117.7	136.4	130.9	151.5
1951	118.9	109.4	137.8	132.5	150.4
1952	121.1	115.3	130.3	123.9	143.8

Data source: WU Chengming and DONG Zhikai (both chief editors): *The Economic History of the People's Republic of China (1949-1952)*, China Social Sciences Press 2010

(2) Second stage: The establishment of the command economy and initiation of industrialization of the country (1953-1957)

At the initial stage of establishment of the planned economy[1], China was highly consistent with Soviet Union in many aspects including setup of economic sectors and economic system. Within four years between the second half of 1952 and the end of 1956, China completed the transformation to state-planned economy and established a national economic system based on public ownership. By 1956, 96.3% of all farmers across the country joined cooperatives (including mutual aid teams, elementary cooperatives and advanced cooperatives), more than 90% of handicraftsmen joined cooperatives, and the transition from enterprises to public ownership was realized through public-private joint management and peaceful purchase. On economic system, the concentration of economic power, financial power and goods distribution power in central government was realized at this stage by eliminating economic commissions of five major administrative regions. For economic construction during the "First Five-Year Plan" period[2], with focus on construction aid projects of former Soviet Union and

[1] The "planned economy" here means Command Economy, and China's "planned economy" at this stage differed somewhat from the former Soviet Union's planned economy. The former Soviet Union established more than 100 ministries and commissions at the central government level which were in charge of different industries, and a central planning department was set up to coordinate the connection of activities among various industries. In contrast, based on initial copying of the former Soviet Union's economic model, China made certain improvements in line with its national conditions. The central government delegated some of production planning, goods and credit distribution power to local governments, and China's flexibility of plan adjustment prevailed over that of the former Soviet Union's planned economic system.

[2] The "First Five-Year Plan" started from 1953 and was fulfilled ahead of schedule in 1957.

Eastern European countries[1], China gave priority to the development of heavy industries like energy, metallurgical, mechanical and chemical. For investment and accumulation, based on the "price scissors" marked by "agriculture supporting industry", the annual average accumulation rate of agriculture exceeded 30% and forced transfer was thus realized.

In the process of copying the former Soviet Union's socialist planned economic model, the Chinese government also made reflections and explorations and attempts aimed at improvements. At the final stage of the "First Five-Year Plan" period, the number of enterprises directly under central government increased from 2,800 in 1953 to 9,300 in 1957. For production and construction planning, central and local departments simply went on their own ways and there was imbalanced and disconnected development among departments. For distribution of financial power, through power centralization, financial power attributable to central government was 75%, while financial power attributable to local governments was 25%. As a consequence, numerous phenomena appeared, such as very limited financial power for local governments, lack of funds for local construction, reduced efficiency of goods distribution, and too limited autonomy of enterprises in human, financial and material resources as well as production, supply and marketing. All this affected the initiative of local governments and enterprises. Incompleteness of information and excessive government intervention resulting from high planning of the former Soviet Union's socialist planned economy hindered the economic development. Around the Eighth National Congress of the CPC in 1956, China began the adjustment of its economic system.

According to MAO Zedong's speech "*On the Ten Major Relationships*" delivered in 1956, the power of local governments and enterprises should be enlarged appropriately. As for the relationship between planning and market, CHEN Yun described it as the relationship between "main body" and "supplement" at that time with the following notion: "… the situation of our socialist economy will be like this: … planned production is the main body of industrial and agricultural production, while free production that changes with the market and within the confines of state planning supplements planned production"[2]. On implementation methods of plans, hierarchical

[1] Among 156 construction aid projects from the Soviet Union, 150 such projects were actually completed during the "First Five-Year Plan" period and 1/3 of those projects were invested in Northeast China; among construction aid funds from foreign countries, the Soviet Union contributed USD1.65 billion, and Eastern European countries contributed USD770 million.

[2] *See Selected Works of Chen Yun* Volume 3, People's Publishing House (1995), P13.

management plans was explored and adopted. According to the *Preliminary Opinions of the State Planning Commission on the Issue concerning Hierarchical Management of Plans (Draft)* in May 1956, "plans issued with approval of the State Council fall into indicative indexes, adjustable indexes and reference indexes." This notion increased the flexibility of planning and enabled local governments and enterprises to make adjustments to a large extent in line with actual circumstances. In 1957, the Party Central Committee and the State Council passed three documents including *Provisions on Improving the Industrial Management System*, *Provisions on Improving the Commercial Management System* and *Provisions on Improving the Fiscal Management System*. According to those documents, some enterprises and public institutions other than large-sized backbone enterprises in heavy industries may be delegated to local governments depending on different conditions so that certain explorations could be made on reasonably enlarging the power of local governments and enterprises. In the meantime, the authority of enterprises for internal management was appropriately expanded, indicative indexes were reduced, and corporate profits were split between the state and the enterprises. Reform requirements raised in 1957 included: delegating the relationship of administrative subordination of enterprises appropriately to provincial regions; enlarging the financial power of local governments and enterprises; expanding the authority of local governments on goods distribution; expanding the authority of local governments and enterprises on planning management (cutting the number of indicative industrial indexes from 12 to 4, and delegating the profit index to provincial regions instead of specific enterprises); carrying out the hierarchical management of prices. Those reflections and improvement explorations on the former Soviet Union's socialist planned economy should be in accordance with actual economic conditions at that time. Unfortunately, all those efforts went to the other extreme in the ensuing "Great Leap Forward" Movement.

During this stage, the "First Five-Year Plan" was over-fulfilled. In 1957, China's gross output value of industry and agriculture reached RMB124.1 billion, up 67.8% as compared with 1952; the gross output value of agriculture grew at an average annual rate of 4.5%, and the gross output value of industry grew at an average annual rate of 18%; the economic structure was relatively coordinated; the gross railway mileage grew 22% as compared with 1952; rural income grew 30% as compared with 1952; consumption grew 34.2%; due to rapidly developing medical and health services, and China began to establish a medical health system covering the whole country, and its

number of hospital beds grew 200%; China's level of science, technology and culture improved quickly, and the number of colleges and universities increased 230%[1].

Exhibit 3 China's fixed asset investment in1953-1957 (Unit: %)

Year	Amount invested	New fixed assets	Application rate of fixed assets (%)
1953	90.44	74.14	82.0
1954	99.07	80.54	81.3
1955	100.36	86.47	86.2
1956	155.28	117.11	75.4
1957	143.32	133.92	93.4
Total	588.47	492.18	83.6

Data source: China Statistical Yearbook (1984), WU Li (chief editor): *The Economic History of the People's Republic of China* (expanded edition), China Times and Economic Press (2010).

Exhibit 4 The growth of China's industrial and agricultural production in 1953-1957 (Unit: %)

	Total: industry and agriculture	Agriculture	Industry		
			Subtotal	Light industry	Heavy industry
Average growth rate	10.9	4.5	18.0	12.8	25.4
YoY growth rate (with the previous year as 100)					
1953	114.4	103.1	130.2	126.7	136.5
1954	109.4	103.3	116.3	114.1	119.8
1955	106.6	107.7	105.6	100.0	114.5
1956	116.5	105.0	128.2	119.8	140.4
1957	107.8	103.5	111.4	105.6	118.4

[1] The above data are taken from: China Statistical Yearbook (1984) and The Great Decade.

Data source: China Statistical Yearbook (1984), WU Li (chief editor): *The Economic History of the People's Republic of China* (expanded edition), China Times and Economic Press (2010).

(3) Third stage: The Great Leap Forward (1958-1960)

In May 1958, the convening of the Second Session of the Eighth National Congress of the Communist Party of China (CPC) and the adoption of the general line for socialist construction[1] marked the beginning of the Great Leap Forward Movement. The core of the "Great Leap Forward" exploration was devolution, and China hoped to make one step forward through power devolution and find a better, quicker path of national development than Soviet Union and Eastern Europe while putting into practice 1957 reform scheme. However, under the influence of the "left-leaning" thoughts, those exploration efforts deviated from the correct principle provided in 1957 reform plan in many aspects. Although a series of central conferences starting from the end of 1958 wished to correct some policy mistakes, all such efforts ended at the "Lushan Conference" in 1959. And the New Leap Forward in 1960 further worsened China's economic situation. The Great Leap Forward Movement during this period brought major setbacks to the national economic development and also provided valuable, profound lessons for China's economic adjustment and reform in the following years.

The "Great Leap Forward" exploration was focused on enlarging local power and mainly involved the devolution of the power of enterprise administration, reduction of tax categories, devolution of taxing power, and devolution of power to banking institutions, thus inappropriately expanding the power of local governments on planning, infrastructure construction, financial, material and labor resources and providing objective institutional conditions for the "Great Leap Forward" disaster. Against the background of "Great Leap Forward", both central and local governments generally adopted the "three account books" system[2]. As a consequence, various

[1] The general line for socialist construction is: "Go all out, aim high and achieve greater, faster, better and more economical results in building socialism"

[2] In the document *Working Methods 60*, MAO Zedong put forward the establishment of three account books on production planning. The central government shall have two account books. The first account book sets out plans that must be fulfilled, and this book shall be published; the second account book sets out plans that are expected to be fulfilled, and this book will not be published. Each local government shall have two account books. The first account book of that local government is actually the second account book of the central government, and plans set out in such book must be fulfilled by the local government. And the local government shall have the second account book setting out plans expected to be fulfilled. Altogether, there are a total of "three account books", and relevant appraisal is based on the central government's second account book.

departments and various local governments raised targets at every level during plan implementation and relevant plans were seriously divorced from China's actual economic development levels. Many provinces were required to establish their independent industrial system and promote the "communist wind." It was required that industry should grow at an annual average rate of 53% and agriculture should grow at an annual average rate of 30%. Under the influence of "overambitious targets" and "boasting style", especially with the conditions of devolving power and increasing financial and material resources available to local governments since 1957, local governments increased infrastructure investments in succession and tried to establish their independent industrial systems. Due to excessively quick investment in heavy industries and serious wastage due to repeated construction, the economic structure became seriously imbalanced. By 1960, the proportion of heavy industry in the gross output value of industry and agriculture rose sharply to 52.1%.

In cities, shops and teams of collective commerce were integrated into state-run commerce, and handicraft cooperatives were transformed into local state-run factories and cooperative factories. Additionally, the administration of 88% of enterprises directly under central management including many large-sized backbone enterprises in heavy industries was devolved to local governments. In the meantime, China used to consider the practice of expanding enterprises' administration authority, reducing indicative indexes and granting enterprises certain power on staff assignment. However, such idea was not fully realized due to prevalent practices including raising targets at every level, administrative orders and arbitrary orders. And the movement-type devolution of the power of enterprise management marked by excessively quick and hasty operation caused chaos to the production and operation of enterprises.

In rural areas, the people's commune movement was carried out across the country. By the end of 1958, a total of 740,000 agricultural cooperatives throughout the country were changed into 26,000 people's communes through reorganization and combination, and farmer households integrated into people's communes accounted for 99% of all farmer households in China. At the administrative level, township governments were removed, and "integration of government administration with commune management" was put into practice. The "equalitarianism and indiscriminate transfer of resources"[1] and "communist wind" which involved devolving the administration of rural finance

[1] "Equalitarianism and indiscriminate transfer of resources" means "equalitarianism" and "unpaid appropriation. This does not follow the law of value to a large extent, violates the principle of exchange of equal values, and seriously infringes upon collective and individual interests.

and trade to communes and unpaid appropriate of capital goods severely disturbed normal production order; elimination of commune members' private plots and farming and sideline industries and one-sided emphasis on "large in size and collective in nature"[1] weakened the economic autonomy. The practice of eating from the same pot impaired the farmers' enthusiasm for production. China's gross output value of agriculture in 1959 fell 13.6% from the previous year, and its 1960 figure fell 12.6% from the 1959 level. The lives of rural and urban people encountered great difficulties.

Financially speaking, due to "Great Leap Forward" and people's commune movement, China suffered fiscal deficit for four consecutive years (1958-1961). The total size of fiscal deficits in those four years represented about 10% of fiscal revenue within the same period, pointing to an extremely bad financial situation; due to lack of macro control on overall scale, bank credit was out of control and inflationary pressure was huge, which further lowered the living standard of both urban and rural residents.

Exhibit 5 Change in proportion of agriculture, light industry and heavy industry (%)

Year	Proportion of agriculture	Proportion of light industry	Proportion of heavy industry
1952	56.9	27.8	25.5
1957	43.3	31.2	25.5
1960	21.8	26.1	52.1
1965	37.3	32.3	30.4

Data source: China Statistical Yearbook (1983, 1984)

(4) Fourth stage: Economic adjustment after the Great Leap Forward (1961-1965)

From September 30, 1960, the Party Central Committee and State Council raised the eight-character guideline, i.e., "adjustment, consolidation, enrichment, improvement", and worked out a relatively reasonable 1961 annual plan on the basis of

[1] "Large in size and collective in nature" involves the following points: "large" means not only large-sized (firstly, at the initial stage, the average size of people's commune was 4,797 households, and China had a total of 51 super-large people's communes each including 210,000 or more households), but also large business scope (involving such industries as farming, forestry, animal husbandry, side-line production and fishery and such roles as workers, farmers, merchants, intellectuals and soldiers); "collective" means a high level of collectivization. People's communes conduct unified accounting and unified distribution.

that guideline. At the "Seven Thousand Cadres Conference" in 1962, China further summarized lessons on economic development since 1958, adjusted the people's commune policy, and adopted the three-level ownership system. The central government also adjusted the previous policies of devolving too much power to local governments and made endeavors to control the macroeconomic scale and plan. In 1962-1963, it seemed that the factory manager responsibility system was tried out; in terms of industrial construction, 14 sets of complete equipment were imported and advanced technologies in fields like petrochemical and energy were introduced.

The policy core during this period was "adjustment." To be specific, it could be divided into two phases: the first phase was "rectifying deviations"; and the second phase involved new reform attempts when economic situation turned for the better.

Phase 1: limiting local governments' fixed asset investment and eliminating the system of raising targets at every level; regaining the enterprises and powers excessively devolved during the "Great Leap Forward" period, with significant investments put under management of central government and no longer devolved to local governments, and overall investment size to be controlled by central government; without prejudice to the leading role of the ownership by the whole people, appropriately recovering and developing the collective economy, permitting the existence of individual economy in urban and rural areas, restoring private plots for commune members and family sideline production; opening village fairs, carrying out market regulation under the guidance of state planning, and bringing into play the role of economic measures including price, taxation and credit.

Phase 2: delegating 19 non-industrial infrastructure investments to local governments for specific arrangement, with 20% of plan targets set aside for arrangement by local governments; reducing the number of categories of industrial products under management of the State Planning Commission from 340 to 63; appropriately expanding independent decision-making power on enterprise finance; running 11 national industrial trusts on an experimental basis which belonged to various ministries and commissions; with respect to the methods of managing enterprises according to economic rules, overcoming previous malpractices including the Party carrying out government administration in lieu of organs of state power, intervening in daily enterprise operation regardless of economic accounting and profit/loss, organizing and exploring specialized, socialized mass production; with adjustment as a start, paying attention to economic legislation and supervision by enacting management regulations, such as *60-Article Regulations for Agriculture*, *70-Article Regulations for*

Industry, *40-Article Regulations for Commerce*, *6-Article Regulations for Finance*, and *6-Article Regulations for Banks*.

The economic adjustment during this period was not simple recovery of economic system at the final stage of "First Five-Year Plan", but was intended to attach importance to the application of market rules and protect the initiative and enthusiasm of enterprises and farmers while centralizing economic power and paying attention to macroeconomic control. The economic adjustment started from 1961 and achieved remarkable economic results despite political movements in 1963-1965, such as, "Four Clean-ups", "Anti-Revisionism" and "War Preparation." As compared with 1957, China's gross output value of industry and agriculture grew 80% in 1965. Among others, gross output value of industry grew 99%, and the gross output value of agriculture grew 55%. The economic structure was adjusted and improved, and the ratio of agriculture, light industry and heavy industry was adjusted to 4:3:3 by 1965. However, it cannot be denied that the results of economic adjustment were often suppressed by "leftist" wrong thinking, and over-centralization malpractices (e.g., some government departments regaining the administration of too many enterprises, excessive centralization of goods distribution, very limited decision-making power of enterprises) remained.

(5) Fifth stage: Ten Years of the Culture Revolution (1966-1976)

From 1965 onwards, given international environment then, the priority of China's economic work shifted to preparation for war. The "Great Cultural Revolution", which broke out in 1966, negated numerous correct practices in 17 years after the founding of the People's Republic of China. With class struggle as the key link, China pursued a self-contained, self-sufficient system of local governments unrealistically. Against the political background of "overthrowing direct and exclusive control of enterprises by the ministry concerned" and criticizing the so-called "restoration of capitalism", China further devolved relevant powers once again and carried out "pauper's transition to higher stage of collectivization" and "cutting the tail of capitalism." Within a very short period of time around 1970, the power of administration of over 2,600 enterprises directly under central management including large-sized backbone enterprises like Ansteel and Daqing was delegated to local governments, and the all-round contract systems for goods distribution and finance were tried out to enlarge the powers of local governments. Good practices or entities resumed during the adjustment period (e.g., urban and rural individual economy, commune members' private plots and family sideline production, and limited application of market regulation and economic

measures under the guidance of plans) were removed or negated, or become stagnant even if they were allowed to stay; equalitarianism; trusts run as an experiment during the adjustment period were criticized as revisionism, and problems like regional & departmental segmentation, “large and all inclusive”, “small and all inclusive” blind production and repeated construction became more serious and prevalent.

The years of 1966-1968 were the climax of the “Great Cultural Revolution”, during which time the national economic development was hit hard. In 1969-1970, due to relatively stable political situation, the Chinese economy recovered to some extent. In 1972-1973, economic adjustment reaped some good results. However, China’s economy was adversely affected by the strengthening of the “Gang of Four” force at the Tenth National Congress of CPC and the following “Condemning Lin Biao and Confucian” Movement. In 1975, DENG Xiaoping presided over the work of central government and conducted the rectification of industry, agriculture, science and education with support from MAO Zedong. As a result, China’s national economy developed to some degree.

On the whole, during the period of Ten Years of Chaos, economic benefits of enterprises declined sharply and economic fluctuations were extremely high; although industry developed to some extent, the industrial structure was seriously imbalanced. The growth rate of output value of heavy industry exceeded that of light industry, while the growth rate of light industry exceeded that of agriculture. The people’s living standard was stagnant.

Exhibit 6 The growth of output value of China's industry and agriculture in 1953-1957 (Unit: 100 Million RMB)

Year	Gross output value of industry and agriculture	Gross output value of agriculture	Gross output value of industry	In gross output value of industry	
				Gross output value of light industry	Gross output value of heavy industry
1965	2235	833	1402	723	679
1966	2534	910	1624	796	828
1967	2306	924	1382	733	649
1968	2213	928	1285	690	595
1969	2613	948	1665	837	828
1970	3138	1058	2080	960	1120
1971	3482	1107	2375	1020	1355
1972	3640	1123	2517	1079	1438
1973	3967	1226	2741	1189	1552
1974	4007	1277	2730	1213	1517
1975	4467	1343	3124	1376	1748
1976	4536	1378	3158	1395	1763

Data source: China Statistical Yearbook (1983, 1984)

(6) Sixth stage: Re-establishing economic order (1977-1978)

After bringing order out of chaos, the central government set about economic adjustment and achieved certain results, but some problems still existed and generally included the following: first, high-target planning persisted; second, the policy of "Learning from Dazai in Agriculture" prevalent during the Great Cultural Revolution continued; third, the situation was misjudged and the goal of "agricultural mechanization" was set; fourth, the level of socialization of people's communes was still emphasized and was used as the basis for upgrading of accounting units; fifth, taxation was simplified and central government's financial power was weakened.

In view of all this, China started discussions on confounding thoughts existing in economic sphere during this period. Those discussions mainly revolved around such issues as whether distribution according to work was required, whether the development of socialist commodity economy should be encouraged, whether science and technology are part of the productive forces and whether people should respect the law of value and act according to objective law. It should be noted that all those discussions in the economic field developed in the direction of "emancipating the mind, seeking truth from facts", which lay a solid foundation on economic thoughts for the ensuing Discussion on "Truth Norm."

2. International comparison of economic development

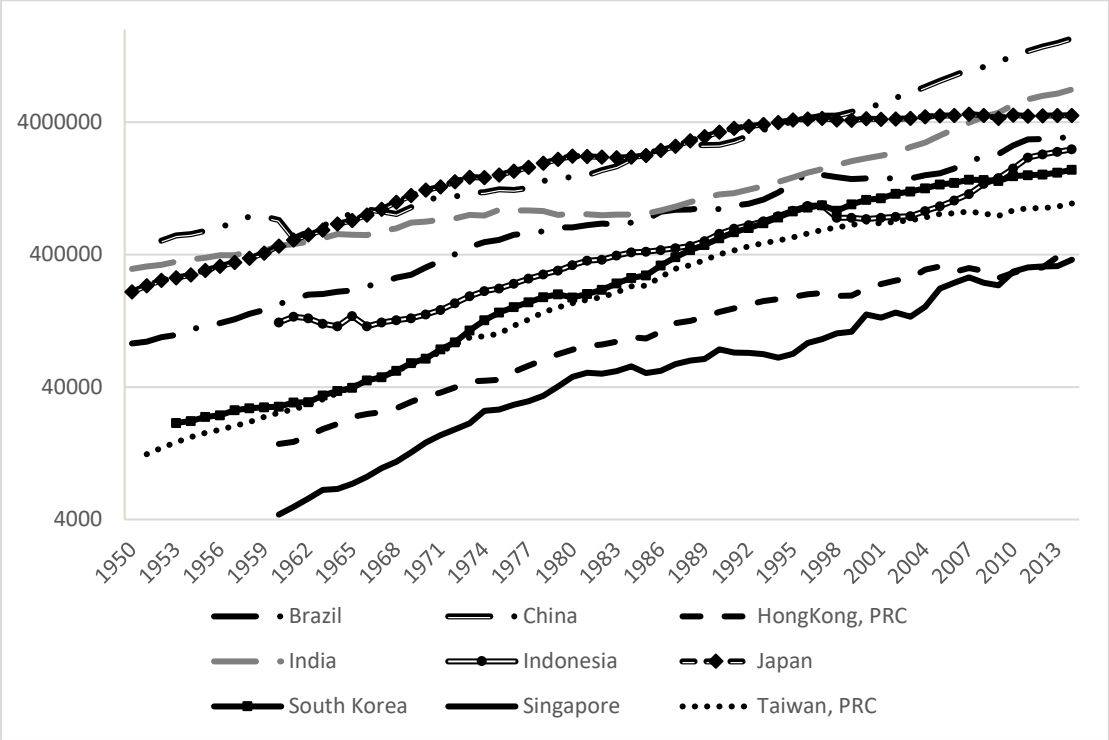
As the world's second largest economic power by GDP, China's economy exhibits a fluctuating growth trend. Between the founding of the People's Republic of China in 1949 and the eve of the Reform and Opening-up, China's economic development was rather slow or even retrogressed. In 1962, China's per capita GDP dropped to the level just before the founding of the People's Republic of China. Although Chinese economy improved after 1962, from 1966 onwards, China lagged farther behind other countries in the world by economic development. After the Reform and Opening-up, China continued to catch up on economic development and is now the world's second largest economy. This section selects four economic variables including GDP, GDP growth, per capita GDP and per capita GDP growth and compares China with Four Asian Tigers, Japan, Brazil, India and Indonesia in terms of economic development.

(1) GDP

From the founding of the People's Republic of China to 1978, since its economy was at a nascent stage, China's GDP did not grow considerably as compared with the level upon the founding of the People's Republic of China. Since the Reform and Opening-up in 1978, China has gradually become the world's second largest economic power by GDP thanks to its fast-growing GDP and significantly enhanced comprehensive national strength. For Japan and Four Asian Tigers, within 1950-2014, their GDP figures always grew at medium-to-high rates. Although their growth has been slowing down since 1980s, they remain the richest countries and regions in Asia. Among others, Japan's GDP exceeded China for the first time in 1967 and was overtaken by China in 1996. For India and Indonesia as two populous countries, their GDP also experienced a shift from slow growth to medium-to-high growth and finally grew substantially. For Brazil as a South American country, although it enjoyed a high

per capita GDP around 1950, its economy has grown slowly in most recent 30 years and fallen into the middle income trap. And the gap between Brazil and China by total GDP has been widening.

Exhibit 7 Comparison among China and other regions in the world by GDP from 1950—2014 (2011 US dollar, logarithmic scale)



Data source: PWT database, ACCEPT calculation

(2) GDP growth

In 1949-1978, China's GDP growth was slow, just above that of India and Indonesia as two other emerging economies. From 1962 to the eve of the Reform and Opening-up, China's population grew rapidly and its GDP grew at a medium-to-high rate. After the Reform and Opening-up, with its fast-growing GDP, China became the world's fastest-growing economy and a major driver of the world's economic growth and development. Despite their high-speed GDP growth in 1950-1980, Four Asian Tigers' economic growth has slowed down since 1980s. Since Japanese economy encountered the bubble crisis in early 1990s, Japan's GDP growth has slowed down substantially and never returned to its historical peak level. For populous Asian countries India and Indonesia, after their GDP growth at a medium rate in 1950-1980, their economic growth has accelerated since 1980s and are now among the world's fast-growing economies. The GDP of Brazil, a South American country, used to grow at a

medium rate for many years. However, its growth has slowed down in most recent 30 years, pointing to lack of economic development momentum.

Exhibit 8 Comparison among China and other regions in the world by GDP growth, 1950—2014

Average annual growth rate of GDP	After founding of the People's Republic of China - 2014	After founding of the People's Republic of China - 1978	1978 -2014
China	8.41%	6.68%	9.81%
Brazil	5.75%	7.22%	4.62%
Hong Kong, PRC	5.88%	8.44%	4.63%
India	4.99%	3.65%	6.05%
Indonesia	5.73%	4.77%	6.22%
Japan	4.91%	8.31%	2.34%
South Korea	7.48%	9.15%	6.34%
Singapore	8.55%	12.16%	6.79%
Taiwan, PRC	7.16%	9.58%	5.39%

Data source: PWT database, National Bureau of Statistics, ACCEPT calculation

Note: Please note that the average growth rate of China is calculated by averaging annual growth rates for each year during 1978-2014 and the data is from the National Bureau of Statistics. The annual growth rate before 1978 is calculated using the data from "China Compendium of Statistics 1949-2008". All other data is from the PWT Database.

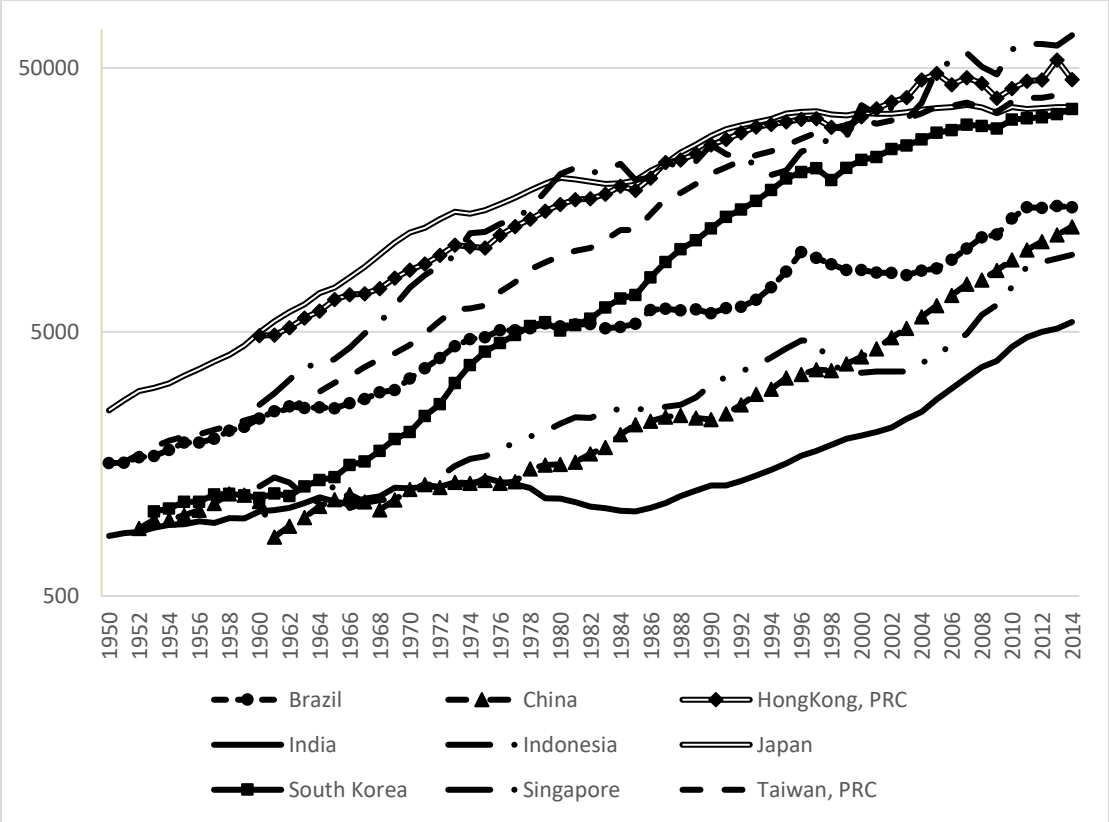
(3) Per capita GDP

If denominated in US dollar of 2011, China's per capita GDP shortly after the founding of the People's Republic of China (i.e., 1952) was USD900 or so. By 1958, China's per capita GDP reached USD1,220. In 1958-1962, China's per capita GDP dropped to USD920 in 1962, equivalent to the level in early years after the founding of the People's Republic of China and slightly below that of India and Indonesia in the same period. In 1962-1978, China's economic development was relatively stagnant and per capita GDP of China and India generally ranged between USD1,100 and USD1,300 and grew slowly. In contrast, for Four Asian Tigers in the same period grew rapidly.

By 1978, South Korea's per capita GDP was 3.5 times that of China, Taiwan's figure was 5.5 times that of China, and the figures of both Singapore and Hong Kong were 9 times that of China. Japan developed more quickly and its per capita GDP was up to 11 times that of China. Although Brazil as a South American country grew slowly, its per capita GDP was 3.5 times that of China.

After the Reform and Opening-up, China's per capita GDP grew rapidly from USD1,516 in 1978 to USD12,513 in 2014, pointing to nearly tenfold growth. Compared with other countries, from 1978 on, China's leading advantage over India gradually intensified and its per capita GDP exceeded Indonesia in 1999. With growth slowdown of Japan and Four Asian Tigers, the gap between China and those countries by per capita GDP continued to narrow. In 2014, Hong Kong's per capita GDP was less than 4 times that of China, and the figures of South Korea and Japan were merely 3 times that of China. The per capita GDP of South American country Brazil fluctuated sharply and was on a par with China's per capita GDP.

Exhibit 9 Comparison between China and other regions by per capita GDP, 1950—2014 (2011 USD, logarithmic scale)



Data source: PWT database, ACCEPT calculation

(4) Per capita GDP growth

From early years after the founding of the People's Republic of China to 1978, China's population grew quickly and its per capita GDP growth was only 4.52%, only ahead the corresponding figures of India, Indonesia, and Brazil. Among Four Asian Tigers, the growth rate of Hong Kong (lowest by per capita GDP growth) was 5.81%, while the growth rate of Singapore (highest by this measure) was 9.98%. Within the same period, Japan also maintained high-speed growth and its per capita GDP grew at a rate of 7.10%.

After the Reform and Opening-up in 1978, China's economy developed fast and its population growth slowed down. Its per capita GDP growth reached a historical high of 8.73%. The growth rate of India and Indonesia as the same populous countries also improved. Economic growth of Japan, Four Asian Tigers and Brazil as a South American country was somewhat weak, and their growth rates were well below their growth rates in the previous period.

Exhibit 10 Comparison among China and other regions in the world by per capita GDP growth, 1950—2014 (2011 US Dollar)

Annual average growth rate of per capita GDP	After founding of the People's Republic of China -2014	After founding of the People's Republic of China -1978	1978 -2014
China	6.87%	4.52%	8.73%
Brazil	3.55%	4.29%	2.97%
Hong Kong, PRC	4.22%	5.81%	3.44%
India	2.96%	1.50%	4.11%
Indonesia	3.81%	2.46%	4.50%
Japan	4.22%	7.10%	2.04%
South Korea	5.92%	6.68%	5.40%
Singapore	6.15%	9.98%	4.28%
Taiwan, PRC	5.30%	6.43%	4.46%

Data source: PWT database, National Bureau of Statistics, ACCEPT calculation

Note: Please note that the average growth rate of China is calculated by averaging annual growth rates for each year during 1953-1978 and 1978-2014, respectively. The data is from "China

Compendium of Statistics 1949-2008" and the National Bureau of Statistics, respectively. All other data is from the PWT Database.

FIVE ECONOMIC LESSONS FROM THE FIRST 30 YEARS OF DEVELOPMENT

1. Public health, elementary education and infrastructure constitutes the foundation of future economic development

(1) Public Health

In the early years of the People's Republic of China, war, famine and infectious diseases made it difficult to ensure the basic health level of the people. In 1949, the average life expectancy in China was only 35 years, and the infant mortality rate was as high as 200‰[1]. Faced with such rigorous challenges and the lack of medical resources, China urgently needed to build a public health system to solve the most basic medical problems of the people. In order to establish a public health system, the government increased investment in the field of healthcare. As shown in the table below, in 1952, the government spent RMB386 million on health, accounting for 0.68% of the financial expenditure; in the subsequent 30 years, the government's health expenditure increased significantly, reaching RMB3.544 billion in 1978, accounting for 3.16% of the financial expenditure. Compared with developed countries, this level of investment lagged considerably behind, but in the context of China's economic situation at that time, this investment helped lay an economic foundation for China to establish a public health system, signifying the government's emphasis on people's health.

Exhibit 11 **Chinese Government's Health Expenditure during 1952-1978**

Year	Government Health Expenditure (in RMB100 million)	As a percentage of Financial Expenditure (%)	As a percentage of GDP (%)
1952	3.86	0.68	0.57
1953	5.37	0.93	0.65
1958	5.92	0.91	0.45
1963	10.83	1.59	0.88
1968	11.96	1.54	0.69
1973	21.92	2.49	0.81
1978	35.44	3.16	0.97

Data source: DU Lexun, ZHAO Yuxin and LIU Guoxiang, 2009: *Review and Prospect of Government Health Expenditure and Total Health Expenditure Accounting in the 60 Years since*

[1] Data source: National Bureau of Statistics

the Founding of the People's Republic of China, published on *Chinese Journal of Health Policy*, 10th issue

Given the shortage of medical resources, how to maximize the results with limited input became the key problem to be solved by China's public health system. Therefore, China must adopt public health measures unique to it. In the process of establishing a public health system, China adopted three key measures: 1. establishing a health policy focusing on prevention; 2. improving health level through "Patriotic Health Campaign"; and 3. establishing a cooperative medical care system to provide basic medical services to farmers.

Different from the western health system focusing on treatment, China put forward the health policy focusing on prevention based on the actual basic medical conditions at that time, and invested limited human, financial and material resources into prevention, achieving remarkable results. To protect the people from rampant infectious diseases, the government provided a variety of prophylactic vaccines against smallpox, diphtheria, tuberculosis and other diseases. For example, smallpox, a virulent infectious disease that raged in the early days of the People's Republic of China, had a death rate of up to 25%, and it broke out almost every year in many parts of the country. In 1950, the Ministry of Health issued the *Interim Measures for Vaccination*, promoting free vaccination throughout the country. It was reported that from 1949 to 1952, more than 500 million people were vaccinated against smallpox. Every year, the country provided more than 100 million smallpox vaccines free of charge and various medical appliances needed for vaccine injection, thus effectively reducing the infection of smallpox and basically eliminating smallpox in the 1960s. It was exactly because of the adoption of a health policy focusing on prevention that China significantly controlled and reduced the incidence of smallpox, plague, schistosomiasis, cholera and other severe infectious diseases in the first decade after the founding of the People's Republic of China, greatly improving the people's health.

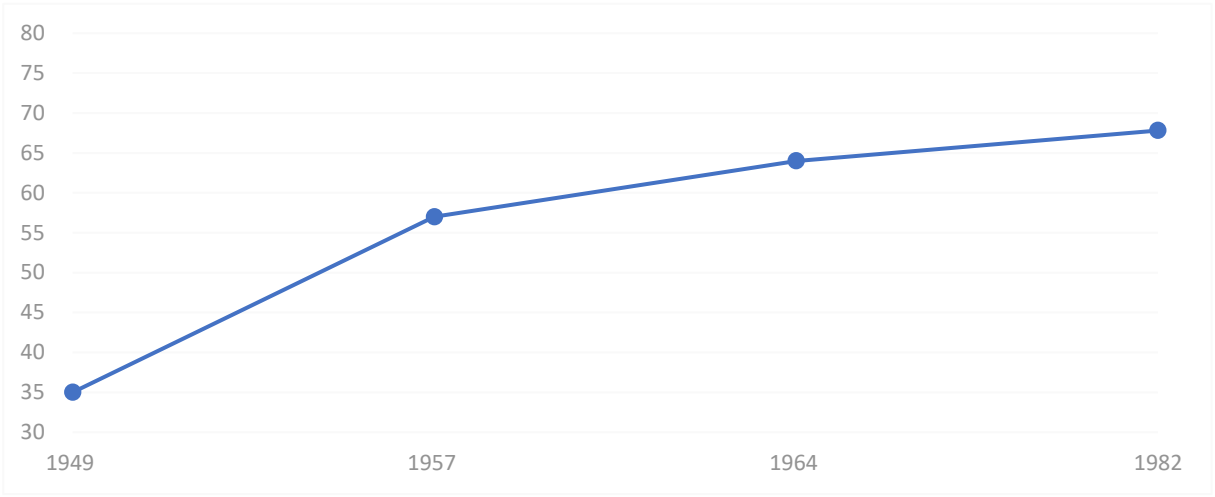
At the same time, China launched a "Patriotic Health Campaign" to motivate the people to devote themselves to the construction of the national public health system. Between 1949 and 1952, under the leadership of the Central Committee of Epidemic Prevention, a new upsurge of mass health campaign, namely, "Four Pests Campaign", was rapidly launched in various regions. In the first half of 1952 alone, more than 15 million tons of garbage was cleared, 280,000 kilometers of channels were dredged, 4.9 million new toilets were built, and over 1.3 million wells were rebuilt. The active participation of the people helped improve the sanitary environment significantly,

enhance the health awareness of the people, and fulfill the purpose of preventing and reducing diseases, which reflected the characteristics of China's public health work.

In the early days after the founding of the People's Republic of China, 85% of the people lived in rural areas, so it was particularly important to solve the problem of medical security for this large population. In the mid-1950s, many cooperatives tried to establish a cooperative health care system to finance and pay for preventive services, basic health care, and disease treatment for farmers. The cooperative medical system provided health education, family planning, preventive inoculation, surveillance and reporting of infectious diseases and other preventive services for farmers. At the same time, the cooperative medical system is equipped with basic medical equipment and medicines, so that farmers can access and afford medical services, thus effectively ensuring the health level of farmers. By 1976, 93% of the people's communes in China managed to establish a cooperative medical care system.

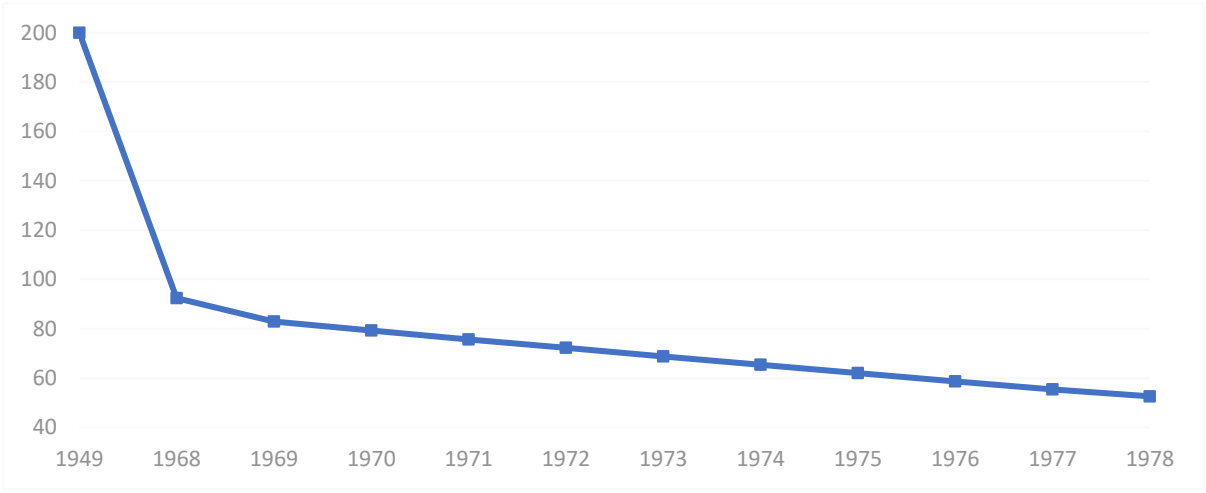
It was precisely because of China's investment in health care in the first 30 years after the founding of the People's Republic of China and the adoption of public health measures with Chinese characteristics that China's public health system and medical service system were constantly improved and achieved remarkable results. As shown in the table below, from 1949 to 1982, the average life expectancy in China increased from 35 years to 68 years, nearly doubling. Meanwhile, the infant mortality rate dropped from 200‰ in the early days of the founding of the People's Republic of China to 53‰ in 1978. **People's health level was significantly improved, and the improvement of population health level in turn provided important human resource guarantee for social and economic development (Gourdel et al., 2004), and people's quality of life was also improved greatly.** At the same time, China has also abandoned the traditional "western model" of public health, and developed an internationally recognized and successful public health system in an efficient manner with limited resources, which is of great referential significance to other developing countries.

Exhibit 12 **Average Life Expectancy in China during 1949-1982**



Data source: National Bureau of Statistics and China's previous census data

Exhibit 13 **Infant Mortality Rate (‰) during 1949-1978**



Data source: National Bureau of Statistics, Wind database and ACCPT

(2) Elementary Education

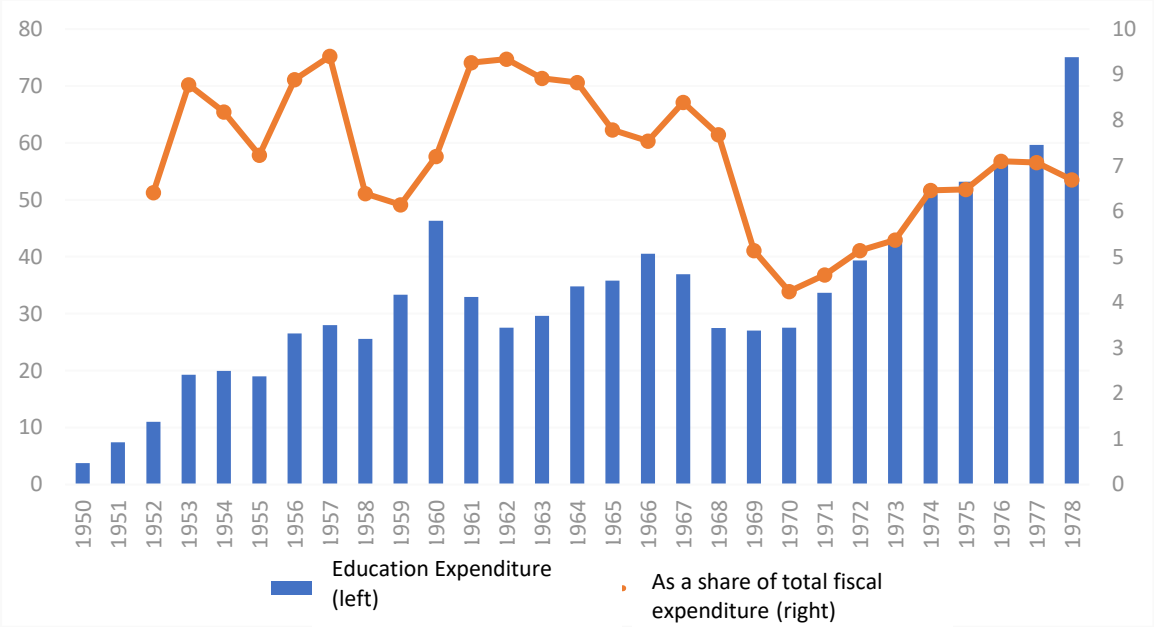
Before the founding of the People's Republic of China, due to low economic level, the total investment in education was small, the educational equipment was dilapidated, and a large number of schools could hardly maintain the normal educational order. After the founding of the People's Republic of China, the country attached great importance to the development of education and increased the expenditure on education within the state budget. As shown in the table below, education expenditure within the financial budget was gradually increased from RMB376 million in 1950 to RMB7.505 billion in 1978. Except for very few years, education expenditure accounted for more than 6% of the financial expenditure. Steady and sustained investment in education was

a prerequisite for China to build a sound education system and to provide the country with high-quality human capital.

From 1949 to 1978, China gradually established a relatively sound education system, which helped significantly improve the level of education and the quality of talents. During 1949-1957, the Central Ministry of Education systematically reformed the old educational system, subject contents and teaching methods. The ministry stipulated the subjects in primary and secondary schools mainly including Chinese, politics, mathematics, physics, chemistry and biology; during this period, the curriculum system put equal emphasis on liberal arts and science. From 1949 to 1953, the winter schools in rural areas and the national literacy campaign were of great significance to the elimination of illiteracy. By 1956, most old-style private schools had been transformed into public or private primary schools. During the period from 1958 to 1965, we mainly revised the teaching plans for primary and secondary schools, and compiled two sets of textbooks for primary and secondary schools. However, during this period, the activity of "going to the mountainous areas and the countryside" also began, which greatly increased labor time and reduced classroom teaching, resulting in educational discontinuity. During 1966-1976, the Great Cultural Revolution led to suspension of classes, strikes and other abnormalities. In this decade, entrance examinations for secondary schools or colleges were cancelled, and the cultivation and selection of talents were seriously affected. With the resumption of the college entrance examination system in 1977, and the construction of the education system gradually got back on track. In the 30 years after the founding of the People's Republic of China, the illiteracy rate dropped from 80% in 1949 to 22.81% in 1982; according to the *China Education Yearbook*, a total of 141.448 million Chinese people became literate between 1949 and 1981. At the same time, by comparing China with India which was then at the similar stage of development, we could find that China's education level improved significantly. In the *Human Development Index* released by the United Nations in 1990, adult literacy rate was selected as an indicator to evaluate the educational level of countries. Adult literacy rate means the proportion of the population aged 15 and above who are able to understand, read and write essays about their daily life in such age group; generally speaking, "literacy" also includes the ability to recognize numbers, that is, to perform simple arithmetic operations. As shown in the table below, although the statistical years of literacy rates in the two countries did not correspond one by one, it could be seen that the adult literacy rate in China increased by 45.51% in the 33 years from 1949 to 1982, while India's adult literacy rate rose by only 31.55% in the 31 years

from 1950 to 1981; moreover, China's adult literacy rate was significantly higher than that of India during the statistical period from 1949 to 1991. In terms of gender equality in education, based on the ratio of male to female students in primary and secondary schools in 1976, the enrollment rate of female students in India was only 60% of that of male students, while the ratio in China was more than 80%. This showed that China outperformed India in terms of gender equality in education.

Exhibit 14 **Education Expenditure**[1] **(in RMB100 Million) and Its Proportion of Fiscal Expenditure (%) from 1950-1978**



Data source: China Education Yearbook 1949-1981 and Finance Yearbook of China 2001

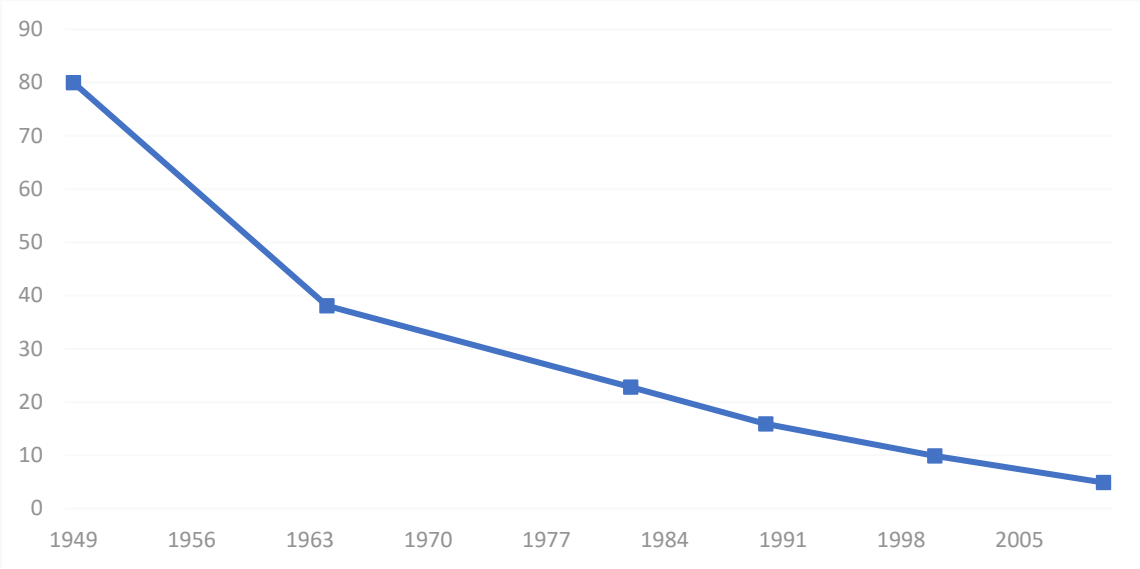
As an important part of human capital, education level plays an important role in promoting economic development (McMahon & Dean, 1986). Through modeling and analysis of economic data of many developing countries from 1982 to 2001, it was found that human capital had a remarkable positive correlation with economic development, and investment in and development of education were helpful to improve the economic level of developing countries (Vinod & Kaushik, 2007). The underlying reason for the positive correlation between education level and economic development might be that the improvement of education level has a direct driving effect on the improvement of production efficiency (Frank, 1960).

Generally speaking, in the 30 years from 1949 to 1979, the Chinese government significantly improved the cultural level of our people by investing in education. **The**

[1] Education expenditure: including recurrent expenditure on public education and investment in public education infrastructure.

improvement of cultural level in turn provided an important driving force for social and economic development and laid a solid talent foundation for the high-quality economic and social development of China.

Exhibit 15 **Statistics of Illiteracy Rate[1] in China from 1949-2010 (%)**



Data source: National Bureau of Statistics, data from previous censuses

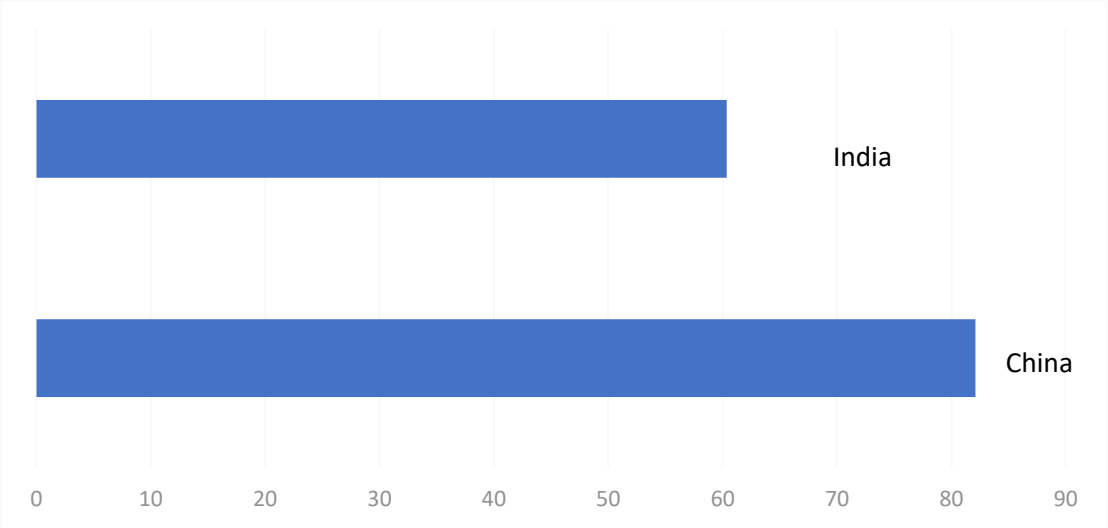
Exhibit 16 **Comparison of Adult Literacy Rates of Population Aged 15 and above between China and India in Select Years from 1949 to 1991**

Year	China: literacy rate of adults aged 15 and above (%)	India: literacy rate of adults aged 15 and above (%)
1949	20.00	-
1951	-	16.67
1961	-	24.00
1971	-	34.00
1981	-	40.76
1982	65.51	-
1990	77.79	-
1991	-	48.22

Data source: China's literacy rate data came from the National Bureau of Statistics and the World Bank; India's literacy rate data came from the World Bank and an article by ZHAO Zhongjian, 1990, *Review of Anti-illiteracy Education in India*, published on *Foreign Educational Materials*, 5th Issue

[1] Illiteracy rate: the proportion of the population aged beyond school age (12-15 years) who can neither read nor write in the corresponding population group. The illiteracy rate reflects the level of education in a country.

Exhibit 17 **Female Students as a share of Male Students (%) in Primary and Secondary Schools in China and India in 1976**



Data source: the World Bank

(3) Infrastructure

In the early days after the founding of the People's Republic of China, there were many things waiting to be done. As a guiding area of national economic recovery, infrastructure sector was favored and supported by many policies. The growth rate of industrial investment in basic industries and infrastructure was much higher than that in other industries. From 1954 to 1977, a total of RMB299.6 billion was invested in the capital construction of basic industries and infrastructure across the country, representing an annual growth rate of 8.7 percent. Wherein, RMB118.3 billion was invested in industrial capital construction, with an annual growth rate of 12.1%, 3.6 percentage points higher than that in agriculture and 5.6 percentage points higher than that in transportation, education, culture and other tertiary industries during the same period. The rapid growth of industrial investment was inseparable from the policy of focusing on industry, especially heavy industry, in the field of economic construction at that time. The country shifted the focus of economic construction to heavy industry, which led to the rapid growth of investments in coal, oil, power and other industries.

In terms of **transportation infrastructure construction**, by the end of 1978, the total length of transportation lines had reached 123.51 million kilometers, about seven times the figure of 176,100 kilometers in 1949[1]. Specifically, railway infrastructure

[1] Data source: Compendium of 50 Years' Statistics on Transportation in the People's Republic of China.

focused on the recovery and construction of trunk railways north of the Yangtze River and east of Lanzhou and Baotou, and several major railway projects such as the Lanzhou-Xinjiang Railway, Chengdu-Kunming Railway, Baotou-Lanzhou Railway and Jiaozuo-Zhicheng Railway were completed. With the goal of realizing the interconnectivity among major regions of China in a short period of time, highway infrastructure construction teams built some trunk highways including Qinghai-Tibet Highway, Xinjiang-Tibet Highway and Sichuan-Guizhou Highway. In terms of inland waterways and ports, China built Tianjin Port, Lianyungang Port, Dalian Port, Shanghai Port and some other important ports.

Exhibit 18 **Construction and Development of Transportation Infrastructure in China during 1949-1978**

Unit: 10,000 kilometers	Railways	Highways	Inland Waterways	Pipelines	Total
1949	2.18	8.07	7.36	-	17.61
1978	5.17	89.02	13.60	0.83	123.51

Unit	Coastal Ports	Wherein: ten-thousand tons level	Inland Ports	Wherein: ten-thousand tons level	Civil Airports
1949	161	0	-	-	-
1978	311	133	424	0	78

Data source: CEI*C database and Compendium of 50 Years' Statistics on Transportation in the People's Republic of China*.

Column: Transportation Infrastructure Construction in Advance and Economic Development -- Using Litang-Zhanjiang Railway for Example

After the founding of the People's Republic of China, in order to break the economic blockade of foreign countries, strengthen China's foreign trade, meet the needs of domestic material exchange and national defense, the Government Administration Council of the Central People's Government decided in 1953 to build Litang-Zhanjiang Railway starting in Zhanjiang, Guangdong Province (from Litang, Guangxi Province to Zhanjiang, Guangdong Province).

With a length of 318.2km, the Litang-Zhanjiang Railway is an important channel connecting southwest China and Guangxi Zhuang Autonomous Region to the sea, and it also connects the South China Sea and Hainan Province to the hinterland of south China. Litang-Zhanjiang Railway was started in 1955 and officially put into operation

in 1956. It is the first railway connecting west Guangdong province to the other parts of China. After the railway was opened to traffic, the industry and commerce in Zhanjiang developed rapidly, and the water and seafood products, agricultural, forestry and animal husbandry products and underground minerals in the west of Guangdong Province were able to be transported to all parts of the country by train.

After the starting of the Reform and Opening-up, Litang-Zhanjiang Railway was still a key transportation route for goods and materials between the coastal and inland areas. However, with the rapid development of the coastal areas along Zhanjiang and surroundings, the single-track transportation of Litang-Zhanjiang Railway gradually began to restrict the export of local products. The history of Zhanjiang only relying on the single-track transportation of Litang-Zhanjiang Railway was not put to an end until 2009 when a double track of Litang-Zhanjiang Railway was completed and opened to traffic. Litang-Zhanjiang Railway's second track is located at the southernmost end of China's mainland railway network, forming the Datong -Zhanjiang trunk railway to the north, the Shenyang - Haikou trunk railway to the east, and the Kunming - Zhanjiang trunk railway to the west. After the completion of the project, the annual currency capacity of the whole line increased from 18 million tons to 40 million tons, successfully breaking through the bottleneck of railway transportation from Zhanjiang to southwest China.

The construction and development of Litang-Zhanjiang Railway helped turn Port of Zhanjiang into an important hub of waterway transportation in the south, kept the high growth rate of total foreign trade in Zhanjiang, and greatly facilitated the import and export trade. In the first seven months of 2019, the total import and export value in Zhanjiang increased by 10.2% year on year; wherein, the import and export of private enterprises increased by 10.4% year on year, and the import and export of state-owned enterprises increased by 10.2% year on year. Convenient transportation and development of foreign trade stimulated the growth of private economy and private investment. In 2018, the added value of private economy reached RMB190 billion, and the tax revenue exceeded RMB45 billion, accounting for more than 70% of the city's total tax revenue. Wherein, private imports and exports reached RMB18 billion, and private investment increased by 10% year-on-year.

Column: Transportation Infrastructure Construction in Advance and Economic Development -- Using Wuhan for Example

During the first Five-year Plan period, Wuhan was identified as a "key city" for construction. Of the 156 projects the Soviet Union helped China to build, 7 were put in

Wuhan by the state, including Wuhan Steel Works, Wuhan Heavy Duty Machine Works, Wuhan Boiler Factory, Wuchang Shipyard and Wuhan Combined Meat Processing Plant. Under the central government's policy of "giving priority to the development of heavy industry", the state funded the establishment of 32 large state-owned enterprises in Wuhan, and key construction projects also included the Guomian No.1 Factory and Hanyang Sleeper Treating Plant. These large state-owned enterprises, nicknamed "Wuzihao" by Wuhan people, laid the industrial foundation in which Wuhan takes pride.

What followed was huge spending on transportation infrastructure. In October 1955, the construction of Xuqing industrial branch line from Xujiapeng to Qingshan was commenced in support of Wuhan Iron and Steel Company; in 1957, Wuhan Yangtze River Bridge was completed, connecting the Beijing-Hankou Railway and the Guangdong-Hankou Railway to form the Beijing-Guangzhou Railway, and greatly promoting the transportation between the north and the south; the second phase of Wuhan railway hub was started in April 1959; by 1980, 23 projects were completed in the Phase II expansion project, and promoted the further deepening of the functions of Wuhan railway hub.

Wuhan's transportation infrastructure construction laid a solid foundation for its development after the starting of the Reform and Opening-up. In 1984, the CPC Central Committee and the State Council officially approved Wuhan as a pilot city for comprehensive economic system reform. According to the decision of the State Council, the People's Government of Wuhan formulated ten implementation solutions for the pilot reform. The main purpose was to take transportation and commercial circulation as a breakthrough, give full play to the advantages of Wuhan as a central city, and build Wuhan into one of the top three manufacturing centers, one of the top three science and technology development centers, and one of top three financial and trade centers. From 1992 to 1998, the economic growth rate of Wuhan exceeded 16% for years on end, its economic aggregate had always been among the top three in China, and its city size was always ranked the top in China. This period was known as the "Wuhan Phenomenon."

In terms of **energy infrastructure construction**, there were 98 rural hydropower stations in China in 1952, but the number increased to 83,224 in 1978[1]. In terms of key projects, China completed 25 electric power projects during the first Five-year Plan

[1] Data source: CEIC database.

period, including Sanmenxia Water Control Project in Henan Province, Fengman Hydropower Station in Jilin Province, and Lanzhou Thermal Power Station in Gansu Province. Projects related to energy infrastructure construction also included 25 coal projects of the 156 key projects supported by the Soviet Union, such as Fuxin, Fushun, Hegang and Pingdingshan coal mines. The 26 projects introduced later in 1972 included three power plant projects in Beidagang, Tianjin; Douhe, Tangshan, Hebei Province and Yuanbaoshan, Inner Mongolia. In addition, oilfields such as Yumen Oilfield in Gansu Province, Karamay Oilfield in Xinjiang, Shengli Oilfield in Shandong Province and Daqing Oilfield in Heilongjiang were built or expanded during the second Five-year Plan period.

Column: Water Conservancy Infrastructure Construction in Advance and Economic Development – Using Anhui Province's Pi-Shi-Hang Irrigation District for Example

In 1958, the construction of Pi-Shi-Hang Irrigation District commenced. Besides irrigation, the canal system also provided comprehensive benefits such as navigation, power generation and water supply. The irrigation district had a total controlled area of 13,100 km^2 and a designed irrigation area of 684,000 hm^2.

Before the development of the irrigation district, due to the lack of water sources, poor water conservancy facilities and the huge area of dryland crops, grain output per unit area was very low. According to the data of Lu'an Bureau of Statistics: in 1957, the paddy fields in the six counties of Pi River, Shi River and Hangbu River irrigation district, namely, Lu'an, Shou County, Feixi, Huoqiu, Shucheng and Lujiang, accounted for 67% of the total cultivated land area in these counties, and the grain output per unit area was about 116.5 kg. Since the construction of the irrigation district for development of irrigation, paddy field area was expanded, dry crop area was gradually reduced, water-immersed fields were transformed, and the rate of cultivated land increased correspondingly. According to statistics in 1988, the paddy fields in the above six counties accounted for 85% of the total cultivated land area, and the grain output per unit area increased to 382 kg, which was 3.2 times that of 1957. The multi-cropping index was increased to 118% by transforming 1.5 million mu of water-immersed fields.

In addition to promoting agriculture, the irrigation district also promoted the development of local industry. The establishment of the irrigation district promoted the construction of hydropower stations; by 1988, 42 hydropower stations had been built,

with a total installed capacity of 13,456 kw and an annual generating capacity of about 40 million KWH. When adequate supply of water and electricity was available, a number of small and medium enterprises in Lu 'an were built along the canal after the Reform and Opening-up, so as to develop heavy industry, light industry and food processing industry by using the water source nearby. A new industrial zone was formed along the trunk canal from south to north, hosting over 30 factories and enterprises such as Lu'an Paper Mill, Lu'an Pi River Fertilizer Plant, Anhui Zhaoyang Pharmaceutical Factory and Lu'an Meat Processing Plant. With the development of industrial production and the expansion of enterprise scale, water demand increased year by year. According to the statistics of the Pi River Administration Bureau, the annual industrial water fee was only RMB100,000 before 1984, but the figure increased to RMB370,000 in 1985 and RMB450,000 in 1988.

Column: Power Infrastructure Construction in Advance and Economic Development – Using Danjiangkou Hydropower Station for Example

During the first and second Five-year Plan periods, the state made great efforts to develop water conservancy facilities. In 1958, Danjiangkou Water Control Project was officially started, and in 1968, the first 150,000 kw unit was put into operation. In 1973, the project was completed as expected, with a total storage capacity of 20.9 billion cubic meters and was equipped with 6x150,000 kw Francis Type Water Turbine-Generator Units. With a total capacity of 900,000 kw.

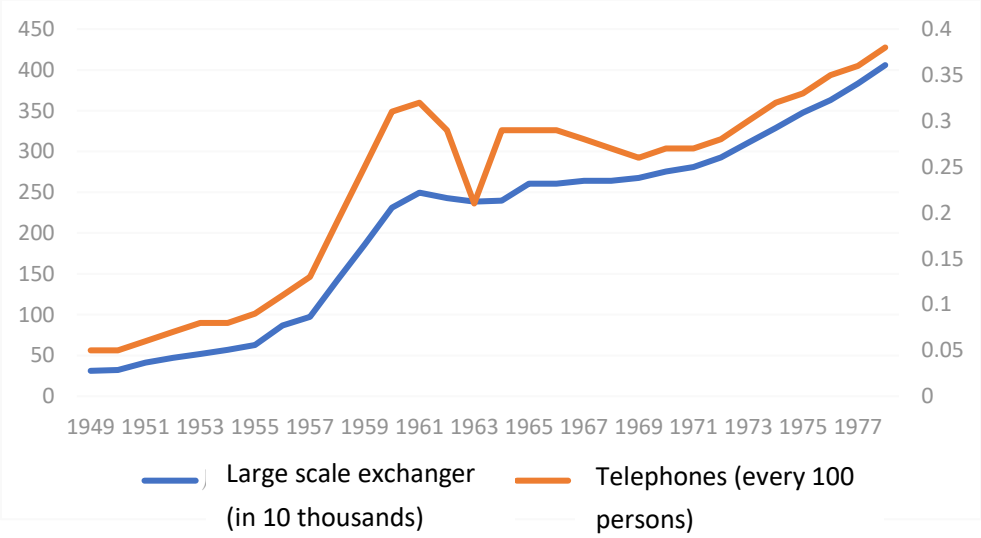
After the commencement of the Reform and Opening-up in 1978, Danjiangkou Hydropower Station delivered a large amount of electricity to Hubei and Henan provinces, and made great contributions to the industrial and agricultural production and economic development of the two provinces; since then, Danjiangkou Hydropower Station, as the first connecting point of the power grids in Henan and Hubei provinces, had also made outstanding contributions to ensuring the stability of the entire central China power grid. Around the 1990s, the hydropower station began to support the local economic development.

The reservoir area (Danjiangkou City, Hubei Province, and Xichuan County, Henan Province) used low electricity price as a key to attract investment and promised to give preferential electricity price to energy-consuming enterprises, thus establishing energy-consuming pillar industries such as chemical industry, metallurgy, paper making and building materials, with the proportion of heavy industry exceeding 90%.

According to statistics, during the 10 years from 1988 to 1997, the reservoir area received total electricity of more than 10 billion KWH from Danjiangkou Hydropower Plant, and benefited a lot from the long-term low electricity price. The average electricity price in Hubei Province was RMB0.52, but the reservoir area enjoyed a preferential electricity price of less than RMB0.20 per kilowatt-hour. The reservoir area paid billions less for electricity, which played a huge role in promoting the economic development of the reservoir area and helping immigrants in the reservoir area get rid of poverty and become better off: in 1990, Danjiangkou's GDP was only RMB710 million, but in 2003, it reached RMB3.743 billion.

In terms of **telecommunications infrastructure construction**, the capacity of China's telephone office exchanges increased from 313,700 in 1949 to 4,058,800 in 1978. Correspondingly, the telephone penetration rate in China increased from 0.05 per 100 persons in 1949 to 0.38 per 100 persons in 1978[1]. The density of postal communication service outlets also increased from one per 364.6 square kilometers in 1949 to one per 193.5 square kilometers [2], and the construction of telecommunication infrastructure improved the living standard of residents to a certain extent.

Exhibit 19 **Development of Telecommunications Infrastructure in China during 1949-1978**



Data source: National Bureau of Statistics.

In general, the infrastructure construction and its relationship with economic development in the first three decades after the founding of the People's Republic of

[1] Data source: National Bureau of Statistics.

[2] Data source: National Bureau of Statistics.

China have the following characteristics: first, **under the backdrop of priority given to the development of heavy industry in the early days after the founding of the People's Republic of China, the infrastructure construction was strongly supported by the policies and achieved rapid development. However, the quality of the completed infrastructure was not high**; for example, highway construction included numerous rural dirt roads; second, **due to the low starting point of China's infrastructure construction and the lack of sustainability in construction, the government's investment in infrastructure generally lagged behind the demand of economic development for infrastructure construction, so infrastructure construction became a bottleneck of economic development at that time**. According to the data, by 1979, railway electrification mileage only accounts for 0.2% of the total railway mileage (33% in 2014), and national above-grade highway mileage accounts for only 58% of highway mileage (91% in 2017). Before the reform and opening up, China did not build a highway. In 1984, the Shenyang-Dalian Expressway and the Shanghai-Jiading Expressway were started. In 1988, Shanghai-Jiading Expressway became the first completed expressway and was successfully put into use. 30 years before the Reform and Opening-up saw the lowest average annual growth rate of basic industries and infrastructure investment since the founding of the People's Republic of China; third, China's infrastructure development at the early stage was not balanced, reflecting obvious regional differences and allocation of excessive resources to key projects.

Like public health and elementary education, sound infrastructure construction is also the basis for rapid economic development. Existing studies have found that **transportation infrastructure construction can improve the production efficiency of existing enterprises, increase the probability of potential enterprises entering the market, and reduce the probability of existing enterprises exiting the market** (ZHANG Tianhua et al., 2018); transportation infrastructure can also expand enterprise scale and enhance market vitality (ZHANG Xun et al., 2018).

In general, **economic development needs to be preceded by social infrastructure construction. After the Reform and Opening-up, especially during the eighth and ninth Five-year Plan periods, the heavy investment in infrastructure construction made up for the lack of infrastructure investment in the early stage, and laid a sound foundation for introducing foreign capital and promoting domestic investment, thus supporting the sustained high-speed economic development to some extent.**

2. Indigenous innovation is feasible, but the key to its success lies in learning with open mind, attracting talents and making good use of them

During the nearly three decades from the founding of the People's Republic of China to the start of the Reform and Opening-up, China made considerable achievements and breakthroughs in both cutting-edge national defense science and technology and other basic scientific fields. In the special and isolated international environment, China explored a road of self-dependence and indigenous innovation, and got a piece of valuable experience: indigenous innovation is inseparable from open learning. Open learning is not limited to the opening of capital flow or commodity trade, but it is more about the open learning of ideas, thinking and knowledge system, exchanging with foreign scientific research organizations and experts, and attracting scientific and technological talents from home and abroad to make contributions to our economic construction and scientific and technological development. First, the Chinese government attached great importance to attracting overseas scientific and technological talents, especially those who returned from the United States, and guiding them and creating conditions for them to participate in major and key research projects of the country. Second, the government was also actively bringing in foreign experts to guide China's economic development and basic research and development fields. Especially in the 12 years after the founding of the People's Republic of China, economic and technical experts from the Soviet Union made great contributions to the economic recovery and industrialization of the People's Republic of China. Third, the Chinese government fully respected and protected the autonomy of scientific and technological personnel in the process of tackling relevant scientific research projects.

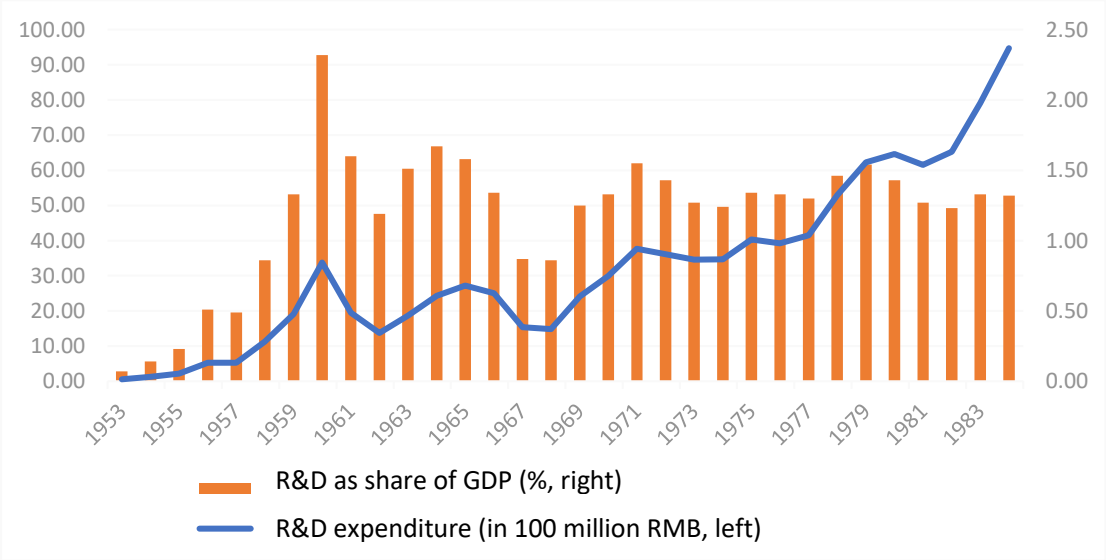
The experience that indigenous innovation cannot be separated from open learning also has strong practical significance at present: technological innovation is not about working behind closed doors, but maintaining the habit of open learning. While constantly strengthening international academic exchanges, talent exchanges and talent introduction, we need to give more freedom to scientific and technological personnel and create a relaxed atmosphere for scientific research, so as to promote the capacity for indigenous innovation.

(5) Improvement of the Scientific Research Management Mechanism

Since the central government decided to set up the Chinese Academy of Sciences on the eve of the founding of the People's Republic of China, China has embarked on a journey to become a scientific and technological power. Since the 1950s, China's

scientific research management mechanism has been gradually improved. In 1955, the Chinese Academy of Sciences established its divisions and announced the name list of 233 academicians. At the inaugural meeting of the divisions, 10 key tasks of the first Five-year Plan were proposed, including making the national defense industry one of the construction priorities. During the first Five-year Plan period, the number of scientific research institutions increased from more than 40 to 381, and the number of scientific researchers increased from more than 600 to more than 20,000[1]. A scientific research team led by the Chinese Academy of Sciences had been set up, and a scientific and technological system composed of four parts, namely, the Chinese Academy of Sciences, institutions of higher learning, industrial sectors and local scientific research institutions had been preliminarily formed nationwide. Domestic R&D spending also increased year by year, rising from RMB56 million in 1953 to RMB5.3 billion in 1978, and the proportion of R&D spending in GDP increased from 0.07% to 1.46%.

Exhibit 20 **National R&D Spending and Its Proportion of GDP**



Data source: Wind database

(6) Purchase and Introduction of Foreign Books and Periodicals

As science and technology publications record the latest developments in science and technology, they are indispensable information for us to understand and learn about

[1] *See 60 Years of Science and Technology Development in China* by the Ministry of Science and Technology of the People's Republic of China, published in Beijing by Scientific and Technical Documents Publishing House and Science Press

the latest scientific and technological achievements. In the very early days after the founding of the People's Republic of China, the Chinese government realized the importance of purchasing scientific and technological publications. In particular, given that China's science and technology was still lagging behind the world's advanced countries, the government attached great importance to the procurement of foreign books and periodicals, spared no effort to obtain relevant books and materials for scientific research from abroad, so as to provide support for the work of scientific researchers. Premier ZHOU Enlai stressed many times that "we should enable scientists to obtain necessary books, archives, scientific and technological materials and other working conditions", "it is imperative to increase and reasonably use the expenditure on books for various research institutions and higher learning, and greatly improve the import of foreign books and periodicals."[1] In September 1956, in his Report on the Recommendations for the Second Five-year Plan for the Development of the National Economy, he again stressed that, "in order to develop our country's scientific research cause, we should provide the necessary books and materials in a timely manner, further strengthen the contact and cooperation regarding international scientific research work, and collect and exchange scientific and technological information at home and abroad."[2]

At that time, China's foreign exchange reserves were very tight. However, in order to support the smooth conduct of scientific and technological work, China still insisted on importing original foreign language publications and gave priority to purchasing scientific and technological books and periodicals in foreign languages, aiming to provide literature guarantee for scientific research. Libraries of institutions around the country actively cooperated with the initiative to "march towards science and technology" and tried to diversify their collection of science and technology books and periodicals in foreign languages. For example, Nanjing Library chose books for scientific research as its procurement focus. In 1957 alone, it ordered 268 kinds of periodicals from the Soviet Union and other people's democracies and 331 kinds of sci-tech periodicals from other capitalist countries (including UK, the United States, France,

[1] ZHOU Enlai, *Report on Intellectuals* [N], published on *People's Daily*, 1956-01-30(1-2).

[2] GU Qiufang, *Science and Technology Policies in the Early Years of the People's Republic of China* [J], published on *Legal System and Society*, 2008(12):151.

Germany and Japan)[1]. For another example, the library of Guangzhou Medical College acquired about 3,000 foreign books and periodicals within a year, and among the 700 kinds of newly purchased periodicals, about 60% were foreign magazines in English, Japanese and other foreign languages. At the same time, in order to ensure the consistency of periodical literature, the library of Guangzhou Medical College also attached great importance to subscribing to the missing periodicals in the last five to ten years. In 1956 alone, it subscribed to nearly 100 kinds of important foreign periodicals[2]. Compared with local public libraries, universities and science academies received more support to purchase foreign language scientific periodicals and collect large amounts of foreign language literature. For example, by the end of 1979, the Chinese Academy of Sciences had a total collection of 4.58 million volumes, of which 3.11 million were about the natural sciences. Of all the natural and social sciences periodicals, 75% were natural science periodicals. Of the total 1.79 million natural science periodicals, there were 1.29 million in English, 200,000 in Russian and 170,000 in Japanese, with foreign language periodicals accounting for about 93% of the total[3]. In 1956, the Beijing Library and the Lenin State Library of the USSR established an international mutual loan relationship, which facilitated the borrowing of foreign language books and periodicals or microfilms by scientific and technological workers. Beijing International Bookstore also regularly supplied publishing catalogs of the Soviet Union and other people's democracies, making it easier for local libraries to learn about international publishing and to use their limited foreign exchange resources to purchase books in foreign languages. In addition, local libraries, institutions of higher learning, and libraries of science academies established inter-library loan programs to facilitate the use of foreign language materials by scientific researchers.

The progress of technological and industrial development needs not only a mature scientific research management mechanism, sufficient scientific research funds and complete literature, but also a large number of high-quality scientific researchers to

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[1] *Overview of Nanjing Library's Services for Scientific Researches in the Past Year* [J]. Published on *Library Science Newsletter*, 1957(03):39.

[2] What Have We Done in the Initiative to March towards Science?[J]. published on *Library Science Newsletter*, 1957(03):39-40.

[3] *Statistics of Library Collection of Chinese Academy of Sciences* [J]. Published on *Librar y and Information Service*, 1980(04):21.

actively devote themselves to scientific research and development. In order to learn advanced science and technology from abroad, China made great efforts in two aspects. The first was to vigorously attract overseas students to return to China and the second was to actively bring in foreign experts.

(7) Attracting Overseas Students to Return to China

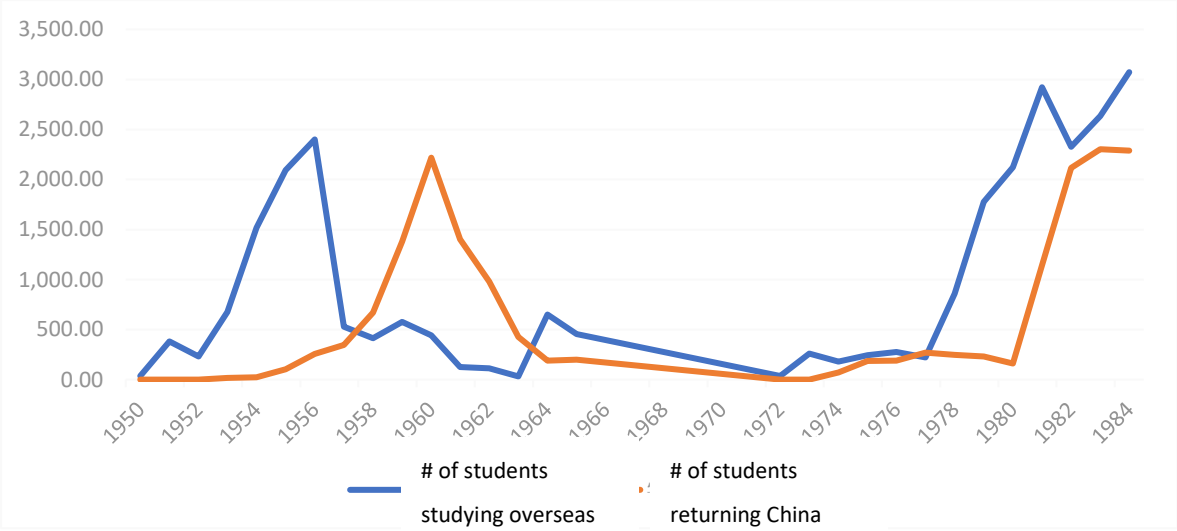
During the war years, due to domestic unrest, a large number of Chinese students went abroad to study with the ideal of saving the country through science and technology. According to statistics, by 1950, there were more than 5,600 Chinese students studying abroad, most of whom went to the United States, Japan, UK, France and other western developed countries, and most of them chose science, engineering, medicine and other majors as their research directions. Although these overseas students had the yearning heart to go back to China for construction, their return to China was faced with numerous obstacles due to the blockade imposed by the UK, the United States and other countries on the return of Chinese scholars by taking back their passports, detaining and arresting them and restricting their departure.

In view of this adverse situation, party and state leaders did a lot of work to win back overseas students. Under the direct care of Premier Zhou Enlai, China not only mobilized the non-governmental forces to establish such non-governmental institutions as the Association of Chinese Scientific Workers in U.S.A., but also stimulated the enthusiasm and initiative of the scholars studying in the United States to return to China through appropriate publicity and modeling. In addition, China also set up a number of special agencies to deal with the repatriation of overseas students to implement the mechanism arrangement for them to work in the homeland. In 1949, the Ministry of Education established a relevant office to accept overseas students returning to China, and the Culture and Education Committee under the Government Administration Council also set up a Committee for Handling the Return of Overseas Students. These agencies were responsible for coordinating the return procedures, work arrangements and other matters concerning overseas students. In November 1956, with the increase of the number of returned overseas students and the increase of the workload, the duties of arranging for overseas students to work in the homeland was merged into the State Administration of Foreign Experts Affairs under the State Council. Under the leadership of Premier ZHOU Enlai, China's foreign ministry also carried out a lot of communications with UK, the United States and other countries in order to reduce the resistance of overseas students returning home. In 1954, China held many informal talks with the United States and conducted diplomatic mediation on the detention of

Chinese students by the United States. These efforts enabled some Chinese students detained by the United States to return home, including QIAN Xuesen, ZHANG Wenyu and other scientists who later made great contributions to the cause of "Two Bombs and One Satellite."

Due to a series of efforts, a large number of overseas students in the 1950s and 1960s chose to respond to the call of the party and the state and returned home to build the country. According to statistics, from 1949 to 1957, more than 3,000 overseas students returned home, accounting for more than half of the total number of overseas students before the founding of the People's Republic of China.[1] The period from 1958 to 1964 witnessed a great upsurge of overseas students going back to China for work. Wherein, 2,217 returned to China for work in 1960, far more than the number of students studying abroad in the same year.

Exhibit 21 **Number of People Who Had Studied abroad and People Who Returned to China after Completing their Studies**



Data source: Wind database

The introduction of overseas students is crucial to China's technological progress and industrial development. Among the returned overseas students, about 45% of them were assigned to government organs, factories and mines to take the front-line jobs in industrial production; 30% of them were employed by schools or research institutes to

[1] A Review of the Work to Attract Overseas Students back to China in the Early Days after the Founding of the People's Republic of China - and on Their Influence on China's Cultural and Educational Undertakings, by LI Tao and ZHOU Quan, published on Literature on Party Building, the 4th issue of 2004.

undertake scientific research and development and cultivate talents. In the initial stage of China's nuclear industry, about 300 returned talents were transferred to the fields related to atomic energy to do scientific research and tackle key research projects, and these talents later became the backbone of the cause of "two bombs and one satellite." It was particularly worth mentioning that high-end overseas students solicited from abroad become the mainstay in China's key science and technology fields, leading the leapfrog development of China's high, fine and advanced science and technology fields. From the perspective of the composition of the previous academicians of the CAS, most of them had overseas study experience. For example, among the first session of 172 academicians of the Natural Sciences Division in 1955, 156 of them had studied abroad; the second session of academicians in 1957 totaled 191, 174 of whom had studied abroad.[1] Among the 23 "two bombs and one satellite" heroes in China, 21 scientists studied and worked in the United States, Germany, the United Kingdom, Russia and other leading countries in the relevant technological fields. In the 1960s, NIU Jingyi, ZOU Chenglu, CAO Tianqin and other scientists who had studied abroad took the lead of scientific research as academic pacemaker in the research team that made an important scientific breakthrough in synthetic bovine insulin. These high-end talents not only brought cutting-edge scientific knowledge from countries with advanced science and technology and applied it to national key research projects, but they also played a crucial role in the cultivation and development of domestic scientific research teams. When the research and development of "two bombs and one satellite" was fully carried out in the 1960s, YU Min, a young scientist who later became a hero of "two bombs and one satellite" program and an academician of the Chinese Academy of Sciences, joined the scientific research team organized by QIAN Sanqiang, a returned expert, to carry out theoretical research on hydrogen bomb technology and obtained ample research results.

(8) Actively Bringing in Foreign Experts

One of the paramount difficulties in the economic construction of the People's Republic of China was the lack of scientific and technological talents. Therefore, the introduction of foreign technical experts from the Soviet Union and Eastern Europe was

[1] Data on job assignment of returned overseas students and overseas study experience of academicians of the Chinese Academy of Sciences are quoted from *A Review of the Work to Attract Overseas Students back to China in the Early Days after the Founding of the People's Republic of China - and on Their Influence on China's Cultural and Educational Undertakings*, by LI Tao and ZHOU Quan, published on *Literature on Party Building*, the 4th issue of 2004.

necessary for the rapid recovery of the economy and the acceleration of the industrialization process. During the 12 years from the eve of the founding of the People's Republic of China when LIU Shaoqi brought back a group of foreign experts (220 experts in August 1948) to August 1960 when the Soviet Union withdrew all of its experts, the total number of experts working in China exceeded 18,000, together with 1,500 experts retained from other socialist countries.[1] These foreign experts came from the leadership and management bodies of all government and military systems, as well as large enterprises, key colleges and universities, and grass-roots units of the technical arms, even including the health and sports departments. In particular, Soviet experts not only brought advanced technology, scientific and technological materials, teaching materials and related equipment samples to the People's Republic of China, but they also helped China establish rules and regulations for industrial management. What's more, their devotion to work infected and educated Chinese cadres and workers, and cultivated a large number of scientific and technological talents for China by word and deed.

In the early days after the founding of the People's Republic of China, since the foreign experts introduced were mainly Soviet experts, we divided the foreign experts' work in China into three stages according to the number of Soviet experts coming to China and their working conditions in China. Wherein, the first stage was 1949-1953, when foreign experts helped China to reorganize enterprises and resume production, and spread the advanced experience and technology of the Soviet Union. The second stage was 1954-1958, when a large number of foreign experts participated in the economic work of the People's Republic of China, helping China establish an entire industrial economic system with heavy industry as the leading role. The third stage was from the summer of 1958 to August of 1960, when the Soviet Union withdrew all experts. During this period, due to political conflicts between China and the Soviet Union, less foreign experts were dispatched, while after the great leap forward, the role of foreign experts in China's economic construction declined, and their working environment in China deteriorated. According to the statistics of experts sent by the Soviet Union to China, and 1956-1957 was the peak period for foreign experts working in China.

[1] *Soviet Experts in China (1948-1960)* (3rd edition) by SHEN Zhihua, published by Social Sciences Academic Press (China), 2015.

Exhibit 22 **Number of Soviet Technical Experts in China**

Year	1949 and before	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Expert count 1	Over 600	91	557	258	395	983	963	1936	952	915	699	410
Expert count 2				294	428	541	790	1422	2298	1231	1153	1156

Expert count 1: data sourced from Soviet statistics of experts dispatched each year; *Soviet Experts in China (1948-1960)* (3rd edition) by SHEN Zhihua, published by Social Sciences Academic Press (China), 2015. Prepared by ACCEPT.

Expert count 2: data sourced from CPSU Central Committee's files regarding experts dispatched to China as at January 1 of relevant year. *Soviet Experts in China (1948-1960)* (3rd edition) by SHEN Zhihua, published by Social Sciences Academic Press (China), 2015, Exhibit 3-1 on Page 316.

On the whole, foreign experts provided comprehensive assistance and made great contributions to the economic development, industrial layout and technological progress of the People's Republic of China. Of course, there were some problems in bringing in foreign experts. For example, China was ill-prepared to hire foreign experts, had some difficulty with food schedules and did not give full play to their role. At the same time, the Soviet Union also made some mistakes in the dispatch management of experts, including unreasonable personnel arrangement and timing.

(9) Case Study: "Two Bombs and One Satellite" and Synthetic Bovine Insulin

Since the advent of the atomic and hydrogen bombs in the 20th century, countries around the world have seen the tremendous power of such weapons, and many great powers have sought to develop their own nuclear weapons to prevent deterrence from nuclear powers. During the Korean War, China suffered from the US nuclear deterrent. Therefore, the successful development of our nuclear weapons was imminent. However, in the 1950s and 1960s, China's industrial foundation was relatively weak, and the shortage of cutting-edge talents, weak scientific research force and tough scientific research conditions seriously restricted the development of China's nuclear industry. After the Soviet Union withdrew its aid, the development situation of China's nuclear industry became even worse.

To this end, China put forward an independent and self-reliant development strategy, striving to develop its own nuclear weapons by relying on its own strength. In this process, the country solicited excellent talents from home and abroad, broke barriers and blockades imposed by foreign countries, and vigorously introduced talents studying abroad. Under the call of the state, a large number of excellent talents studying abroad resolutely gave up favorable treatment and overcame numerous obstacles, and returned to the motherland to participate in the scientific research construction, providing the fundamental talent foundation and intellectual guarantee for such successful examples of self-reliance as "two bombs and one satellite" program.

Among the 23 heroes of "two bombs and one satellite", 21 of them, except YU Min and QIAN Ji, had the experience of studying or doing researches abroad. Many of the returned scientists themselves were taught by leading international masters in such fields as nuclear physics, or they were simply students of Nobel Prize winners. Some of the scientists were already internationally renowned scholars in their fields with world-class academic capabilities. For example, QIAN Xuesen studied aerodynamics, solid mechanics, rockets, missiles and other fields in the United States. He learned from the famous mechanician Von Kamen and established the "Kamen – Tsien" formula, and he became a world-renowned aerodynamicist at the age of 28[1]. PENG Hengwu studied overseas under the renowned physicist M. Born and won the Makdougall Brisbane Prize from the Royal Society of Edinburgh together with his tutor. QIAN Sanqiang went to the Curie Laboratory of the University of Paris in 1937 to study as a graduate student under the guidance of Marie Curie's daughter, Nobel laureate Irène Curie, and her husband, Joliot Curie. In addition, these returned scientists cultivated a group of young local scientists, laying a solid foundation for accelerating the successful independent research and development of "two bombs and one satellite" in China.

[1]NetEase News, 2009: *Resume of QIAN Xuesen*,

http://news.163.com/09/1107/20/5NHTNKSS000120GR.html [2009-11-7]

Exhibit 23 **Domestic Education Background and Overseas Study and Work Experience of the Experts of "Two Bombs and One Star"**[1]

Name	Domestic Education Background	Overseas Education and Work Background	Research Field	Year of Return
YU Min	Graduated from Physics Department of Peking University in 1949	None	Hydrogen bombs and nuclear weapons	/
WANG Daheng	Graduated from the Department of Physics of Tsinghua University in 1936	In 1938, he went to the UK and studied at Imperial College London and The University of Sheffield.	Optical engineering	1948
WANG Xiji	Graduated from the Department of Mechanical Engineering, Southwest Associated University in 1942	In 1948, he went to study at Virginia Polytechnic Institute and obtained a master's degree.	Satellite and returning technology	1950
ZHU Guangya	Graduated from Southwest Associated University in 1945	He received his doctorate from the University of Michigan in 1950	Nuclear physics and atomic energy technology	1950
REN Xinmin	Graduated from the Undergraduate Department of Chong Ordnance Technical School in 1940	In 1945, he studied in the graduate school of the University of Michigan and obtained the master's degree in mechanical engineering and doctor's degree in engineering mechanics.	Space technology and liquid rocket engine	1949
SUN Jiadong	In 1942, he was admitted to the Civil Engineering Department of Harbin No.1 University; In 1948, he was admitted to the Preparatory Department of Harbin Institute of Technology to learn Russian and was later	"He graduated from the Zhukovsky Air Force Engineering Academy of the former Soviet Union in 1958, majoring in aircraft design, and won the gold Stalin medal.	Artificial satellite technology and deep space exploration technology	1958

[1] Two Bombs and One Satellite Heros at http://www.12371.cn/special/ldyxyx/

	transferred to the Department of Automotive.			
WU Ziliang	Graduated from the Department of Aeronautical Engineering, School of Engineering, Tianjin Peiyang University in 1937	In 1943, he went to study at the Department of Metallurgy of Carnegie Institute of Technology in Pittsburgh, USA and received a doctorate of science	Materials science	1950
CHEN Fangyun	In 1934, he was admitted to the Department of Physics of Tsinghua University; In 1938, he graduated from Southwest Associated University and taught there.	In 1945, he went to the Research Office of Corso Radio Factory in the UK to do researches on TV and Marine radar. He worked in the London laboratory and the radar laboratory of the Manchester factory.	Radioelectronics and satellite measurement and control technology	1948
CHEN Nengkuan	Graduated from the Department of Mining and Metallurgy, Tangshan Jiaotong University in 1946	He went to study in the United States in 1947 and received his doctorate in physical metallurgy from Yale University Graduate School in 1950. He served as a researcher at Johns Hopkins University and Westinghouse.	Materials science	1955
YANG Jiachi	Graduated from the Department of Electrical Engineering, Shanghai Jiaotong University, majoring in telecommunications, in 1941	From 1947 to 1949, he obtained master's and doctor's degrees from the Department of Applied Physics of Harvard University. From 1950 to 1955, he was a researcher at the University of Pennsylvania and a senior engineer at the Rockefeller Institute.	Space automatic control and space technology	1956
QIAN Xuesen	In 1929, he was admitted to the Department of	In 1934, he was admitted to the Department of	Aerodynamics	1955

	Mechanical Engineering of Shanghai Jiaotong University, majoring in locomotive manufacturing	Aeronautics at the Massachusetts Institute of Technology, and two years later he was transferred to the Department of Aeronautics at the California Institute of Technology, studying under Von Karman, a world-renowned professor of aerodynamics. He received his master's degree in aeronautical engineering and his doctor's degree in aeronautics and mathematics, and became a world-renowned aerodynamicist at the age of 28.		
TU Shou'e	Graduated from the Department of Mechanics of Tsinghua University in 1940.	In 1941, he went to Massachusetts Institute of Technology to study for a master's degree. After graduation, he was employed as an engineer at Curtiss Aircraft Factory.	Overall rocket design	1946
ZHOU Guangzhao	From 1946 to 1951, he studied in the advanced placement class and Department of Physics of Tsinghua University. He Graduated from the Department of Physics of Peking University in 1954.	From 1957 to 1960, he was an intermediate researcher at Dubna Joint Institute for Nuclear Research.	High energy physics and nuclear weapons	1961
HUANG Weilu	In 1936, he was admitted to the Department of Electrical Engineering, Nanjing Central University, majoring in radio.	In 1943, he worked as an intern at Standard Telephones and Cables Ltd. and Marconi Company. In 1945, he was admitted to the Department of Radio of	Rocket and missile control technology	1947

		Imperial College London United Kingdom for postgraduate study.		
CHENG Kaijia	Graduated from the Department of Physics of Zhejiang University in 1941	In 1946, he went to study and work at University of Edinburgh United Kingdom, and in 1948, he got his doctor's degree and became a research fellow at Royal Institute of Chemical Industry.	Nuclear weapons	1950
PENG Hengwu	After graduating from the Department of Physics of Tsinghua University in 1935, he was admitted to the Graduate School of Tsinghua University.	In 1938, he was admitted to the Department of Theoretical Physics at the University of Edinburgh, UK, where he studied under the famous physicist M.Born, and he received his PhD degree in 1940. From 1941 to 1943, he was a postdoctoral fellow at the Dublin Institute for Advanced Studies in Ireland.	Atomic energy science	1947
WANG Ganchang	Graduated from the Department of Physics of Tsinghua University in 1929	He went to study at Berlin University of Germany in 1930, and received his PhD degree in 1934.	Nuclear physics	1950
DENG Jiaxian	Graduated from the Department of Physics of Southwest Associated University in 1945	In 1948, he went to study at the Department of Physics of Purdue University, and received his doctorate in physics in 1950	Nuclear weapons	1934
ZHAO Jiuzhang	Graduated from the Department of Physics of Tsinghua University in 1933	In 1935, he went to Germany to study meteorology and received his doctorate in 1938	Dynamic meteorology	1938

YAO Tongbin	Graduated from Shanghai Jiaotong University in 1945	In 1951, he received his doctorate from the Department of Industrial Metallurgy of University of Birmingham, UK; in 1954, he worked as a researcher and professor assistant in the Casting Laboratory at the Department of Metallurgy of RWTH Aachen, Germany.	Metallurgy and aerospace materials science	1957
QIAN Ji	Graduated from Normal College of Central University in 1943	None	Space technology, space physics	/
QIAN Sanqiang	In 1932, he was admitted to the Department of Physics of Tsinghua University	He received his French national doctorate in 1940	Atomic energy science	1948
GUO Yonghuai	In 1933, he was admitted to the Department of Physics of Peking University	He studied at the Department of Applied Mathematics of the University of Toronto, Canada in 1940; in 1941, he went to California Polytechnic State University and became a student of Von Karman, the world's great master of aerodynamics; in 1945, he received his doctorate and went to teach at Cornell University.	Mechanics, applied mathematics, aerodynamics	1956

Data source: compiled by ACCEPT

Not only in the field of national defense science and technology, but also in other basic science fields, China insisted on combining indigenous innovation and late-mover advantage to scale the world's scientific and technological heights. On September 17, 1965, Chinese scientists successfully synthesized crystalline bovine insulin by artificial

method for the first time in the world, causing a great stir in the world. At that time, this was an extremely arduous and creative scientific research. China lacked relevant technology and experience[1], and there was no successful precedent of synthesis in the world. Much of synthesis work relied on Chinese scientists' exploration and development which lasted 6 years and 9 months.

One of the keys to the success of this project was to attract and guide excellent returned talents to participate in this project and to cultivate local talents in the research and development process. The project was a joint project of scientists from CAS Shanghai Institute of Biochemistry, CAS Shanghai Institute of Organic Chemistry, and Peking University, among other institutions. Many project leaders had rich experience in foreign exchange and scientific research. For example, academician ZOU Chenglu from the Shanghai Institute of Biochemistry studied at the University of Cambridge in the UK when he was young. After receiving his doctorate in biochemistry in 1951, he returned to China to take part in the work of synthetic insulin. The split and combination work in his charge first embraced a breakthrough, which critically determined the subsequent total synthesis approach of insulin[2]; after receiving his doctorate in biochemistry from the University of Texas, academician NIU Jingyi, the leader of the synthesis team, engaged in research work at the University of Texas, the University of California, Berkeley and other places. In 1956, he returned to China and worked in the Institute of Biochemistry. By virtue of his rich experience, he was responsible for the design of synthesis solutions, selection of synthesis routes and solving of problems, and was one of the key researchers of this achievement[3]; Academician WANG You, the leader of the Institute of Organic Chemistry, won the title of Best Doctor of Science at the Institute of Chemistry of the University of Munich, and worked at some research institutes in Germany, the UK and other countries; in the project, he put forward specific requirements for the synthesis scheme and the identification and analysis standards of the products, and was one of the key scientific researchers of the project[4].

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[1] ZOU Chenglu, *Memories of Synthetic Crystalline Bovine Insulin* [J], published on *Life Science*. "Apart from monosodium glutamate, China didn't even make any amino acids," he recalled.

[2] The Jiusan Socient, 2018: About ZOU Chenglu, http://www.93.gov.cn/html/93gov/syfc/lyys/zgkxyys/yq/130111121923505276.html[2018-08-23]

[3] China Science Communication, 2017: *NIU Jingyi, the First Chinese Nobel Prize Nominee*, http://www.xinhuanet.com//science/2017-06/26/c_136389211.htm [2017-06-26]

[4] CAS, 2010: Boundless Knowledge, Achievement by Generations - Shanghai Institute of Organic Chemistry Held Centenary Celebration of WANG You, http://www.cas.cn/xw/yxdt/201009/t20100921_2968203.shtml [2010-09-21]

During the progress of the insulin synthesis project, China also cultivated a large number of excellent local graduate students and researchers, and they, young as they were, became the main participants and contributors of the project. For example, DU Yucang, a researcher graduated from the Department of Biology of Peking University, successfully studied the conditions of insulin peptide chain recombination and conducted the final identification of artificial synthesis and bovine insulin crystals[1]. GONG Yueting, a researcher at the Institute of Biochemistry, was one of the main principals of insulin b chain synthesis[2]; in addition, ZHANG Youshang, who received a master's degree from CAS Shanghai Institute of Biochemistry, XU Genjun, who graduated from Fudan University, and SHI Putao and LI Chongxi from Peking University all made outstanding contributions to insulin synthesis project. Most of these young researchers later became leaders and key figures in the development of basic sciences such as biochemistry in China.

Such pieces of experience are of great inspiration and reference to the present: in both national defense and other fields of scientific research, China needs to attach importance to open learning and cooperation, increase investment in innovation and research, and introduce and cultivate talents. Although China is currently leading the world in science and technology in the Internet, artificial intelligence, big data and other aspects, the talent pool in some fields with long innovation chain and long term capital and technology accumulation is still "overstretched." Therefore, China needs to actively learn from foreign experience, attach importance to the introduction and training of talents, increase investment in some key areas that are "stuck", break through the scientific and technological blockade imposed by the United States and other countries, and create a good environment for scientific research and innovation. The more closed the external environment is, the more we need to create conditions to adhere to external learning and personnel exchanges.

3. The complete replacement of market by the government resulted in extremely inefficient economic development

With the successful recovery of the national economy in 1952, China began to explore the possibility of establishing a planned economy system. Although specific

[1] CCTV, 2013: *About DU Yucang*, http://www.cctv.com/lm/589/21/32703.html[2013-04-08]

[2] people.com.cn, 2003: *Library of Academicians of Chinese Academy of Sciences and Chinese Academy of Social Sciences – GONG Yueting*, http://www.people.com.cn/GB/keji/25509/29829/2103678.html[2003-9-22]

management measures underwent several adjustments, in general, during the three decades after the founding of the People's Republic of China, China tried to replace market forces with administrative power to develop the economy, which distorted the incentive mechanism of economic subjects and destroyed the economic equilibrium based on price signals. **China's exploration during this period showed that the government would be inefficient in allocating resources in place of the market, and relying solely on administrative power to develop the economy would lead to decreased production efficiency, disordered investment, macro imbalance and other consequences, and could not achieve sustainable economic development and continuous improvement of people's living standards.**

(1) Government Substitution for Market

The government's substitution for market first manifested itself in the transformation of economic subject ownership. During the period of national economic recovery and adjustment (1949-1952), the state-owned economy gradually gained the leading position in the economic system, but individual businesses and national bourgeoisie capital industry still played an important role. The reform of ownership system was mainly carried out mainly in the form of purchasing, ordering and exclusive sale of products. By 1952, the proportion of self-production and self-marketing of capitalist industry was still 17.1%, and the proportion of private commerce in wholesale and retail was 36.3% and 57.8%, respectively[1]. Around 1955, with the rapid progress of the "three greet remolding", the form of ownership of microeconomic subjects underwent drastic changes. In the agricultural sector, by the end of 1956, 87.8% of rural households had joined senior cooperatives where land was collectively owned; in the industry and commerce sector, the public-private joint venture of the whole industry was advanced rapidly, and the dividend of shareholding was changed to fixed interest. By 1956, the output value of state-owned industry and public-private joint venture industry accounted for nearly 100%, and the private industry almost disappeared; in the handicraft industry, by the end of 1956 there were 104,430

[1] TANG Cui and OUYANG Rihui, 2009: Chapter 2 Recovery and Development of the National Economy, in the book entitled 60 Years of Economic Development in the People's Republic of China, published by the People's Publishing House, pp77-78 and 85.

cooperative organizations in the country, an increase of 61.7 percent over 1955, indicating an essential completion of cooperative transformation[1].

With the completion of enterprise ownership transformation, production decisions of microeconomic subjects were gradually replaced by planning instructions, and resource allocation was transformed from economic transactions to material allocation. In 1957, the State Development Planning Commission and central departments unifiedly distributed 532 kinds of materials, an increase of 134% over 1953; the kinds of products that were under the unified management of the State Development Planning Commission or for which it directly issued planning targets reached 290, up by 152% from 1953; the number of industrial enterprises under the direct management of central government departments reached 9,300, an increase of 232% over 1953[2]. At the same time, grain, edible oil, cotton cloth, cotton and many other materials were brought into the scope of the unified purchase and sale, and each unit's labor was also all included into the labor deployment plan. Although the management power of some enterprises and materials was decentralized after the great leap forward, it was mainly the transfer of decision-making power between the central government and local governments, and the discretionary power of microeconomic subjects was not significantly expanded. In rural areas, with the rapid progress of the people's communization movement around 1958, the free allocation of means of production and products within the communes became a normal state. On the one hand, public canteens and nurseries were set up in the people's communes to implement the egalitarian distribution system; on the other hand, the communes allocated labor force and means of production free of charge to build water conservancy projects, industrial and mining enterprises.

[1] SONG Yuan and OUYANG Rihui, 2009: Chapter 3 General Line for the Transition Period and Socialist Transformation, in the book entitled 60 Years of Economic Development in the People's Republic of China, published by the People's Publishing House, pp104, 106, 116 and 120.

[2] OUYANG Rihui and SONG Yuan, Chapter 4 The Establishment of a Socialist Planned Economy, in the book entitled 60 Years of Economic Development in the People's Republic of China, published by the People's Publishing House, pp136

Exhibit 24 **Quantity of Materials Managed and Distribute by the Central Government and Its Ministries/Commissions and Number of Industrial Enterprises under Direct Management of the Central Government**

Year	1953	1957	1959
Materials unifiedly distributed by the State Development Planning Commission and other ministries/commissions of the central government	227	532	132
Products under unified management of or subject to the planning targets issued by the State Development Planning Commission	115	290	215
Industrial enterprises under direct management of ministries/commissions of the central government	2800	9300	1200

Data source: OUYANG Rihui and SONG Yuan, *Chapter 4 The Establishment of a Socialist Planned Economy*, in the book entitled *60 Years of Economic Development in the People's Republic of China*, published by the People's Publishing House, pp136

It should be pointed out that China's planned economy system did not achieve complete and centralized central planning. In order to deal with the drawbacks of planned economy, the central government had repeatedly tried to delegate the management authority of enterprises and some materials to local governments. This feature was discussed in detail by Qian and Xu (1993) and other researches. At the same time, the ensuing political turmoil hit the planning department of the central government hard, and there was no annual national economic plan in place in 1968. A series of consequences, such as macroeconomic imbalance, were caused by the lack of microcosmic decision-making power and the incomplete and imperfect central planning, and will be detailed in the next section.

(2) Consequences of Government Substitution for the Market

The government's substitution for market forces brought three important negative effects on economic development, namely, efficiency decrease, investment disorder and macro imbalance. This part will discuss these three aspects and provide corresponding evidence.

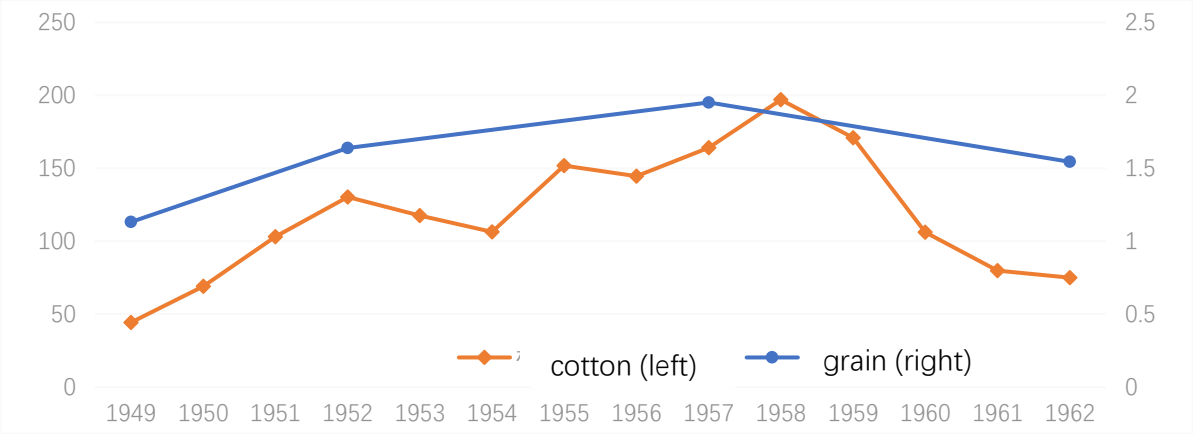
The classical principles of microeconomics indicate that every economic subject makes decisions under certain incentive mechanism. If the income is decoupled from the output and there is no effective supervision mechanism, it is difficult to ensure the

micro subjects will engage in production activities efficiently. Around 1957, the "three great remolding" was carried out too fast, with the result that the agricultural sector was transformed from elementary cooperatives to people's communes, and the industrial sector was transformed from ordering and exclusive sale to industry-wide public-private joint ventures. After farmers joined the people's communes, the output of land was decoupled from their income, and the income of workers and managers in state-owned enterprises in the industrial field was decoupled from the profit of enterprises. As a result, the production in the agricultural and industrial fields was seriously affected.

From 1949 to 1957, China's grain output increased by 172%, and cotton output increased by 373% during the same period; by contrast, from 1957 to 1962, grain output decreased by 20.8% and cotton output by 55%. Production in the industrial sector was similarly affected, with the national yarn production increasing by 468% from 1949 to 1957, but declining by 64.2% from 1959 to 1962. **After the ebb of the great leap forward, the output of heavy industrial products also declined greatly. In 1962, the output of cement across the country was only 38% of that of 1960, crude steel 35.7%, pig iron 29.6% and raw coal 55.4%**. In general, the output of the above-mentioned major industrial products in 1962 fell back to the level before the great leap forward in 1957, and cotton output even fell back to the level during the national economic adjustment in 1950. During the Cultural Revolution, the operating efficiency of China's economy further declined. The tax profit per RMB100 of capital decreased from RMB34.5 in 1966 to RMB19.3 in 1976, and the profit per RMB100 of industrial output value decreased from RMB21.9 in 1966 to RMB12.6 in 1976[1]. It can be said that the government's substitution for market forces during this period had a serious negative impact on the national economy, which changed the overall stable growth trend of China's economy in the early years after the founding of the People's Republic of China and greatly reduced the efficiency of economic operation. The experience derived from this stage showed that it is impossible to achieve efficient allocation of resources and maintain sustainable economic growth by destroying the incentive mechanism of micro subjects and replacing the market with the government.

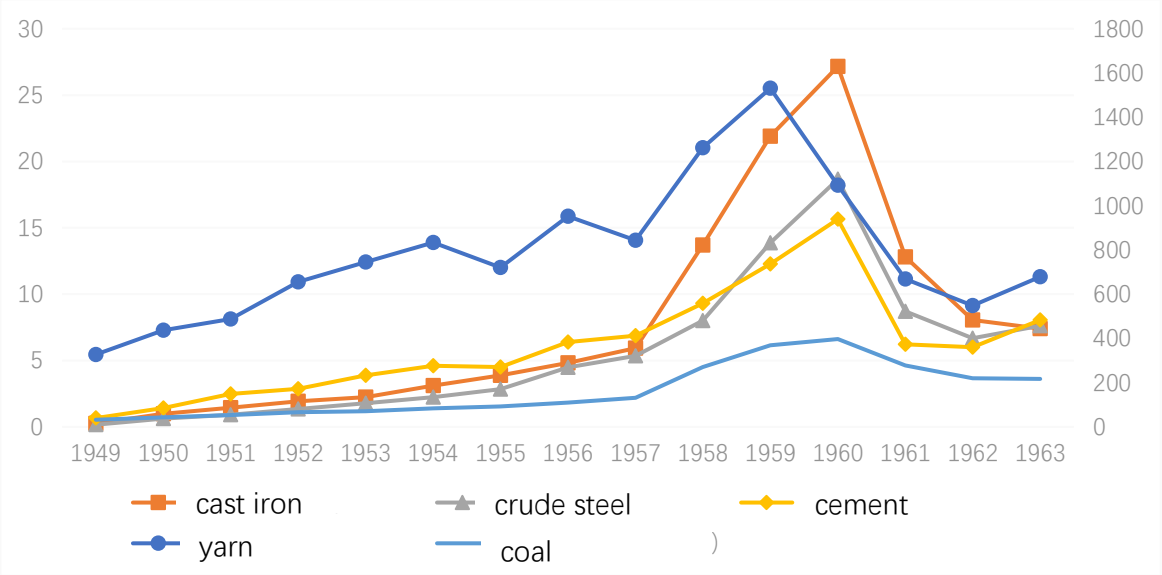
[1] LI Chengrui, 1984: Analysis of China's Economic Situation during Ten Years of Civil Unrest, published on Economic Research Journal, 1st issue.

Exhibit 25 **Grain (in 100 million tons) and Cotton (in 10 thousands tons) Output during 1949-1962**



Data source: CEIC database.

Exhibit 26 **Output of Major Industrial Products from 1949-1963**



Data source: CEIC database.

The second consequence of administrative forces allocating resources instead of market forces was investment disorder. Since the planned distribution system eliminated market transactions, enterprises no longer paid corresponding factor costs at market prices, and business operators no longer made decisions based on the analysis method of "marginal income-marginal cost." **In the context of a focus on production rather than profit, companies had a strong investment impulse.** This impulse manifested itself in three ways.

First, the investment by the entire society rose abnormally. In August 1958, the Beidaihe conference of the CPC Central Committee revised the relevant targets of

the second Five-year Plan for national economy proposed by the Eighth Congress of the Communist Party of China, increasing the amount of capital construction investment during the second Five-year Plan period to RMB385 billion from RMB118 billion[1]; in 1958, the actual capital construction investment reached RMB26.9 billion, an increase of 87.7% over 1957[2]. However, most of China's investment during this period was not used to build big projects, but these projects were mainly "small, indigenous and group" projects. In September 1958 alone, China built 660,000 small and clay blast furnaces, nearly three times as many as in the previous eight months[3]. In addition to capital input, investment projects also relied heavily on the use of free rural labor in the form of "points for work." It was estimated that in 1958, 30% of rural animal-driven cars, 10% of rickshaws, 20% of carrying forces and 45% of wooden sailboats were used for short-distance coal transport[4].

Second, fiscal deficits increased and currency expanded rapidly. Before the great leap forward, China's fiscal revenue and expenditure maintained a basic balance, with the highest deficit of RMB1.83 billion in 1956 and a surplus of RMB725 million in 1957. However, with the increase of investment required for the great leap forward, the fiscal deficit in 1958-1962 grew rapidly, reaching RMB7.139 billion in 1962, nearly 10 times the fiscal surplus in 1957; the deficit reached RMB14.8 billion in the three years, nearly five times that of the fiscal years 1950-1957. Due to insufficient capital, the soaring investment needed to be supported by monetary easing. According to statistics, the total amount of currency in circulation increased by 81.7% from 1958 to 1960[5].

[1] OUYANG Rihui and GAO Shan, 2009: Chapter 5 Preliminary Exploration of Building Socialism with Chinese Characteristics, in the book entitled 60 Years of Economic Development in the People's Republic of China, published by the People's Publishing House, pp160.

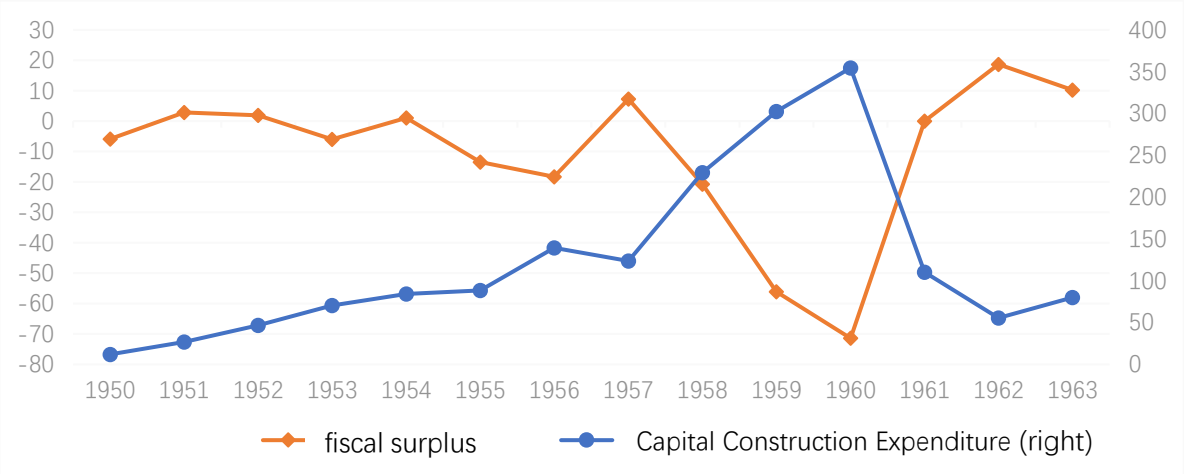
[2]SU Shaozhi, 2002: *General History of Chinese Economy*, Volume 10, published by Hunan People's Publishing House, pp241.

[3] LI Zongzhi and ZHANG Runjun, 1999: *Economic History of the People's Republic of China 1949-1999*, published by Lanzhou University Press, PP160.

[4] LI Zongzhi and ZHANG Runjun, 1999: *Economic History of the People's Republic of China 1949-1999*, published by Lanzhou University Press, PP322.

[5] ZHAO Dexin, 2003: *Modern Economic History of China 1949-1991*, published by Henan People's Publishing House, pp228.

Exhibit 27 Fiscal Surplus and Capital Construction Expenditure from 1950-1963 (in 100 million RMB)



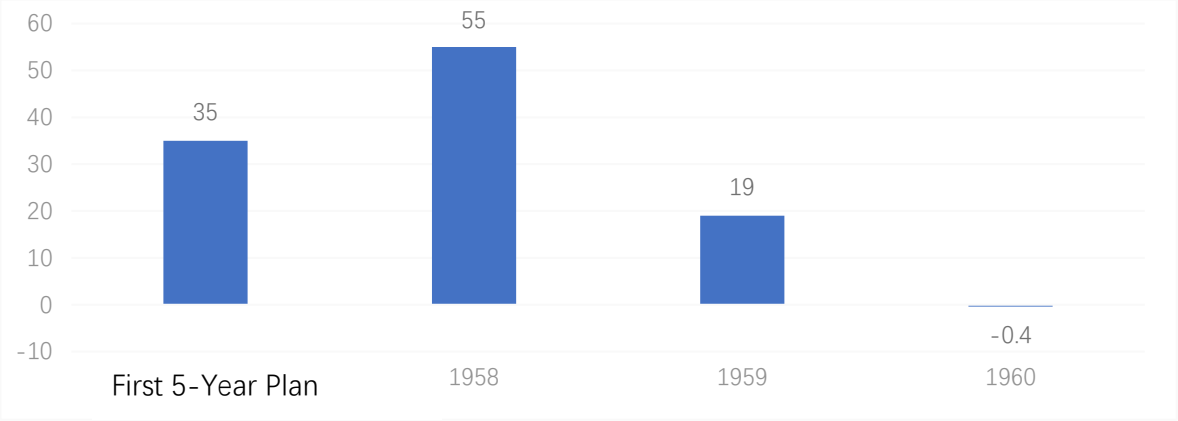
Data source: CEIC database.

Third, the investment efficiency of enterprises declined rapidly. Due to the lack of demonstration and planning of investment projects in terms of scale and feasibility, and the rough and blind implementation of investment, serious efficiency losses had been caused. According to OUYANG Rihui and GAO Shan (2009), during the great leap forward, China's "national income per hundred yuan on a cumulative basis" was RMB35 during the first Five-year Plan period, RMB55 in 1958, and dropped to RMB-0.4 in 1960[1]. Of the 11.08 million tons of steel produced in 1958, only 8 million tons were qualified, and the rest could not be used due to excessive sulfur content. Relevant losses could only be subsidized by the finance[2].

[1] OUYANG Rihui and GAO Shan, 2009: Chapter 5 Preliminary Exploration of Building Socialism with Chinese Characteristics, in the book entitled 60 Years of Economic Development in the People's Republic of China, published by the People's Publishing House, pp169.

[2] WANG Haibo, DONG Zhikai, et al, 1995: Industrial Economy History of the People's Republic of China 1958-1965, published by Economy & Management Publishing House, pp19.

Exhibit 28 National Income per Hundred Yuan on a Cumulative Basis



Data source: OUYANG Rihui and GAO Shan, 2009: *Chapter 5 Preliminary Exploration of Building Socialism with Chinese Characteristics*, in the book entitled *60 Years of Economic Development in the People's Republic of China*, published by the People's Publishing House, pp169.

The third consequence of administrative forces allocating resources instead of market was the macro imbalance of national economy. Modern economic activities are accomplished in a complex system of production and exchange. Unlike the traditional agriculture and simple handicraft industry, the production of industrial products needs a large number of intermediate products, and the industrial chain is complicated. Therefore, the lack of price signal and the inefficiency of central planning would result in an imbalance of the macro-economy. For the first 30 years of China's economic development, this imbalance was first reflected in "accumulation-consumption." **During the great leap forward, for example, China's macro accumulation rate reached 43.8% in 1959, nearly double the accumulation rate during the first Five-year Plan period**. Later, the rate fell as the national economy adjusted, but again rose to 34.1% around 1971[1]. The economic imbalance was also reflected in the imbalance between agriculture, light industry and heavy industry. According to statistics, in 1957, the ratio of agricultural workers to industrial workers in China was 13.8 to 1, but in 1958, it fell rapidly to 3.5 to 1[2]; the ratio of output value

[1] CHEN Changzhi, 1990: *A Brief Economic History of the People's Republic of China*, published by Sichuan University Press, pp126; OUYANG Rihui and GAO Shan, 2009: *Chapter 7 Economic Ups and Downs during the Cultural Revolution*, in the book entitled 60 Years of Economic Development in the People's Republic of China, published by the People's Publishing House, pp240.

[2] LI Zongzhi and ZHANG Runjun, 1999: *Economic History of the People's Republic of China 1949-1999*, published by Lanzhou University Press, PP161.

of light industry to that of heavy industry during the first Five-year Plan period was roughly 3 to 2, but in 1957 it fell to 1 to 2.2[1].

(3) Summary

On the whole, during the first 30 years of the People's Republic, the government gradually replaced market forces for China's economic development. With the rapid progress of the "three great remolding", the property rights system of micro-subjects underwent major changes, and the allocation of resources also transitioned from market transactions to planned allocation. This brought distortion to the incentives of micro subjects, resulting in economic inefficiency, investment hunger and macro imbalance and other serious consequences. **China's experience in this period showed that the government was inefficient in allocating resources in place of the market, and this was an important lesson of China's economic development in the first three decades after the founding of the People's Republic of China.**

4. Economic development cannot be achieved without providing government officials with proper incentives

Before the Reform and Opening-up, Chinese local officials also made active efforts: in the large-scale steelmaking during the great leap forward, exaggerating the yield per mu of land, learning from Daqing for industry and from Dazhai for agriculture and various other campaigns, local officials were also very enthusiastic, but why were their efforts hurting China's economy, rather than bringing it off? We believe it was mainly because officials are not given enough incentives to build the economy. **Economic development cannot be achieved without giving proper and correct incentives to government officials, and this is the second important lesson from the first 30 years of development.**

In the recruitment and promotion of cadres in the early days after the founding of the People's Republic of China, the three criteria, namely, "political correctness", "ability" and "qualification" were mainly emphasized[2]. In addition, the importance of "political correctness" was increasingly highlighted. This tendency was pushed to its

[1]OUYANG Rihui and GAO Shan, 2009: Chapter 7 Economic ups and downs during the cultural revolution, in the book entitled 60 Years of Economic Development in the People's Republic of China, published by the People's Publishing House, pp127.

[2] WEI Shu, *The Development and Reform of Incentive Mechanism for Chinese Officials* [J], published on Journal of Jiangsu Administration Institute, 2013(04):103-109.

extreme during the Cultural Revolution: many leading cadres were denounced as capitalist roaders, many experts and scholars were branded as reactionary academic authorities, and large numbers of cadres were sent to the "May 7th" cadre schools for labor reform… During this period, 17.7 percent of the cadres were subject to examination nationwide, and the figure could even reach 50% if combined with the number of those cadres who were not put on file but were attacked and criticized.[1]

In addition, the leading posts of cadres before the Reform and Opening-up also had the problem of life tenure in fact. Since officials were not restricted by age, health or tenure, once they took leading posts, even if their performance was mediocre, they could continue to stay at their posts indefinitely as long as they did not make mistakes.[2]

Under the background of this mechanism, government officials at all levels were not motivated to engage in economic construction or bold innovation, but to try not to make mistakes and save themselves in all kinds of political storms. In the context of that era, many local officials did not make decisions to improve the local economic development indicators or faithfully put forward policies to solve practical problems; on the contrary, in the so-called class struggle, they tried to "read minds of superiors", mechanically and doggedly followed the "books", were excessively cautious like treading on thin ice, and tried their best to avoid being "on the wrong side" or being "labeled."

The negative impact of such incentives on economic development was also obvious, mainly manifested in the following three aspects: **first, low efficiency**. Under this promotion incentive, government officials at all levels, for fear of making mistakes, tended to implement instructions from superiors in a "one-size-fits-all" manner or relying on movements, without regard to the economic aspects and actual situation of the localities, resulting in low economic operation efficiency. **Second, macro**

[1] Four Pieces of Experience for Four Achievements Achieved during the 30 Years of the Reform of China's Cadre and Personnel System, posted on china.com.cn on January 10, 2008.

[2] This trend continued until after the Reform and Opening-up. In 1980, the central government formally put forward the guidelines of "making the ranks of cadres more revolutionary, younger, better-educated and more professional." After the establishment of the retirement system for veteran cadres in 1982, a large number of young, highly educated people were quickly promoted and put to good use. In this process, the requirement of "revolutionization", that is, "morality", changed from positive standard to negative standard -- emphasizing that people did not participate in factional politics and did not benefit from the "Cultural Revolution", and its importance gradually gave way to "ability." WEI Shu, *The Development and Reform of Incentive Mechanism for Chinese Officials* [J], published on Journal of Jiangsu Administration Institute, 2013(04):103-109.
LAN Xiyang, Research on the Reform and Improvement of the Selection and Appointment System of Party and Government Leading Cadres[D]. Party School of the Central Committee of CPC, 2004.

fluctuations. Due to the supremacy of politics, the implementation of economic policies was often regarded as a political task, which was intensified in the implementation process, leading to over-correction of the implementation of policies and increasing macroeconomic fluctuations. **Third, distorted incentives**. Since political performance was the main criterion for promotion of officials, the lack of quantitative evaluation could actually give rise to the result that some people who were good at working for appearance sake would be valued due to obedience; on the contrary, many competent officials were often left out because they were not good at or willing to "show off", discouraging some officials' enthusiasm for work.

5. Excessive concentration of power leads to disasters in strategic decisions

Since the founding of the People's Republic of China, an important lesson in the formulation and implementation of economic policies is that excessive concentration of decision-making power is not conducive to economic management. Managing a country's economy requires real-time processing of a constant flow of information from all sectors and all places. From the perspective of information, central planners are unable to obtain necessary information in a timely manner, so it is difficult for them to make precise plans and timely adjustments to policies based on new feedbacks, no matter how hard they try. The larger the country and the more complex the economic environment, the more important information becomes and the more obvious the disadvantages of excessive concentration become. In fact, shortly after the founding of the People's Republic of China, the CPC Central Committee realized that the highly centralized planned economy system of the Soviet Union should not be blindly copied, and the relationship between centralization and decentralization should be properly handled, and some adjustments were made based on China's actual situation. However, although a considerable amount of power were devolved for a period of time, ostensibly to a certain extent, the decision-making power that played the most important role had always been concentrated in the hands of a few or even individual leaders. In this way, political centralization overwhelmed the efforts of economic decentralization and replaced the brains of the masses and cadres with the brains of individuals or a few people, leading to a series of serious consequences. This problem was not solved until after the Reform and Opening-up, when the basic line of taking economic construction as the center was established, the democratic centralism was perfected, the life tenure system of leading cadres was abolished, and the personality cult was broken.

(1) The Harm of Excessive Concentration of Decision-making Power

The great leap forward movement from 1959 to 1961 caused serious damage to the national economy and led to a famine on a large scale rarely seen in history. The "Cultural Revolution" between 1966 and 1976 seriously damaged the normal social order, a large number of cadres and masses were brutally persecuted, and the national economy was even on the verge of collapse. These two major decision-making mistakes had a profound institutional background and were closely related to the rigid system of excessive concentration after the founding of the People's Republic of China. Comrade DENG Xiaoping pointed out sharply: "although the mistakes we have made in the past are related to the thinking and style of some leaders, the problems in the organizational system and work system are more important"; "Since 1958, when the party and the country criticized and opposed the rash advance, and 1959, when they turned against the right deviation, the democratic life of the party and the country has become increasingly abnormal, and patriarchal phenomena such as despotism, the individual deciding major issues, the cult of personality, and the individual overriding the organization, are growing." DENG Xiaoping stressed in particular that "excessive concentration of power hinders the implementation of the socialist democratic system and the party's democratic centralism, the development of socialist construction, and the exercise of collective wisdom, and easily leads to individual arbitrariness and undermines collective leadership"[1].

Proceeding from the theory of organizational structure in economics, excessive concentration of decision-making power is not conducive to the formulation and implementation of correct policies, which is specifically reflected in the following respects:

Movement-based governance: In an overly centralized decision-making system, the highest level has absolute authority and the will of leadership can be conveyed to the grassroots at the command of the leader. However, because the top decision-makers do not possess the necessary grassroots information, it is often hard to effectively implement policies coming out of thin air. This ineffectiveness is seen as a result of ostensible obedience of local governments to the central government, so the highest levels with political resources tend to be used to using political mobilization to break the normal government system to implement their own line. This kind of movement-

[1] DENG Xiaoping: Reform of the System of Party and State Leadership, excerpted from Selected Works of DENG Xiaoping Volume 2, pp 320-343.

based governance means greatly magnifies the negative consequence of wrong decisions.

Distorted incentive mechanism: under the system of excessive concentration, officials at all levels and even the masses were completely subordinate to their superiors, trying their best to complete the indicators assigned by their superiors, so as to prove the correctness of superiors and avoid falling behind. On the surface, local governments gained a lot of economic policymaking powers during the great leap forward, and mass groups gained unprecedented powers during the Cultural Revolution. In essence, these were nothing more than authorization the grassroots received from the top to complete the instructions of the top, so as to stand out in the "championship." "The central government has two accounts, one is the mandatory plan and will be published; the other is a desired plan which will not be published. A local government also has two accounts. The first one is just the second account of the central government and must be achieved at the local level; the second account is just expected of the local government. Appraisal will be based on the second account of the central government. In this way, from the central government to the local governments, wrong and blind policy indicators piled up, and are finally out of control, leading to big mistakes." [1]

Lack of error correction mechanism: Under the system of excessive concentration, decision-makers cannot grasp accurate information in policy making and cannot obtain timely and accurate feedbacks in policy implementation. Besides that, the distortion of incentive mechanism also encourages subordinates to artificially conceal the true information, or even fabricate false information. Under the guidance of the wrong information, the superiors can neither make correct decisions nor timely adjust the wrong policies. In the great leap forward, the top leaders were surrounded by false information, excessively optimistic, and blindly raised the standard of grain collection. Instead of solving the problem at the initial stage when difficulties were exposed, they stimulated the outbreak of difficulties and aggravated the severity of difficulties. Also, in an overly centralized system, anyone questioning the policy is often seen as questioning policy makers, and normal discussions and debates were disallowed or even treated as struggle between lines. The wrong judgment of Comrade PENG Dehuai at Lushan Conference was an example. Finally, in an overly centralized system, where power is monopolized by a very small number of people, it is difficult to fundamentally correct policy errors, even when people are generally aware of them. For example,

[1] MAO Zedong: Draft Sixty Work Measures, 1958.

starting in 1972, Comrade ZHOU Enlai did his best to carry out reorganization in the fields of economy, education, science and technology, but soon the ultra-left line regained the upper hand.

(2) Failed Efforts in Decentralization

Soon after the founding of the People's Republic of China, the central government realized that there were serious defects in the rigid Soviet-style management system, and correctly realized that the crux of the problem was excessive centralization. Comrade MAO Zedong clearly pointed out that attention should be paid to the relationship between the state, production units and individual producers: "I am afraid it is not proper to concentrate everything in the central government or provinces/municipalities without giving factories any power, any room for maneuver or any benefit." He also pointed out the need to properly handle the relationship between the central and local governments: "we should expand the power of local governments, give them more independence and let them do more things while consolidating the unified leadership of the central government." He believed that the central government should not monopolize economic management and decision-making powers everywhere: "Central departments can be divided into two categories. In one category, their leaders can go all the way to the enterprise, and their local regulatory bodies and enterprises are supervised by the local government; for the other category, their task is to put forward guidelines and formulate work plans, but local governments should have the power to handle various things."[1]

It can be seen that Chinese leaders had long recognized the inherent problems of the over-centralized Soviet model. In order to stimulate the vitality of the state-owned economic sector, China had been making various attempts to delegate economic management powers for many times before the Reform and Opening-up. In 1957, the State Council issued three documents: the *Provisions on Improving the Industrial Management System (Draft)*, the Provisions on Improving the Business Management System (Draft) and the Provisions on Improving the Fiscal Management System (Draft), delegating the management of a lot of state-owned enterprises to local governments and delegating a large amount of economic management powers. However, the decentralization of economic planning met the craze of the great leap forward, and a large number of blind production and repetitive construction occurred in various places, resulting in a large amount of waste. In 1961, the central government issued the Several

[1] MAO Zedong: On the Ten Major Relationships, 1956.

Interim Provisions on the Adjustment of the Management System, took back a lot of the economic management powers delegated to local governments, and strengthened the central government's centralized leadership over finance, fiscal affairs and statistics. After the re-centralization, although the chaotic and blind economic construction problems were temporarily solved, the old problems of rigidity emerged again. To overcome the failure of central planning, since the mid-1960s, the central government repeatedly tried to stimulate productivity and flexibility by delegating powers to local governments.

On the whole, these decentralization measures intended to mobilize local initiatives and local information failed to generate satisfactory results. The reasons behind this were as follows: first, the superficial decentralization did not change the centralized management system of planned economy, but it was merely the adjustment of planning authority among governments at all levels. At the enlarged meeting of the Standing Committee of the Political Bureau of the CPC Central Committee on March 20, 1966, MAO Zedong stressed that: "the central government is called a plan maker, and it only manages the paperwork rather than the actual implementation"[1] It can be seen that although the central leadership was aware of the harm of excessive concentration, the decentralization of power in this period was only the decentralization of specific planning authority, and the relationship between the government and the market was not properly handled. As Comrade DENG Xiaoping summed it up: "in the past, powers had been divided several times between the central and local governments, but each time it did not involve the question of how to divide the scope of functions and powers between the party and the government, economic organizations, mass organizations, and so on."[2] In this case, although the enterprises are the main participants of production and operation, they were still subject to the over-centralized planned economic system and lacked autonomy.

Second, in the first 30 years after the founding of the People's Republic of China, China did not make clear institutional arrangements for the distribution of powers. When to delegate powers to local governments, what powers to be delegated, how to delegate powers remained arbitrary questions. The centralization and decentralization of powers became a temporary expedient, and the relationship between centralization

[1] *Chronology of MAO Zedong 1949-1976*, Volume 5, p569, published by Central Party Literature Press.

[2] DENG Xiaoping: Reform of the System of Party and State Leadership, excerpted from Selected Works of DENG Xiaoping Volume 2, pp320-343.

and decentralization was unstable. In this unstable relationship, the ultimate decision-making power remained highly centralized, and local officials would be severely criticized if there was a deviation from the high-level instructions. Therefore, the blind pandering of local officials to the central government had not been reversed, and the phenomenon of acting recklessly in economic work, thinking only about the short term and not the long term, had long existed. As a result, although the central leadership pointed out that "without democracy, there can be no correct concentration", "let people talk, the sky will not fall, nor will we fall. What if we do not allow people to talk? Then we will inevitably collapse one day"[1]. However, due to the lack of strong institutional guarantee for these correct understandings, the experiment of decentralization under the over-centralized system eventually resulted in a situation of chaos or ossification.

Therefore, the sound development of economy requires us to correctly handle the relationship between centralization and decentralization. As comrade XI Jinping has said, we must "strengthen checks and oversight over the exercise of powers, and keep powers caged in institutions."[2]

1 MAO Zedong: Speech at the Enlarged Working Conference of the Central Committee of the Communist Party of China, January 30, 1962.

2 XI Jinping: Speech at the Second Plenary Session of the 18th Central Commission for Discipline Inspection, January 22, 2013.

Economic Lessons from 40 Years of Reform and Opening-up (1978 – 2018)

OVERVIEW OF ECONOMIC DEVELOPMENT

China officially began to implement the Reform and Opening-up policy in 1978. Over the last four decades of exploration and development, China has achieved remarkable results during the Reform and Opening-up era. The socialist market economy has ranged from its establishment, gradual improvement, to the present prosperity. After the implementation of the Reform and Opening-up policy, China's national economy, economic growth rate and urbanization rate grew rapidly, and China's shares in the world's economy rose year by year, from 1.7% in 1978 to 15.8% in 2018. China's GDP grew at an average annual rate of 9.5% from 1978 to 2017, and since 2010, has surpassed Japan to become the world's second largest economy. Based on the analysis of the economic structure evolution, China has seen its industrial structure undergo three profound changes. Between 1978 and 2017, the added value of the tertiary industry to GDP increased from 24.6% to 51.6%, the added value of the second industry to GDP fell from 47.7% to 40.5%, and the added value of the primary industry to GDP fell from 27.7% to 7.9%. In terms of household income, the per capital gross national income (GNI) rose from USD 200 in 1978 to USD 8,690 in 2017 (SHEN Kunrong and ZHAO Qian, 2019).

Moreover, instead of "shock therapy", China has implemented gradual reform, a step-by-step process for progressive exploration (XIAO Donglian, 2018). The focus and content of the Reform and Opening-up varies according to the different stages, and the relevant achievements made and difficulties faced are also different. With reference to the summary of WANG Jian (2018), this report divides 40 years of the Reform and Opening-up into six growth stages by combination with three factors such as socialist market economy cultivation, reform content and objectives, and economic growth features.

(1) 1978—1982: A Primarily Planned Economy with Market Oriented Measures

The Party Central Committee convened the Third Plenary Session of the 11th Central Committee of the Communist Party of China in 1978, at which it officially formulated the spirit of "Giving First Place to Planned Economy and Taking Market Regulation as Auxiliary Measure." China began the reform of China's economy since then. At this stage, the rural areas in China firstly implemented this reform. The

household contract responsibility system was adopted as an effective reform measure in China's rural collective economy system. The collective economic organizations signed household-based contract with farming households and allotted farm output quotas for each household, which encouraged the productive output of individual farmers. In 1980, the Party Central Committee passed the *Several Issues on Further Strengthening and Refining the Responsibility System for Agricultural Production*, allowing the implementation of the household-based contract system and the farm output quotas for each household in remote mountainous areas and poverty-stricken regions. And in 1982, the Party Central Committee issued "No. 1 Document", affirming the household contract responsibility system, and began to apply the "household-based contract system" to other regions. The rural reform was rapidly advanced. In early 1981, only 1% of rural production teams adopted the household contract responsibility system, and this coverage reached 20% at the end of 1981, and at the end of 1984, this system spread across the country, covering 100% of rural production teams (SHEN Kunrong and ZHAO Qian, 2019). In addition, the Party Central Committee also defined the land contract period and adjusted the *Land Management Law* and *Rural Land Contract Law* accordingly.

For the ownership structure reform, the Party Central Committee proposed the economic system in which the public ownership is dominant and different economic sectors (including sole proprietorship, individuals and foreign-funded enterprises) develop side by side. With this guiding principle as the basis, a large number of rural enterprises emerged, becoming an important force for China's economic growth. The total output value of commune-run enterprises increased from RMB49.307 billion in 1978 to RMB 101.683 billion in 1983, with an average annual growth rate of 15.6%, and the tax payments increased from RMB2.196 billion in 1978 to RMB5.9 billion in 1983, with an average annual growth rate of 25.5%.

The fiscal system was also reformed. The central government delegated its power to the local governments and implemented the fiscal responsibility system, greatly enhancing the financial resources of local governments and increasing the enthusiasm of local governments to implement the reform.

Significant headway was also made in the opening-up. Shekou Industrial Zone was established in early 1979, and in 1980, Shenzhen, Zhuhai, Shantou and Xiamen special economic zones were also set up. The export-oriented economy began to take off, and there were booming economic forms, such as processing of materials supplied by the foreign firms.

(2) 1983-1986: Planned Market Economy

In 1984, the Party Central Committee convened the Third Plenary Session of the 12th Central Committee of the Communist Party of China, at which it passed the *Decision of Central Committee of Communist Party of China on Economic System Reform* and firstly developed the theory of "Planned Market Economy." Since then, the focus of economic restructuring reform was transferred from rural to urban areas. The reform of urban enterprises started with the "decentralization and interest concessions" in order to mobilize the enthusiasm of enterprises by expanding their autonomy.

The township enterprises thrived at the same time as the reform of urban enterprises was advanced. In 1985, the Party Central Committee issued the *Proposal of the Central Committee of the Communist Party of China on Formulating the Seventh Five-Year Plan for National Economic and Social Development*, and intensified efforts to actively encourage farmers to set up township enterprises; and the "Spark Program" implemented in 1986 further promoted the growth of township enterprises. At this stage, the township enterprises became an important part of the national economy and an important pillar for rural and county economies. The total output value of commune-run enterprises was only about 1/3 of the gross agricultural output value in 1978, and in 1987 the output value of the secondary and tertiary industries in township enterprises firstly exceeded gross agricultural output value, profoundly changing the pattern in which the rural economy relied solely on agricultural development. The total output value, number and employees of the township enterprises grew by leaps and bounds. However, the township enterprises had blindness, instability and other weaknesses, foreshadowing the reform to introduce the corporate and shareholding system in township enterprises.

Exhibit 29 **Situation of township enterprises between 1983 and 1988**

Year	Total output value of township enterprises (in hundred millions, RMB)	Number of township enterprises (in ten thousands)	Employees of township enterprises (in ten thousands)
1983	1016.83	134.64	3235
1984	1709.89	606.52	5208
1988	6495.66	1888.16	9545

Data source: Historical Review of China's Township Enterprises, JIANG Chunhai (2002)

Again, the opening-up was expanded at this stage. In 1984, 14 coastal port cities like Dalian were opened wider to the world.

In terms of the fiscal reform, the central government continued to delegate its power to the local governments and implement the "fiscal responsibility system." The market economy was not fully established and the market mechanism was not refined at this stage, but the fiscal responsibility system motivated the local governments to partially replace the market functions, promoting the local economic development.

(3) 1987-1991: Government Regulating the Market and the Market Guiding Enterprises

In 1987, the Party Central Committee firstly developed the theory of "Government Regulating Market and Market Guiding Enterprises", and pointed out that the ownership was the main difference between the socialist commodity economy and capitalist commodity economy. At this stage, it further emphasized the fundamental role of commodity exchange and law of value, which should be served as the basis for the work plan. The main contents of the reform at this stage include the following four aspects:

First, to invigorate the enterprises owned by the public and to separate the ownership from management rights of enterprises, with the enterprises owning the management rights. In addition, the relationship among owners, operators and producers of enterprises was also balanced at this stage to encourage the enterprise owned by the public to make its own managerial decision and be responsible for its own profit or losses.

Second, to establish and expand the markets. The Chinese government promoted and accelerated the establishment of goods, production materials and other commodity markets, and prepared to establish markets for production factors such as capital, labor, technology, information and real estate.

Third, to establish a macro-control system. Indirect management was the priority of the macro-control system. Furthermore, the economy was adjusted through industrial policies at this stage.

Last, to launch the financial reform. On the one hand, the central bank began to regulate money supplies and credit quotas. On the other hand, many financial instruments and channels were opened, and the financial market was gradually established. The Shanghai Stock Exchange and the Shenzhen Stock Exchange were

established in 1990, promoting the establishment and growth of Chinese securities market.

At this stage, the Chinese government sped up the implementation of the policy of opening-up, and its development focus was transferred from Pearl River Delta to Yangtze River Basin Delta. In 1990, the initiation of Shanghai Pudong New Area marked the establishment of the opening-up zone along Yangtze River Basin as the leader.

(4) 1992-2003: The Establishment and Building of the Socialist Market Economy

In 1992, Comrade DENG Xiaoping gave "South Tour Talks", in which he officially proposed the goal of "establishing and building the socialist market economy" and clarified that the establishment of the socialist market economy was the direction of economic system reform. China's Reform and Opening-up entered a critical stage of rapid advancement.

First, China completed the price system transition. There were 737 prices for production materials and transportation managed by the State Bureau of Price and the relevant departments of the State Council at the end of 1991, and this figure was reduced to 648 in 1992. Besides, Guangdong and Hainan firstly implemented the reform to introduce the purchase and sale of grains at the same price in May 1991, and on April 1, 1992, the Chinese government decided to extend this reform nationwide. The proportion of prices determined by the gain market increased from about 50% five years ago to about 80% in the spring of 1993, and the food stamps were officially declared to be disused, ending 38 years of "ticket economy."

Second, the Chinese government focused on the reform of stated-owned and rural enterprises. In the late of 1990s, the headway was made in the thorough and comprehensive reform of stated-owned enterprise: first, the state-owned enterprises successfully exited from the middle and small-sized enterprises in a short period of time, promoting the development of the non-public sector of the economy; second, the government encouraged the surviving state-owned enterprises to establish a modern enterprise system, energizing the state-owned enterprises. In the meantime, according to the Document (1997) No. 8 issued by the Central Committee of the Community Party of China, the government implemented the reform to introduce the corporate and shareholding systems in township enterprises, and solved a series of problems caused by the early growth of township enterprises, and successfully fostered a large number of outstanding private enterprises.

Third, in terms of financial system, the Chinese government concentrated on solving the problems caused by the reform of state-owned banks while continuing to develop the securities market. In 1999, the loans lent by four major state-owned banks totaled RMB1.4 trillion. For this purpose, the Chinese government established four asset management companies including Huarong, Great Wall, Orient and Cinda to divest bad debts of four major state-owned banks, and prepared for the future listing of state-owned banks while promoting the bank reforms. What's more, three new policy banks were incorporated and the *Commercial Banking Law* was enacted at this stage, further standardizing the development of banking industry.

Fourth, the Chinese government continued to deepen the reform of the foreign economy, changed the foreign exchange management measures based on the unification of exchange rates, established the unified and standardized foreign exchange market, and continued to actively introduce foreign investment and increase exports. In addition, China's accession to WTO in 2001 accelerated the opening-up to the outside world.

Fifth, China ended the "fiscal responsibility system" which had been adopted since the beginning of the Reform and Opening-up, and began to implement the reform in the revenue-sharing fiscal system between the central and local governments, dividing tax categories into central taxes (levied by the State Administration of Taxation), local taxes (levied by the local tax bureau) and revenue-sharing taxes between central and local governments (withheld by the State Administration of Taxation and then returned to the local tax bureau in a fixed proportion), and standardizing central and local transfer payment mechanism and thus strengthening the central government's macro-control ability.

In 1997, China ended "welfare housing" system and launched the reform in real estate market. Since then, China's real estate market began to grow and the land finance system of local government gradually emerged.

(5) 2003-2012: Refining the Socialist Market Economy

In October 2002, the Party Central Committee delivered the report at the 16th National Congress of the Communist Party of China, indicating that the socialist market economy took shape initially, and convened the Third Plenary Session of the 16th Central Committee of the Communist Party of China in 2003, at which it passed the *Decision of the Central Committee of the Communist Party of China on Several Issues*

Concerning the Improvement of the Socialist Market Economy. With China's accession to the WTO, China's socialist market economy entered a stage of rapid development.

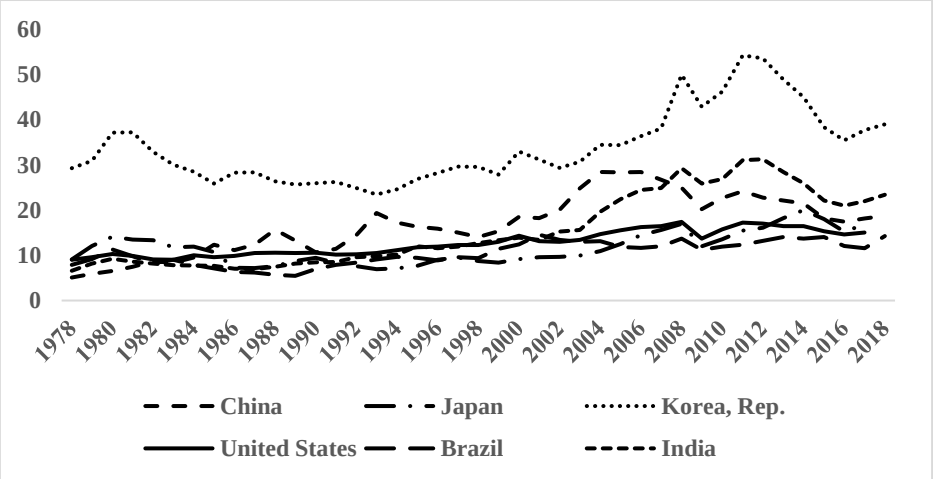
China's economic growth between 2003 and 2013 was divided into two stages: 2003-2007 was a period of rapid development of China's socialist market economy; and after the 2018 financial crisis, the Chinese government began to further deepen the reform of its economy.

During from 2003 to 2007, with the dual influence exerted by China's own economic growth and accession to the WTO, China's foreign trade attained the rapid growth. China's import in GDP rose from 20% in 2002 to 28% in 2006; and export in GDP increased from 22% in 2002 to 36% in 2006.

The 2007 financial crisis had a certain impact on China's foreign trade, but promoted the financial regulatory reform. After the financial crisis, the Party Central Committee pointed out that we should deepen the reform in financial enterprises, refine financial regulation and supervision mechanisms, continue to implement the reform in the foreign economy and trade, improve the institutional guarantee of opening-up to the outside world, and enhance the ability of domestic enterprises to participate in international cooperation and market competition while making the best of foreign capital.

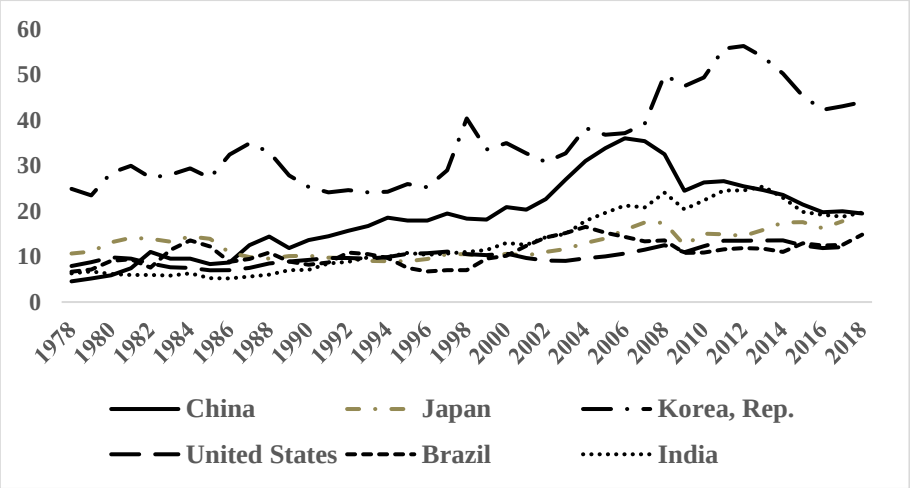
At this stage, China's foreign investment grew rapidly, and the "bringing in" strategy achieved remarkable results. China's FDI net flow rose rapidly from USD5.7 billion in 2003 to USD24.1 billion in 2012, and the financial crisis did not affect the growth of foreign investment in China.

Exhibit 30 **Import/GDP**



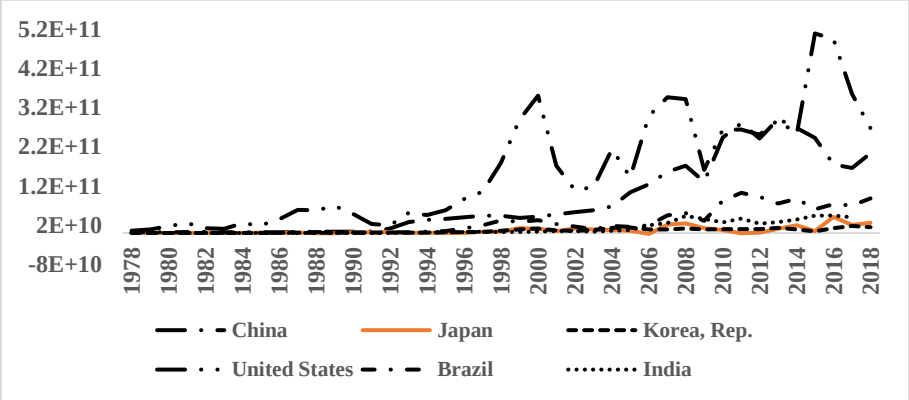
Date source: WDI and ACCEPT calculation

Exhibit 31 **Export/GDP**



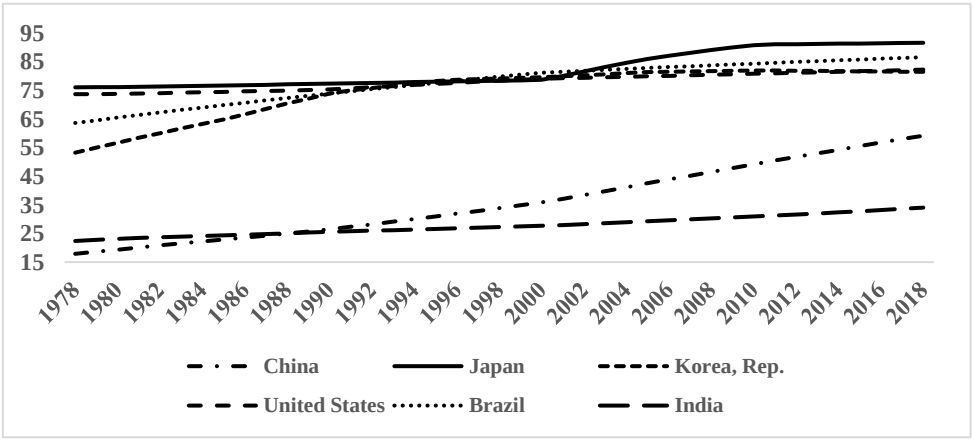
Date source: WDI and ACCEPT calculation

Exhibit 32 **FDI net flow (USD)**



Date source: WDI and ACCEPT calculation

Exhibit 33 **Population urbanization rate**



Date source: WDI and ACCEPT calculation

Moreover, the urbanization in China picked up the space at this stage. The urbanization rate of China's population have been increasing since 1978, and after 2003, this process developed faster, with the rate up from 38% in 2002 to 51% in 2012.

With the rapid development of China's economy, the focus of reform gradually shifted from pure pursuit of growth to social equity, regional development and balanced growth between urban and rural areas.

(6) 2012 to the Present: Accelerating Improvement of the Socialist Market Economy

Since the 18th National Congress of the Communist Party of China, Chinese President XI Jinping put forth a series of important thoughts, important theories and measures on spirit of "keeping improving the socialist market economy", and our main contradictions have changed, so it is imperative that China accelerate the improvement of the socialist market economy.

At this stage, China's economic growth faces many turning points. First, China's economy has gradually shifted from a high growth rate to a medium-high stable rate; second, the development of export-oriented economy is facing the transformation, and the growth of foreign investment and trade is gradually falling; third, the pressure on industrial upgrading and transformation is increasing; fourth, the markets for the real estate and the finance continue to be regulated.

In this context, the Party Central Committee begins to promote the transition from a phase of rapid growth to a stage of quality-oriented development by furthering the supply-side structural reform. As China's economy enters a new normal, the supply-side structural reform has been the priority of macroeconomic policies. And major progress has been made in reform measures such as capacity cut, deleveraging, destocking and disposal of "zombie enterprises", and China see that the market supply and demand relationship has improved significantly.

In addition, new ground in pursuing opening-up on all fronts is gradually taking shape after the 18th National Congress of the Communist Party of China. For the Reform and Opening-up policy at this stage, China should pursue the Belt and Road Initiative as a priority, give equal emphasis to "bringing in" and "going global", follow the principle of achieving shared growth through discussion and collaboration, and increase openness and cooperation in building innovation capacity. With these efforts, China hopes to make new ground in further opening up China through links running eastward and westward, across land and over sea.

FIVE ECONOMIC LESSONS FROM 40 YEARS OF REFORM AND OPENING-UP

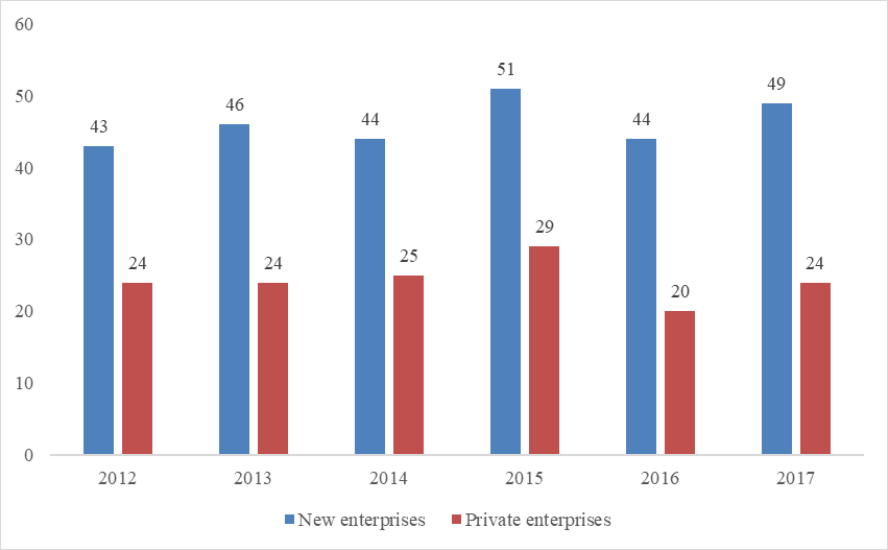
1. Rapid Entry and Development of Enterprises

Governmental assistance in the rapid entry and development of enterprises has been serving as a direct impetus for the rapid economic growth of China ever since the inception of the reform and opening-up drive. The development and thriving of enterprises depend greatly on the role of the "visible hand" of local governments. Governments at all levels, especially local governments, can guide the coordinated development of both upstream and downstream industries by continuously helping new enterprises solve practical problems in terms of land, labor and transportation coordination. Excessive governmental assistance to new enterprises may also bring about some side effects, including overlapping investment, overcapacity and corruption, which can be improved by regulating governmental incentives in the medium to long term.

(1) Rapid entry and development of enterprises is the driving force of the Chinese economy

The most important experience in China's 40-year economic reform and opening-up process is that the governments at all levels, especially local governments, give continuous assistance and support to new enterprises to facilitate the rapid entry, development and thriving of enterprises. New enterprises represent new social production demand and resident consumption demand, as well as new production capacity and form of production organization after a higher economic development level is achieved. Well-developed new enterprises can generate remarkable upstream and downstream effects and industrial agglomeration effect, drive the rapid development of local economy, and create substantial tax and employment. Therefore, the rapid entry and development of enterprises has been a direct impetus for the rapid economic development of China since the inception of the reform and opening-up policy.

Exhibit 34 Number of New Enterprises Established after 1978 Among Top 100 Machinery Industry Enterprises and Private Enterprises Among these New Enterprises



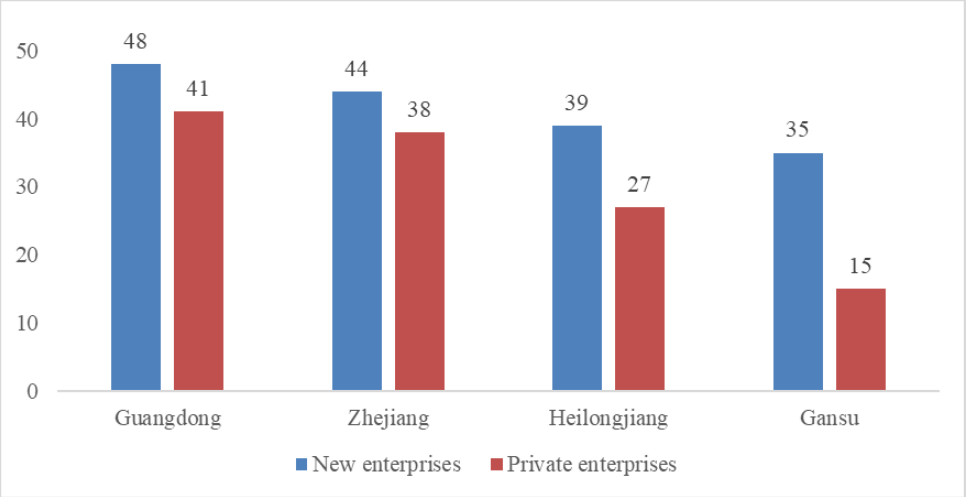
Source: China Machinery Enterprise Management Association (CMEMA)

One important piece of evidence that China's economic development is directly driven by the rapid entry and development of enterprises is the contribution made to China's economic development by those enterprises established after 1978, which marked the commencement of China's reform and opening-up drive. Let's take an example of the top 100 enterprises in the machinery industry announced by EMEMA and GlobalManufacturer.com each year, in the past six years, the enterprises established after the inception of the reform and opening-up accounted for about half of the top 100 enterprises, and these new enterprises had an average ranking significantly higher than that of the enterprises established prior to the initiation of the reform and opening-up, fully illustrating the role of new enterprises in promoting the development of the Chinese economy. In addition, more than half of these new enterprises which have made outstanding contribution to China's industrial development are private enterprises in most years. **This proves that the Chinese Government's assistance to the rapid entry and development of enterprises is undiscriminating. Chinese local governments just attract and help the entrepreneurs, not focusing on industrial policies, and don't favor state owned enterprises over private ones, or, domestic over foreign. The development of both private and state-owned enterprises will be impossible without the support and assistance of the governments at all levels.**

The rapid entry and development of enterprises largely determine the development status of regional economy. The following exhibit shows the number of new enterprises established after the inception of the reform and opening-up among the top 50 enterprises in four provinces, namely, Guangdong, Zhejiang, Heilongjiang and Gansu, in the year of 2017 and the number of private enterprises among these new enterprises

(excluding branches of large national enterprises). Economically-developed provinces have more new enterprises and private enterprises than less economically-developed provinces, **evidencing that the rapid entry and development of enterprises can to a great extent explain the difference in the economic development between regions.**

Exhibit 35 Number of New Enterprises Established after 1978 Among Top 50 Enterprises in Different Provinces and the Private Enterprises Among these New Enterprises (Excluding Branches of Large National Enterprises)



Source: Wind database

The third piece of strong evidence is the outstanding contribution made by the rapid entry and development of enterprises to China's economic growth. The new enterprises established after 1978 nearly all of the existing small and medium-sized enterprises. The following exhibit shows the rates of contribution made by SMEs to economic growth in some provinces at the last available point in time, and it could be seen that in the provinces with data, SMEs have made very important contribution to the economic growth in the respective regions. As a matter of fact, the rates of contribution by new enterprises to economic growth will be much higher than these data, and their contributions after the inception of the reform and opening-up are not limited to economic growth. Whether from the perspective of employment creation, upstream and downstream industry support or from social welfare, private enterprises have served as the backbone of China's economic development since the initiation of the reform and opening-up.

Exhibit 36 Rates of Contribution by SMEs to Economic Growth

Province	Rate of Contribution	Year
Guangdong	55%	2017
Fujian	～70%	2017
Henan	50%	2017
Shandong	65%	2015
Zhejiang	81.61%	2004-2008
Hubei	53%	2006
Hunan	42.4%	2011

Source: public data

In addition to the three pieces of evidence enumerated herein, there is also plenty of international experience showing that governmental support for the development of new enterprises largely determines the soundness of the long-term economic development of a country. In the 1980s, the Soviet Union and some eastern European countries, which were socialist countries like China, when faced with a choice between heavy industry and light industry and between old enterprises and new ones, chose heavy industry and old enterprises, input a lot of policy and social resources to save these old enterprises and gave priority to the development of heavy industry. Take the Soviet Union for example, at the plenary session of CPSU in April 1985, the then supreme leader of the Soviet Union Mikhail Gorbachev proposed that economic leverage should be used actively to support the heavy industry, in particular the pre-existing machine building industry, and accordingly developed the twelfth five-year plan of the Soviet Union which gave top priority to the heavy industry. However, such attempts to revitalize old enterprises proved unsuccessful, resulting in the further expansion of the Soviet Union's budget deficit and aggravated shortage of consumer goods, further worsening the economic condition of the Soviet Union, and speeding up the collapse of the Soviet Union to a certain extent.

Joseph Alois Schumpeter stated that development is a qualitative spontaneous breakthrough inherent in the economic life, and this spontaneous breakthrough is innovation which is in turn a fundamental driving force for economic development. Innovation is a process of continuously destroying the old structure and creating a new one; to put it simple, it is a process of creative destruction wherein innovative and dynamic enterprises can thrive. During the process, old enterprises are eliminated in droves while new enterprises are emerging in groups, thus facilitating the optimized combination of production factors and promoting steady economic development. Each burst of large-scale innovation will weed out old technology and production systems and instead build a new production system. This theory can be applied to the economic

policies of the government, **because new enterprises are better able to seize limited market opportunities, are subject to less restrictions in terms of enterprise transformation and free of various "burdens" inevitable for old enterprises; therefore, in order to promote local economic development to the fullest extent, governments at all levels should allocate limited planning, administrative and financial resources to the rapid entry and development of enterprises and strive to promote economic development and upgrade the production system by facilitating the rapid entry and development of enterprises. Such governmental support for rapid entry and development of enterprises has nothing to do with the political system and ideology of a country and is therefore universal to a great extent.**

In fact, even in the United States which highly advocates economic liberalism, the governments at all levels, especially state governments, spare no effort to help establish and develop new enterprises. At the end of 2014, Tesla, an electric vehicle maker chased by many states, eventually decided to locate its Gigafactory in Nevada. Nevada finally won Tesla's favor mainly because of the low tax policy it offered. In order to attract Tesla to Nevada, in addition to individual income tax and corporate income tax reliefs, the state also released a series of tax preference policies, including refundable credit for employment creation and investment, sales tax relief and property tax relief. Besides, major US technology companies have received various subsidies from their respective state governments. For example, the parent company of Google has received a total of US$762 million in governmental subsidies from the US Government since 2000, and Tesla has even received over US$3.5 billion in subsidies ever since its establishment in 2007.

The incentives provided by various levels of US governments for rapid entry and development of enterprises are not limited to native American enterprises. Aiming at mutual benefit and win-win, Wisconsin and iPhone OEM Foxconn Technology Group signed an agreement. On one hand, Wisconsin State Government would provide Foxconn with up to US$3 billion (later increased to US$3.1 billion) of income and sales tax relief in the next 15 years; on the other hand, Foxconn was expected to bring 13,000 high-paying jobs and US$10 billion investment capital to the state. The governor of the state called the deal a "golden opportunity" and a "change" for the State of Wisconsin. A Chinese pharmaceutical company Aland negotiated with Arkansas on its plan to build a plant in the state. Arkansas State Government said that if Aland could offer 400 jobs, the state government will grant 1,500 mu of land and help the company complete plant construction. Such examples of governmental assistance in the rapid entry and development of enterprises (including foreign enterprises) are not uncommon in the 40-year process of China's reform and opening-up.

(2) Governments, especially local governments, have strong incentives to help new enterprises to form and develop

Over the 40 years since the beginning of the reform and opening-up, the Chinese governments at all levels have offered assistance for the rapid entry and development of enterprises that has far exceeded the scope of industrial policy in the traditional sense. In this process of continuous exploration, the governments at all levels take active measures to create conditions for the rapid entry and development of enterprises, proactively carry out close interactions with market players, create a healthy and effective competition environment, and provide support at the key nodes of enterprise development. The government has accumulated much more key experience in helping new enterprises in their rapid entries and development through these practices, and made the best use of the circumstances to lead the entire national economy into a virtuous cycle. Specifically, the government can assist in the rapid entry and development of enterprises in the following ways, including creating a good business environment to attract investment actively and helping enterprises with their restructuring and upgrading in order to achieve institutional innovation.

Firstly, creating a good business environment to attract investment actively.

The government uses its "visible hand" to create a good business environment for the entry and development of new enterprises. On one hand, the government develops macro and regional strategic planning suitable for the rapid entry and development of enterprises, and creates a desirable business environment. On the other hand, the government provides enterprises with or help them obtain the key production factors necessary for their production.

As to local governments, they can play a regulating role in the overall economic layout planning and adjustment of cities and create favorable conditions for the rapid entry and development of enterprises. One prominent case is the "Industrial Relocation and Re-planning Program" of Tiexi District, Shenyang.

At the beginning of 2002, Tiexi District, Shenyang, which has long been dubbed as "Oriental Ruhr", fell into serious development difficulty. Many large state-owned enterprises in the district were in trouble, while a lot of industrial workers in these enterprises had to face the peril of being laid off. Actually, the recession of Tiexi District started at the end of the last century. When the tide of market-oriented reform was surging high across the whole country, enterprises in Tiexi District were still predominantly public enterprises whose economic structure was likewise comprised of industrial economy exclusively. In the district, state-owned economy and collective economy accounted for 99%, and industrial economy accounted for over 90% of the total. As some long-standing state-owned enterprises, such as Shenyang Explosion-proof Equipment Factory, Shenyang Tractor Factory and Shenyang Smelter and Refinery of Nonferrous Metals, declared bankrupt one after another, the reform of Tiexi

District became imperative. Under the joint planning and unified support of various levels of governments in Shenyang, more than 240 enterprises based in Tiexi District were successively relocated to Shenyang Economic and Technological Development Zone from the old part of Tiexi District. During this process, the demolished area in Tiexi District reached 5.95 million square meters, and most of the new land was used to develop the service industry. During the relocation process, the government not only played the role as the commander, but it also served as a super developer. The government gave reasonable subsidies to the relocated enterprises accordingly, with the different of land price hitting RMB26 billion. Subsequently, Tiexi District Government carried out reasonable planning, urged relocated enterprises to engage in equipment upgrading and technological transformation, revitalized decaying state-owned enterprises and land resources, and introduced a new development mechanism.

In contrast with Shenyang, the American city Detroit, which is also regarded as an old industrial base, made a different choice when responding to external impact. In the 1970s and 80s, as a huge amount of Japanese cars were exported to the United States, Detroit, widely known as the "Motor City" of the country, underwent great impact, and many automakers and auto parts manufacturers moved out of the city one after another. Faced with external pressure, the City of Detroit Government did not take effective actions to support the rapid entry and development of enterprises, but it instead stepped up the support for existing big enterprises and old ones (automakers such as Ford, GM and Chrysler).This choice failed to change the trend of continuous decline in Detroit's economy. From 1970 to 1980, the unemployment rate surged to 11.7% from 5.7% and remained pretty high at 8.9% even in 1990.In December 2013, City of Detroit Government officially declared bankruptcy, and the Detroit economy now continues to decline due to the lack of new entrants.

In addition, the government can support enterprises at the macro policy level, and one of the examples is the growth of Geely Automobile. In 2003, Xi Jinping, currently General Secretary of CPC Central Committee and then acting as the Secretary of CPC Zhejiang Provincial Committee, took time to visit Geely's Linhai Automobile Base shortly after he took office. After listening to the reports by Geely Group Chairman Li Shufu and CEO Xu Gang, Mr. Xi fully affirmed the achievements of Geely Automobile and highly praised Geely for its efforts in talent cultivation, technological innovation, and independent development and its strategic idea of "making good cars affordable for ordinary people". Mr. Xi pointed out that, "if we do not offer vigorous support to enterprises like Geely, who else will deserve our support? As the only automobile enterprise in Zhejiang Province, it is really a difficult thing for Geely to manage to become a member of "3+6 pattern" amid the fierce competition in the Chinese market and make milestone achievements. In future, we will continue to enhance the policy

support for the national automobile enterprises and create a desirable investment environment for private enterprises".[1]

While developing macro planning for the rapid entry and development of enterprises, the government also uses a variety of means to help enterprises overcome the shortage and defects in various kinds of production factors including land and labor. In the early days after the establishment of Brilliance BMW joint venture in Shenyang, Liaoning Province, BMW exercised strict control over the enterprise, controlled the purchasing of the enterprise, and recruited employees by standardized tests. In our survey, a senior leader told us "even a strip written by the mayor will not work for BMW!". Also, BMW proposed detailed and strict requirements for the land used to build the plant. In order to guarantee the flat land required to build the plant, Shenyang Municipal Government used administrative means and fiscal expenditure to remove hilltop, level the land and add traffic lights in the proposed area, build an exclusive railway and provide commuting bus lines for the new plant, and issued land, tax and other related certificates/licenses for the expansion of the plant within merely one day, giving all-round support to BMW. After 2005, Brilliance BMW has become the largest taxpayer in Shenyang for the 12th straight year, directly created more than 10,000 jobs and driven the development of local upstream and downstream industries of an equivalent scale. According to information, in 2016, the automobile & parts industry in Shenyang completed an output of RMB201.86 billion and manufactured 1.061 million complete vehicles in the year. In the next 3 years, Shenyang will also reinforce its efforts to develop new energy vehicles and auto parts industry and accelerate the construction of a number of major projects, with the aim of increasing the production capacity of new energy vehicles to 200,000 by 2020 and building an RMB300 billion worth of automobile & parts industry cluster in Shenyang. Take Shenyang Minghua Mold & Plastic Technology Co., Ltd. for example, its parent company is Jiangnan Mold & Plastic Technology Co., Ltd. located in Jiangyin, Jiangsu Province, which sets up a production plant in Shenyang in order to provide better ancillary services to Brilliance BMW. The company covers a floor area of 95,000 square meters and currently employs more than 700 employees. The company specializes in the development, production and sale of bumpers, and owns world-class spraying line equipment and an annual production capacity of 600,000 sets of bumpers.

Local governments take initiative to help enterprises out of employment difficulties. In Dongguan, Guangdong Province, manufacturing enterprises tend to face serious labor shortage after the Spring Festival. In order to solve this problem, Dongguan Human Resource Bureau builds a unified recruitment platform to meet enterprises' labor demand after the Spring Festival and alleviate their recruitment pressure, and provide

[1] people/com.cn/Xi Jinping: who else will deserve our support other than Geely? [EB/OL].http://people.com.cn/GB/jinji/222/2174/2956/20030108/904079.html

talent support for enterprises. The specific methods used include establishing recruitment points in several regions under the jurisdiction of Dongguan to carry out recruiting activities at fixed locations for a long time, releasing recruitment information via both online and offline channels, arranging for enterprises to recruit workers from other provinces/cities, as well as discussing labor issues with relevant departments in other regions with relatively sufficient supply of manufacturing workforce. A good number of local governments in Guangdong Province has adopted the Dongguan model for recruiting workers to alleviate the recruitment difficulties of enterprises effectively.

In addition, local governments also provide enterprises with numerous preferential policies covering tax benefits, administrative approval and talent training. Firstly, in terms of **preferential tax policies,** unlike the traditional "one size fits all" approach, Jingjiang Government adopts the dynamic assessment approach. Specifically, the local government bases its measurement standard on the annual sales or tax contribution and other dynamic indicators of enterprises and provides some preferential and incentive policies to those top-ranking enterprises, with the aim of attracting enterprises to drive the local economic development and thus generating higher tax revenue for the future development of the region. Secondly, in terms of the **reform of administrative approval system**, in order to fulfill the goal of encouraging the listing of enterprises, Jingjiang Government specially sets up a Listing Office. The setup of the Listing Office, on one hand, helps create a competitive environment for local enterprises to grow bigger and stronger, and on the other hand, helps provide information assistance and guidance on the approval formality issues facing enterprises in their listing process. Moreover, it is noteworthy that, Jiangyin Government innovatively sets up "approval waiter" system to facilitate the administrative approval process of enterprises. Thirdly, **in terms of talent training**, local governments provide learning and training opportunities for enterprises to build up their human capital. Again, take Jiangyin Government for example, back in the 1990s, the government led entrepreneurs to go out and inspect the operation and development model of Huawei.

Secondly, helping enterprises with their restructuring and upgrading.

In order to ensure the sound development of enterprises and bring vitality to the local economy, governments try to create a good environment and also make full use of their own resources to help enterprises with their restructuring and upgrading. To elaborate this kind of assistance, we will enumerate five cases corresponding to Jiangyin Mold & Plastic Technology, Jiangsu Asian Star Anchor Chain, Northeast Pharm, Chengxing Group and Henan Agriculture Investment Group respectively.

Jiangyin Mold & Plastic Technology was established in 1988. It is mainly engaged in the development, production and sale of bumpers and other auto parts, plastic products, molds and high-tech mold and plastic products and possesses an annual production capacity of more than 3 million sets of bumpers. It is a Chinese high-end car exterior trimming parts system service supplier and is included in the list of top 500 Chinese

manufacturing enterprises, and plays an important role in the economic development of Jiangyin. At a key stage of its development, the company once faced the problem of lack of foreign exchange needed to purchase equipment, affecting the development of the enterprise. In order to help the enterprise purchase equipment to expand the market, Jiangyin Government boldly used the city's foreign exchange quota to provide guarantee for the enterprise, and helped the enterprise obtain a bank loan of US$2.53 million to purchase imported German equipment. In addition, leaders of Jiangyin Government actively recommended market opportunities to the enterprise, escorted the enterprise's leaders to Shanghai to meet the then leaders of Shanghai Municipal Economic and Trade Commission and Shanghai Volkswagen, creating desirable opportunities for the enterprise to expand its market share.

Jiangsu Asian Star Anchor Chain faced a major adjustment of tax policy in 2007, with the export rebate rate dropping to 5% from 18%, and the enterprise was under enormous pressure of profit decline. In order to help with the development of the enterprise, leaders of the local government actively communicated with the Tax Policy Department of the Ministry of Finance. Asian Star Anchor Chain explained its importance and high added-value in the industry and provided a strong basis for governmental policy adjustments. In January 2008, the Ministry of Finance, the Ministry of Commerce and the State Administration of Taxation issued a *Notice on the Application of Tax Rebate Policies to Old Long-term Trading Contracts*, requiring the application of the original tax rebate policies to the long-term export contracts signed prior to July 1, 2007, thus ensuring the steady development of Asian Star Anchor Chain.

The mixed-ownership reform of Northeast Pharm is exactly an example of governmental role in the critical period of enterprise development. The mixed-ownership reform started in the first ten years of the 21st century; initially, the local government granted fiscal funds of RMB870 million for the relocation of the old factory, but this was far from enough to fulfill the task. In 2017, Shenyang Municipal Government reiterated the plan to introduce a strategic investor. In 2018, the government made a breakthrough in policies and decided that the strategic investor could become the largest shareholder. Under the guidance of this policy, Northeast Pharm decided to introduce Fangda Group as the largest shareholder with a shareholding of 26%, and the latter could dispatch two executive directors and recommend two independent directors. In the mixed-ownership reform, Shenyang managed to break the restrictions of first grade enterprise through indirect shareholding by an industrial investment fund, and created favorable room for enterprise development.

Chengxing Group is the first technology-supported enterprise in Suzhou, and the local government provided generous support for its listing; for example, "to send the documents before Jiangsu Provincial Party Committee started a meeting, Jiangyin Government would hold a meeting till 10:00pm, and send someone to deliver the

documents to Yixing for signature and then go to Nanjing before dawn to wait at the door of the office of the competent provincial leader, so that the documents could be signed at 7:45 before the provincial party committee held a meeting to approve the transaction"; "Jiangyin government leaders would contact and recommend the enterprise to the leaders of Yixing and provincial leaders". In 2001, in order to change the pattern "factory manager takes the profit while the enterprises bears the loss", Jiangyin proposed enterprise restructuring. However, due to the huge amount of funds needed, the enterprise was less motivated. Therefore, the city granted RMB24 million, the employees raised 30% of the required funds by themselves, and the remaining amount was to be repaid within five years; this helped obtain direct financial support for the successful restructuring of Chengxing Group.

Additionally, the government can also use innovative means to provide assistance to enterprises. Since its establishment, Henan Agriculture Investment Group Co., Ltd. has always stuck its orientation as "a specialized large-scale agriculture investment group with full-fledged investment and financing functions in the field of governmental agriculture investment, and a comprehensive investment and financing service provider led by the provincial party committee and the provincial government for building a big modern agricultural province". Currently, it has evolved into a large-sized agriculture investment holding group with complete functions and an investment capacity of over RMB200 billion. In line with the principles of "governmental guidance, social participation, professional management and market-oriented operation", Henan Province adopted the method of "converting directness into indirectness, free into paid, and funds into capital"; that is to say, **the government provides fiscal funds and makes use of the power of the company to pool decentralized funds, convert funds into capital and administration into market regulation, so as to make use of funds in a centralized way, guide and lever social capital, and introduce central enterprises and large-sized financial capital and well-known institutions from other provinces to support the agriculture of Henan Province, thus eventually changing the previous administrative allocation of fiscal funds, reducing the direct allocation of resources by the government, and realizing the transformation of government functions.** While attracting social capital, this approach also helped achieve the guiding and amplifying function of fiscal funds. It is known that, the funds already established by the Company reach RMB45.2025 billion, lever social capital of RMB82.053 billion, and amplify fiscal funds by 7.73 times.

Industrial funds can support enterprises by market-based means, improve their financing capability, regulate their operation and management, help them introduce strategic resources, and effectively enhance the endogenous impetus and quality of enterprise development. At the same time, the company selects and invests in projects according to fully market-oriented standards and exit projects at good timing likewise. This can not only help the enterprises but also achieve appreciation of capital. For example, in 2017, the comprehensive agricultural

development fund brought another RMB600 million of social investment to the invested enterprises; wherein, after making an investment in Sunwood Lvyuan, the fund drove a direct investment of RMB70 million from other social capital, effectively promoting the supply chain construction and rapid development of the enterprise. In addition, the company regards investing in leading enterprises as a key to driving the industry by investments, comprehensively applies a variety of investment and financing means, and gives priority support to industry-leading enterprises in such sectors as planting and processing, cotton spinning and manufacturing. At the same time, the company builds a group-wide collaboration platform and mechanism to integrate resources to make investments in major projects.

Take the development of Lotus Flower Gourmet Powder for example. From 2004, Lotus Flower Gourmet Powder began to have difficulties in its operations and faced the risk of collapse, and tens of thousands of employees were at the verge of unemployment, bringing about a lot of destabilizing factors to society. During 2004-2006, according to the provincial government's requirements for aiding Lotus Flower Gourmet Powder, Henan Agriculture Investment Group dispatched personnel and injected funds in aid of Lotus Flower Gourmet Powder, and carried out several all-round bailout measures. The aim was to give full play to the role of the government as an investor, protect the enterprise brand and maintain its steady development. To some extent, Henan Agriculture Investment Group began to buy into Lotus Flower Gourmet Powder at the most difficult time of its development, provided the enterprise with substantial financial support to avoid its bankruptcy, and ensured the stable operation of the enterprise by means of asset restructuring and reorganization, thus fully playing its role as a policy-oriented investment company.

(3) Side effects of overzealous government

On the whole, governmental assistance in the rapid entry and development of enterprises plays a direct role in driving the economic growth of China, and the government has greatly promoted the rapid development of the Chinese economy through the "visible hand". **But we need to realize that, there are undoubtedly some irrational decisions when the government is helping with the rapid entry and development of enterprises. Excessive governmental intervention in the economic development has also caused some ineffective allocation of resources and distortions, and exerted some side effects on the economic development.** Some prominent ones of these side effects include excessive investment, overcapacity and corruption.

Firstly, excessive investment and overcapacity. In developing regional economic development planning and making decisions on selecting industries and enterprises for support, local governments often base their important judgments on the macroeconomic hot spots and policy orientation for the time being but give less consideration to whether other regions at the same level will select the same industries and development planning.

At the national level, this will be reflected in the repeated construction of and excessive investments in the same industry or similar enterprises (mostly industrial enterprises) in different regions, resulting in problems of overcapacity and high industrial concentration in the entire macro economy. Specifically, following are some noticeable examples: currently, China has over 1,400 steel enterprises, with more than 40 in each province on average; after the overcapacity cut commenced in 2016, the current output of China's steel industry is still approaching 800 million tons, accounting for over 40% of the global steel output, with a capacity utilization rate of 77%; meanwhile, China now has a total of 2,143 automobile manufacturers, and almost every one of the 34 provinces, municipalities and autonomous regions has an automobile enterprise of its own; more than half of all the provinces and municipalities have some electrolytic aluminum enterprises, and the national electrolytic aluminum output accounts for 56% of the global output, in contrast with a capacity utilization rate of merely 75%.From the perspective of the overall economy, such overlapping investments are relatively inefficient. The resulting low industrial concentration might give rise to waste of resources, slow technological advancement and many other problems.

Another side effect of excessive governmental intervention is breeding corruption to some extent. The overall support that a local government can give to new enterprises is relatively limited, but the number of new enterprises and entrepreneurs wishing to enter the local market is huge; therefore, while the local government is creating the business environment and choosing new enterprises for receiving various kinds of support and assistance, even if the government aims to help new enterprises and promote local economic development, a certain degree of corruption and power rent-seeking will inevitably arise in the actual operations. **What needs to be emphasized is that, the corruption in China is different from the corruption in such countries as India and Russia in that, for the sake of political and economic incentives, local governments are much concerned about the local economic development, and leaders of local governments are really motivated to improve the local economic development level; corruption might to some extent affect but will not completely distort local governments' support for new enterprises, therefore, corruption has a less adverse effect on the economic development.**

(4) Economics analysis

Based on the abovementioned basic facts and history of enterprise entry and development, we arrive at the following two conclusions economically: firstly, during the process of the reform and opening-up, incentives to governments for cultivating and helping enterprises are of utmost importance for enterprise entry and development; secondly, since local governments are subject to blindness and limitation to some extent, they might make some irrational decisions in helping with enterprise entry and

development. Therefore, corresponding restrictive system should be put in place to regulate local governments' behaviors in helping with enterprise entry and development.

① The incentives of local governments are critical

The incentives offered to governments for cultivating and helping enterprises have a direct bearing on the behaviors of governments during the process of enterprise entry and development as well as the resulting effect. By summarizing the process of enterprise entry and development history in the 40 years of China's reform and opening-up, we believe that political and economic incentives are two important dimensions for local governments to promote enterprise entry and development. Wherein, political incentives are directly linked to promotion of officials, while economic incentives are directly linked to taxation, both having a significant effect on enterprise entry and development.

Political incentives motivate local governments to offer help for enterprise entry and development

Political incentives to governments for helping with enterprise entry and development are derived from the continuous promotion motivation of local government officials. The wider scope of powers and higher sense of personal achievement arising from promotion usually make officials do their utmost to keep their positions, and even scramble for all possible opportunities for constant promotion, and this becomes a common choice of local officials. **It is on the basis of the continuous promotion motivation that local government officials often have their actions guided by the promotion appraisal indicators and explore how to stand out of appraisal and win competitive edge.** In a pretty long time since the inception of China's reform and opening-up, a key factor for the promotion of local officials is political achievement, i.e. local GDP growth. Therefore, **it becomes an important choice of local governments to take initiative to help with enterprise entry and development.**

i) Political tournament is an important cause driving local governments to help enterprises.

Since the early 1980s, the selection and promotion standard for local officials in China have shifted to economic performance indicators from pure political indicators in the past, and this shift is highlighted in local GDP growth; whereas, a key factor in the promotion of local officials is political achievement, resulting in local officials' pursuit of GDP. **For the sake of political achievement, in line with the evaluation of various measurable indicators, local officials scramble for breakthroughs in the competition level by level starting with the grassroots level, with the aim of getting promoted.** At the same time, according to the promotion tournament model of local officials built by Professor Zhou Li'an, local officials are promoted to higher positions

if they can outcompete their peer regions in GDP growth.[1]Therefore, **in order to obtain advantage in the political tournament, local governments tend to make every effort to help with enterprise entry and development.**

The case is very different in the United States. The most important reason why local governments want to help enterprise entry and development is election. For instance, in order to keep local sports clubs, US municipal governments often spend a great amount of money to subsidize for baseball fields, football fields, basketball gyms and ice hockey places. In addition, great efforts are made to solve local unemployment problem. In September 2017, Amazon announced a plan to locate a city in the North America to build its second headquarters and expected to invest US$5 billion and provide more than 50,000 jobs. Shortly after the announcement of the news, numerous North American cities offered bids one after another, in the hope of canvassing Amazon, including some well-known cities like Boston, Washington DC, Atlanta, Dallas and Denver. These cities offered various preferential policies in order to win. For example, Governor of New Jersey said that, if Amazon chose a city in the state to establish its second headquarters, Amazon would be entitled to US$5 billion of tax benefits in the next 10 years. [2]

ii) The government plays a role of macroeconomic regulation in the overall economic planning deployments and adjustments of cities.

Under a particular background, through macroeconomic regulation, the government can make corresponding deployments and adjustments in overall economic planning of cities, and enable cities to get out of trouble and reshape development vitality. To some extent, this practice is one of the sources of competitive edge obtained by local governments in the political tournament, and therefore becomes an important political incentive. At the same time, the government can create fresh impetus for enterprise development by proceeding from the overall economic development planning of cities. Compared with enterprises, the government is able to plan the development direction of urban economy from a more macroscopic perspective, and provide guidance and beacon for enterprise development. **While assisting in enterprise development, the government further sharpens its competitive edge in the political tournament. For example, in the enterprise restructuring in Jiangsu Province, local governments gave substantial assistance to enterprises in terms of funds and land.**

The macroeconomic regulation role of governments in the deployment and adjustment of cities' overall economic planning is particularly apparent in the northeast China.

[1] Incentives and Cooperation of Government Officials in Promotion Game – also on the Reasons for Long-term Existence of Local Protectionism and Repeated Construction Problems in China [J], by Zhou Li'an. Economic Research, 2004(06):33-40.

[2] Amazon to build its second headquarters, and these American cities are nearly crazy to canvas it! https://baijiahao.baidu.com/s?id=1581421217844812515&wfr=spider&for=pc

Wherein, the most representative event is the **industrial relocation and re-planning program of Tiexi District**, as mentioned in Section I. The rejuvenation of Tiexi District was highly affirmed by the central government. In a visit to Tiexi District, the then General Secretary Hu Jintao encouraged Tiexi people to overcome difficulties and blaze a Chinese-style path of rejuvenation of old industrial bases. On June 9, 2007, the NDRC and the Northeast Rejuvenation Office of the State Council granted Shenyang a title "Tiexi Old Industrial Base Adjustment and Reconstruction & Equipment Manufacturing Development Demonstration Area". As for Tiexi District, this meant that the country recognized the results of old industrial base adjustment and reconstruction and equipment manufacturing development in the past 5 years and also marked the beginning of a new era.[1]**To some extent, the affirmation of the central government can serve as an important political incentive to the local government and urges it to provide further assistance for enterprise entry and development.**

Economic incentives promote mutual benefit and win-win between governments and enterprises

Economic incentives to local governments for assistance in enterprise entry and development are directly linked to taxes. On one hand, taxes have a bearing on the ability of local governments to obtain resources that they can dispose of independently and advance various policies smoothly; on the other hand, when the economic development of a region is in good condition and brings abundant taxes to the region, the income of governmental officials might be linked to taxes. This mechanism often has a very strong economic incentive effect on the behaviors of local governments, and this is one of important reasons why they try their best to help with enterprise entry and development. Professor Qian Yingyi mentioned that, in the 1980s, the delegation of powers from the central government to local governments and the implementation of the tax-contracting system had an effect on the behaviors of local governments and the local economies under their jurisdiction. The tax-contracting system, while intensifying local protectionism and resulting in the decline of central fiscal revenue, granted local governments a very high marginal fiscal retention rate. Empirical research also found that, **during the era of the financial contract system, the higher rate of marginal financial retention, the more financial incentives for the local government, leading to more willingness to help and support local firms.** This is greatly different from the case in Russia in the 1990s. The local fiscal revenue in Russia has no relationship with local economic development, so local governments received no economic incentives for developing the regional economy, and accordingly there were no incentives for helping with enterprise entry and development.[2]

[1] news.hexun.com article at http://news.hexun.com/2009-07-14/119593001.html

[2] Douban, Qian Yingyi: *Understanding Modern Economics* at https://www.douban.com/note/369127038/

In addition, in terms of tax revenue and structure of sources, the entire indirect tax revenue, plus other local taxes with obvious indirect tax characteristics, accounts for more than 70% of the total tax revenue, while revenue from direct taxes such as corporate income tax and individual income tax accounts for merely 26.2%; in 2013, of the total tax revenue, the revenue from taxes paid by state-owned enterprises, collective enterprises, joint stock cooperative enterprises, joint stock companies, private enterprises and other types of enterprises accounted for 90%.On the whole, **in the current tax system structure of China, over 70 percent of tax revenue comes from indirect taxes, and over 90 percent comes from firms.**[1]Wherein, **tax from the enterprise binds local government and the firm.** Unlike China, western countries like the United States depend more heavily on personal tax. Take the United States for example, judging from the composition of the fiscal revenue of the federal government, individual income tax has always accounted for a high proportion; in most years, the individual income tax in the United States accounts for more than 45% of the federal fiscal revenue. Even in the total fiscal revenue of the entire country, individual income tax contributes more than 30% of the revenue, the highest of various taxes. Conversely, individual income tax in China accounts for a very low proportion in the central and local fiscal revenues and is almost negligible.[2]Therefore, **the United States and other western countries rely more heavily on individual tax, while China is more dependent on enterprise tax. Therefore, the economic incentives arising from taxes can motivate local governments to help with enterprise entry and development on their own initiative.**

Of course, the fulfillment of tax objective is not merely the result of the unilateral efforts of the government or enterprises, but it is because that the government, based on its own strategic planning, provides a high-quality environment for enterprise entry and development, pay attention to the development dynamics of enterprises, and achieve mutual benefit and win-win with enterprises.

i) Linking income of government officials to taxes is an important economic incentive.

When the income of government officials is directly linked to the taxes arising from enterprises, governments will be fully motivated to help with enterprise entry and development. Take development zones for example: in a pretty long period of time after the beginning of the reform and opening-up, due to good economic efficiency and rapid development of development zones, governments assigned special personnel to development zones, innovatively set up a special administrative structure – management committee, and the income of officials in management committees often

[1] The Future Direction of China's Tax Structure Reform at http://tax.rednet.cn/c/2017/06/16/4325716.htm

[2] Comparison between Tax Structure and Tax Burden in China and the United States at http://www.sohu.com/a/124772907_126158

depended upon tax revenue brought by incoming firms. It was such model that drove governments to create great environment for enterprise entry by various means, and provide a variety of preferences, all aimed at helping with enterprise entry and development. Development Zone even offers one-to-one service to help firm with problems, including tax preparation, inspection and quarantine, employment, etc. A special example is the electronic information industry, which can generate plenty of tax revenue for governments due to its own characteristics, while an administrative committee has a relatively small staff size, so their income will be increased accordingly, thus producing strong driving force to serve enterprises.

ii) Governments endeavor to help with enterprise entry and development and achieve mutual benefit with enterprises.

The economic incentives to local governments for assistance in enterprise entry and development are largely derived from taxes, which in turn have a direct correlation with the development status of enterprises. When the development status of enterprises is good, they can bring more taxes to local governments and obtain more resources at their disposal and further ensure the smooth progress of work. Therefore, motivated by economic incentives, local governments will vigorously encourage enterprise development and spare no effort to guide the coordinated development of upstream and downstream industry and achieve mutual benefit and win-win with enterprises.

A good example is the location and development of Brilliance BMW in Shenyang, and this is a result of the local government's effort to guide the coordinated development of upstream and downstream industries, and achieve mutual benefit between the government and the enterprise. Shenyang Municipal Government's vigorous effort to introduce BMW has driven the local economic development to a great extent. Firstly, **in terms of fiscal revenue of the local government**, Brilliance BMW greatly drove the fiscal revenue of Shenyang, and the company alone contributed **nearly RMB20 billion of the total tax revenue of over RMB60 billion** in Shenyang. Secondly, the location of Brilliance BMW in Shenyang **also promoted the coordinated development of relevant upstream and downstream enterprises, and further increased the fiscal revenue of the city.**

While making vigorous efforts to guide the coordinated development of upstream and downstream industries, local governments tend to provide some **preferential policies**, **such as tax preferences and administrative approval convenience**, such as Jingjiang's reward policy, Jiangyin's "approval waiter" system and provision of learning and training opportunities for the human capital construction of enterprises, in an attempt to create a desirable development environment for enterprises. **On one hand, local governments make the best use of circumstances to help with enterprise entry and development; on the other hand, this reflects the economic incentives to governments for helping enterprises, i.e., by facilitating better development of**

enterprises, local governments can strive for more financial support for the smooth advancement of their own policies.

Establishment and entry of new enterprises serve as an important impetus for regional development. Whether developed countries represented by the United States or developing countries still in their rise stage, it is an important way for governments to develop local economy by granting appropriate preferential policies and effective guidance to attract enterprises with development potential.

Governmental assistance and guidance to enterprises are not limited to the stage of attracting enterprises; in the subsequent development process of enterprises, especially key turning points of enterprise development, governments should also pay appropriate attention. It should be noted that, the development of Mold & Plastic Technology, Asian Star Anchor Chain, Northeast Pharm and Chengxing Group cannot do without the attention and support of local governments. In addition, "if we do not offer vigorous support to enterprises like Geely, who else will deserve our support?", the words said by the current General Secretary Xi Jinping, the then Secretary of CPC Zhejiang Provincial Committee were also a direct reflection of governmental concern about enterprise development. The reasons why the government places so much stress on the development of Geely are: on one hand, the automobile industry can drive the rapid growth of the local economy due to its high rate of return and large scale effect; On the other hand, this reflects the policy favor given by the Zhejiang Provincial Party Committee and Government, which provides a strong support for the development of the enterprise.

Driven by economic incentives, governments tend to try their best to offer help to enterprises and pay close attention to the development dynamics of enterprises. Wherein, in addition to the abovementioned preferential policies and guidance in the coordinated development of upstream and downstream industries, there are many other **innovative models**. For example, in line with the principles of "governmental guidance, social participation, professional management and market-oriented operation", Henan Province innovatively adopted the method of "converting directness into indirectness, free into paid, and funds into capital". Under such model, the government, by supporting strong enterprises and helping weaker ones and extending the support from point to surface, managed to enhance the endogenous impetus of enterprises, and improved the efficiency and industrial level of enterprises, **thus generating tax revenue for the local government to serve as economic incentives for helping enterprises.**

Aiming at mutual benefit and win-win, the US government also adopted the same practice. Wisconsin and iPhone OEM Foxconn Technology Group signed an agreement. On one hand, Wisconsin State Government would provide Foxconn with up to US$3 billion of income and sales tax relief in the next 15 years; on the other hand,

Foxconn was expected to bring 13,000 high-paying jobs and US$10 billion investment capital to the state.

② There must be restraints on local government behavior

Over the 40 years of reform and opening-up, the governments at all levels in China have used various means in support of enterprise entry and development. On the whole, governmental assistance in enterprise entry plays a direct role in driving the economic growth of China, and the government has greatly promoted the rapid development of the Chinese economy through the "visible hand". However, for various reasons, **local governments are subject to blindness and limitation to some extent, and this tends to give rise to a series of problems when the government is assisting in enterprise entry and development. Therefore, corresponding restrictive system should be put in place to regulate local governments' behaviors in helping with enterprise entry and development.**

Specifically speaking, in the process of decision-making of local governments, since they only care about the economic development of the regions under their jurisdiction and are prone to base their important judgments on the macroeconomic hot spots and policy orientation, they will give less consideration to whether other regions at the same level will select the same industries and development planning. Moreover, compared with surrounding provinces/municipalities, local governments often show sheep flock effect and seek for some projects offering handsome return for the time being or some industries with policy support at present. Coupled with the corruption problem mentioned above, local governments sometimes have the problem of power rent-seeking and make some decisions favorable for themselves. Under the combined action of these factors, local governments tend to engage in overlapping or inefficient investments, resulting in overcapacity and many other problems. At the same time, motivated by political or economic incentives, local governments tend to make use of "policy bottomland" to build up competitive edge and attract new enterprises, resulting in vicious competition among the local governments of different regions.

In view of this, on one hand, it is necessary to build a unified and well-established market system to allocate and manage products and funds reasonably through the market force, and restrict the behaviors of local governments through effective market force, with a view to avoiding vicious competition, excessive investments and other relevant problems effectively. On the other hand, it is necessary to effectively copy with the side effects arising from "overzealous" local governments by means of central macroeconomic regulation. Since the central government possesses some natural advantages over local governments, it is in a good position to plan the whole situation by virtue of more information. Therefore, macroeconomic regulation from the central government is essential. For instance, in the late 1990s, in response to the general losses and serious overcapacity in the textile industry, Premier Zhu Rongji initiated an overcapacity cut program by "reducing spindles" in the state-owned enterprises in the

textile industry; by 2000, the entire industry managed to turn profitable again, laying a sound foundation for the industrial upgrade and revitalization of the textile industry. In addition, some measures should be taken to effectively respond to the current corruption and "disguised corruption" problems. At present, in addition to some corruption and power rent-seeking problems occurring to local governments in developing planning strategy, allocating administrative resources and selecting enterprises to receive various kinds of support, some other problems also arise, such as dereliction of duties and lazy/slack administration. With the strengthening of the efforts to implement "eight-point austerity rules" of CPC Central Committee and the deepening of the clean government construction, problems such as "do not want to do things and dare not do things" arise in the practical work of the governments at all levels. This disguised corruption will likewise have a negative effect on local development. Therefore, it is necessary to take appropriate actions to cope with the corruption and disguised corruption problems in local governments efficiently. Of course, legal constraints are also essential for regulating the behaviors of local governments in their assistance in enterprise entry and development. It is necessary to build a well-designed legal system, straighten out the relations between the government and the market, prevent excess of authority, absence and dislocation of the government in the macroeconomic regulation, effectively solve the problems of non-local administration of law and execution, and promote the sound development of the economy.

2. Rapid Land Conversion

In 1998, the Ninth NPC of the PRC announced that the reform of the urban housing system would be deepened and suggested that real estate become a new engine of China's economic growth. Subsequently, Chinese government began to gradually abolish the welfare-oriented public housing distribution system and implemented a market-oriented housing policy. The real estate market in China has been developing for twenty years since the housing reform rolled out.

(1) The Chinese real estate market has grown from scratch to the world's largest within 20 years, rapid land conversion being the key factor

The housing reform policy in 1998 released the growth momentum of China's real estate market, cultivating the real estate market from nothing. At present, it has become the largest capital market in China. The statistics indicate that the total value of China's real estate market was about RMB280 trillion (US$39 trillion) in 2017, exceeding 300% of total GDP, while the counterpart of the United States was US$31.8 trillion for the same period. In terms of housing prices, the average price of large cities in China is higher than the United States. Take the housing prices in July 2016 as an example, Shenzhen (US$7,768/sqm), Beijing (US$6,836/sqm) and Shanghai (US$6,446/sqm) ranked the top 3rd among large cities in China and the United States, while San Francisco (US$4,888/sqm) and Los Angeles (US$4,023/sqm) ranked 4th and 5th respectively[1].

Exhibit 37**: Estimation of Real Estate Market Value** (Denominated in US$)

	Zillow[2] (U.S.)	Savills[3] (UK)	CCWE[4]
China		2016: 39.4 trillion	2017: 36.5-39 trillion
U.S.	2017: 31.8 trillion	2016: 34.1 trillion	

[1] https://www.zillow.com/research/china-united-states-housing-costs-14795/

[2] https://www.zillow.com/research/total-value-homes-31-8-trillion-17763/

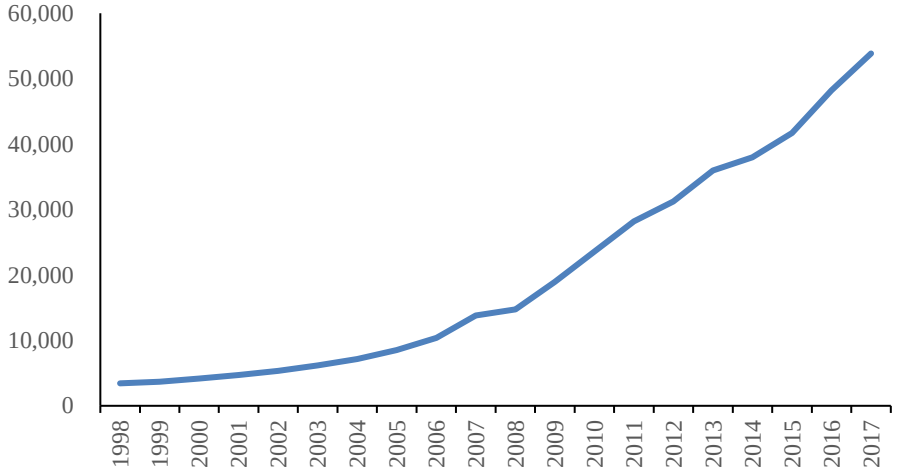
[3] https://www.savills.com/blog/article/219340/international-property/the-10-most-valuable-real-estate-markets-in-the-world.aspx

[4] As published by the National Bureau of Statistics, the per capital housing areas of the whole country, city and village were 40.8 sqm, 36.6 sqm and 45.8 sqm respectively in 2016. And in 2016, China's urban and rural permanent populations were 813.47 million and 576.61 million respectively. Urban: the average selling price of residential commercial housing was 7,203.00/sqm in 2016, and accordingly we estimated 215 trillion. Rural: the rural residential construction cost for completion was 866.69/sqm in 2016, and accordingly we estimated between 26 and 30 trillion. With the urban estimation plus rural estimation as well as the growing rate of the housing prices between 2016 and 2017, the total market value of the whole country was estimated to be US$36.5-39 trillion.

Source: forecast by institutions and calculated by ACCEPT

In the past two decades, the real estate industry has rapidly developed into a backbone of Chinese economy. From 1998 to 2017, the scale of the real estate market continued to increase from RMB343.45 billion in 1998 to RMB5.38507 trillion in 2017, growing by about 14.6 times, and by 15.6% in terms of average annual increase. This indicates that China's real estate market has been significantly developing. Meanwhile, the proportion of the real estate market in GDP steadily increased from 4.03% in 1998 to 6.51% in 2017, reflecting the leading role of the real estate in the national economy[1]. Besides the real estate industry itself, the government also need to consider the impact of its upstream (e.g., cement, glass, steel, etc.) and downstream (e.g., home appliances, building materials, decoration, etc.) industries.

Exhibit 38: Total Output Value of China's Real Estate (RMB100 Million)



Source: Wind Database

(2) Household's housing consumption has been fundamentally enhanced

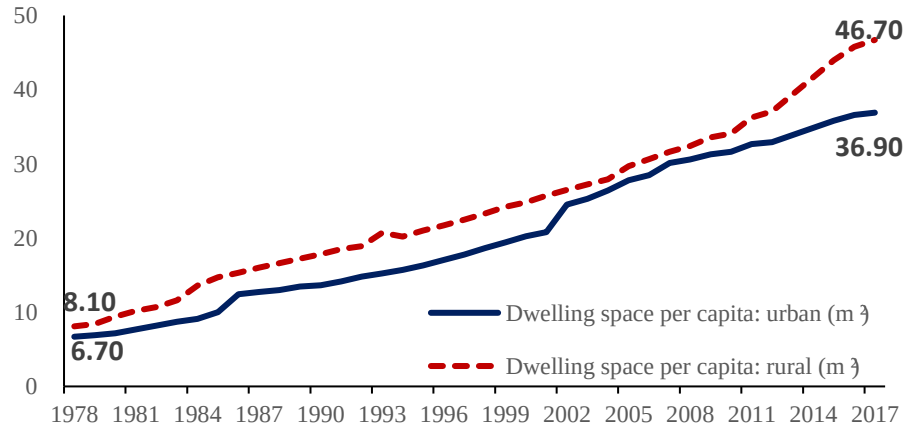
Before implementation of the policy of reform and opening-up, China performed the welfare-oriented public housing distribution system within the context of the planned economy, so the housing for residents was uniformly distributed by the workplace. Although the system can meet the basic housing demands, the insufficient investment in housing construction results in small living space, poor living conditions and growing shortage of housing supplies. Accordingly, housing demands have been suppressed for a long time. Since the implementation of reform and opening, the Chinese government has attached great importance to the housing and continuously reformed the housing system. The 1988 "Monetization of Housing Distribution" has been the most importance turning point. Since then, the Chinese government abolished

[1] Source: National Bureau of Statistics: http://data.stats.gov.cn/easyquery.htm?cn=C01

the welfare-oriented public housing distribution system and the real estate market was officially established. Led by the Chinese government and driven by the market, the real estate industry has rapidly developed, with rocketed housing supply, continuous rise in the quality of new housing and fundamental improvement of the people's living standards.

The figure below indicates the historical changes of the per capita housing areas in China. The urban and rural per capita housing area was only 6.7 and 8.1 sqm respectively in China in 1978. In the past 40 years of reform and opening-up, with the continuous development of the real estate market, the per capita housing area in China has increased year by year. And in 2017, the areas above reached 36.9 and 46.7 sqm respectively. These changes reflect the improvement of the life quality of residents, for example, people moved out from the tube-shaped apartment where several generations lived together to the spacious and beautiful commodity house and enjoyed a free and comfortable living space in the past 40 years. Compared with the developed countries, it is found that we have a big gap with the United States in terms of per capita housing area, but far surpass Japan and South Korea and reach the level of UK and France. According to a book *Modern Housing Economy* written by GUAN Ke, the per capita housing area of the United States, UK, Germany and Japan was 61.3 sqm, 36.6 sqm, 35.5 sqm and 31 sqm respectively since 1990s[1]. As these countries completed their urbanization earlier, their real estate markets have developed into a mature stage. Thus it can be seen that China's housing conditions have been greatly improved, gradually catching up with developed countries.

Exhibit 39: China's Dwelling Condition has been Largely Enhanced



Source: NBS of China

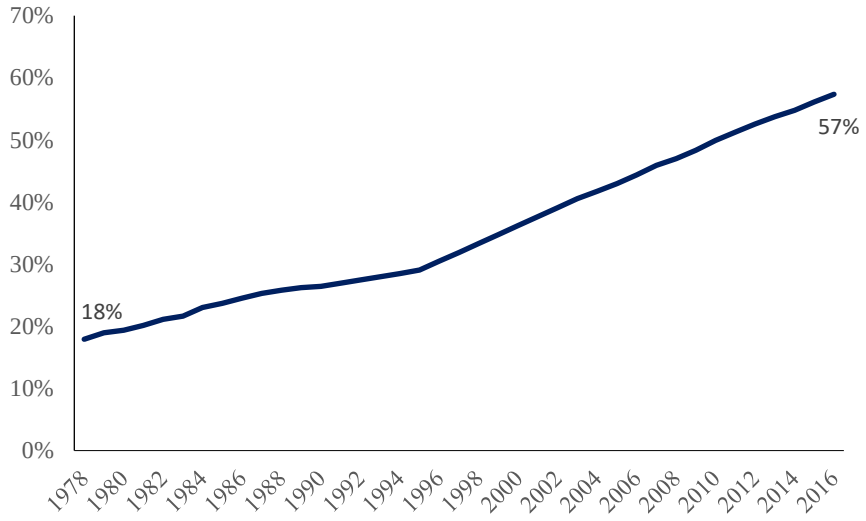
After the establishment of real estate market, the sales of residential commodity houses also indicate a trend of rapid growth. The data issued by National Bureau of Statistics

[1] GUAN Ke, 2002: *Modern Housing Economy*, China Building Industrial Press.

indicate that the sales of residential commodity houses in China reached RMB9.906417 trillion in 2016, with a 24-fold increase compared with RMB402.115 billion in 2001; on the other hand, the areas of sold residential commodity houses reached 1.375 billion square meters in 2016, increasing by about six times compared with 199 million square meters in 2001. Although there are effects of real estate speculation, the hot sales of homes still indicate that the real estate market has met demands for people to improve their quality of life, thus improving residential levels.

The investment in the construction of real estate industry has not only improved the residential levels, but also promoted the development of urban infrastructure and generated a series of achievements in Chinese urbanization. **At the beginning of reform and opening-up, China's urbanization rate was only 18%. After the four decades of steady development in the climate of reform and opening-up, this rate increased to 57% by 2016**, with a gap of about 20% with developed countries (e.g., the corresponding rates of the US, UK and Germany were 82%, 83% and 77% respectively). Many new economic growth points have emerged in the process of population movement and urban rising, making important contributions to economic development since implementation of the policy of reform and opening-up.

Exhibit 40: Urbanization Rate of China



Source: NBS of China

(3) Problems arise: High housing price and high housing inequality

The real estate market has improved the people's living standards; however, it has been plagued by such serious problems as high prices and uneven distribution of housing resources. Since 2013, the steady rise in housing prices has attracted broad attention. According to the year-on-year changes in the housing sale price index issued by the National Bureau of Statistics, the price rose obviously in 2016 and 2017. Moreover, from May 2016 to February 2017, the year-on-year growth rate of the newly-built

housing sale price index was kept at more than 20% and for the second-hand houses, more than 30%.

In the process of investigation of development of real estate market, we find from the annual growth rate of the average sale prices of the residential commodity houses that the housing prices not only soar in the near term, but many times in the past. The average housing prices increased by 19%, 25% and 11% respectively in 2004, 2009 and 2016, exceeding the growth rate of per capita disposable income of urban residents. The rise in the housing prices has led to uneven housing distribution. As housing prices have soared, young people really needing to buy a house cannot afford high housing prices, so they have to rent a house or make a living in another city; on the other hand, high housing prices have stimulated capital speculation and resulted in the bad phenomenon of the housing speculation, so that we have deviated from the goal that "the housing is used to live".

The housing prices are seriously higher than incomes in many Chinese cities so that many residents are unable to afford the house. According to the *Report on Housing Price-to-Income Ratios in 35 Key Cities in China in 2017* issued by China Real Estate Newspaper[1], all of the housing price-to-income ratios in 35 key cities in China are higher than the reasonably international range of 3-6 (Changsha has the lowest ratio among 35 cities above, with a ratio of 6.67). The ratios of the top five cities (Shenzhen, Sanya, Shanghai, Beijing and Xiamen) are higher than 20, and Shenzhen ranks first with a ratio of 39.64. **According to the international housing price-to-income ratios in 2018[2] issued by NUMBEO Global Database, in the first half of 2018, the ratio in mainland China is 27.17, and 46.89 in Hong Kong. On the whole, China's ratio has jumped to the second in the world.** Compared with other developed countries, ratios in Japan, France, UK, German and the United States are 11.16, 11.51, 8.89, 8.48 and 3.44 respectively, far lower than China's ratio. Regarding our major cities, Beijing (44.34), Shanghai (44), Shenzhen (39.86) and Guangzhou (23.10) rank the 3rd,4th, 5th and 11th respectively in the world, and Hong Kong (46.89) ranks the 2nd in the world, so we can see that these cities in China have been almost at the top[3]. Among developed countries, London is an internationally renowned city with high housing prices, but its housing price-to-income ratio is 20.58, far lower than Beijing, Shanghai and Shenzhen. Furthermore, the ratios of such other international metropolises as New York, Tokyo, Paris and Berlin are 11.93, 12.97, 18.51 and 10.38 respectively. To sum up, the ratios in Beijing, Shanghai and Shenzhen are several times higher than other foreign cities. For this reason, the residents in above Chinese cities are faced with the biggest pressure of housing purchase in the world, that is to say, they are hardly to afford a home.

[1] See http://www.sohu.com/a/225313656_99961827

[2] See https://www.numbeo.com/property-investment/rankings_by_country.jsp

[3] See https://www.numbeo.com/property-investment/rankings.jsp?title=2018-mid&displayColumn=0

Generally speaking, China's real estate market has made remarkable contributions to the development of economy, but also caused many troubles. Accordingly, the government at various levels, enterprises and academia still need to carefully summarize the experiences and lessons, explore and strive to find a better development path for real estate market.

(4) Economics analysis

① Land conversion is too important to be ignored by modern economics

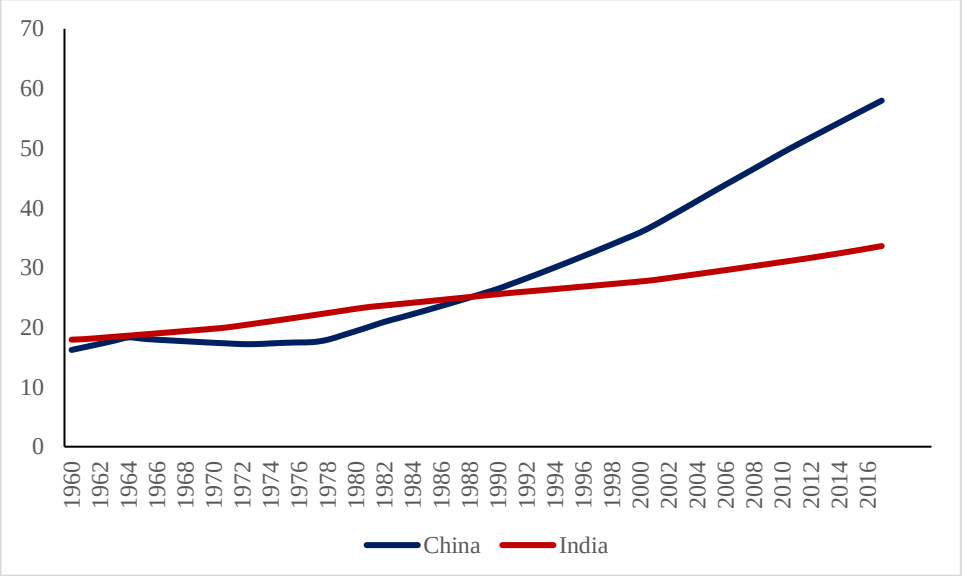
Land conversion was a key issue in classical political economy. Early in the era of the industrial revolution, economists such as Smith and Riccardo had gone through mass discussion about land conversion. **However, modern economics has not paid equivalent attention to this issue.** As major developed countries entered post-industrialization development, little discussion on land conversion remains in current mainstream economics textbooks. Modern economics holds an assumption that, as long as the property right of land is defined, land conversion would be carried out through Coasian negotiations. **However, the cost of Coasian negotiations can be astonishingly high, which makes land conversion very costly.** The process of industrialization, urbanization, and the development of the real estate market is highly dependent upon the conversion of agricultural land into non-agricultural use, and as a planner of the geographical distribution of economic activities, the government is essential to direct the process of land conversion.

First, the conversion between agricultural and non-agricultural land affects the urbanization process. Once agricultural land cannot be successfully converted into non-agricultural land, the process of urbanization and industrialization will be hindered. Second, the specific use of urban construction land seriously affects the economic activities of a region. The conversion between industrial and commercial and residential land will directly affect the local economic development track. Last but not least, the construction and distribution of a large number of public works and infrastructure, including public transport systems, are closely related to the allocation of land resources.

We take India and Brazil as examples to demonstrate the negative impact of laissez-faire land policies on economic development. India established the feudal private ownership of land during colonial period, and after its independence, it has never been able to thoroughly reform this system. A large amount of land was concentrated in the landlords, which form a major obstacle to India's industrial development and urbanization. From the view of urbanization rate, both India and

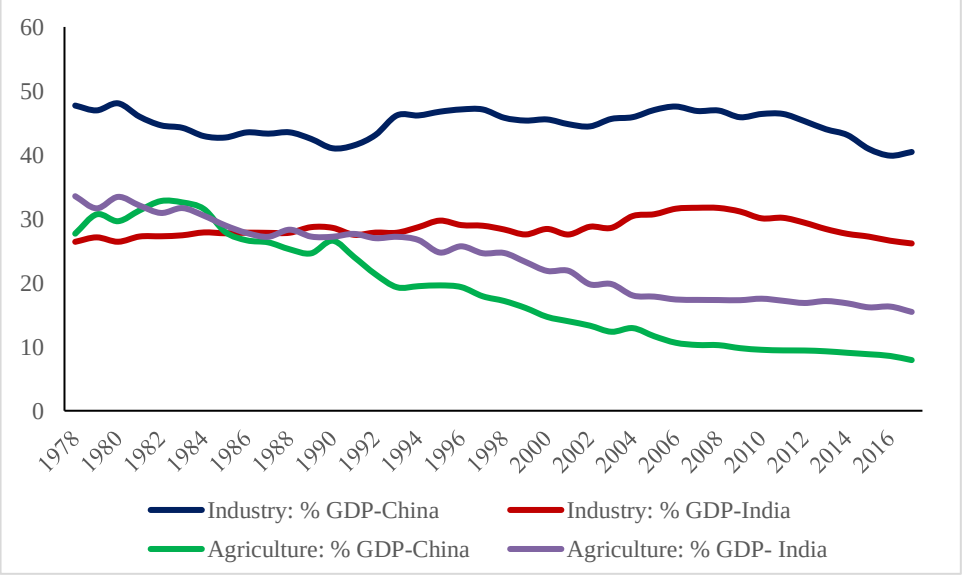
China were less than 30% in 1978, but India was ahead of China with about 5% points. However, India's urbanization rate was kept at only 33% in 2017, far lower than China. From the perspective of industrial structure, China's primary industry's share in GDP has fallen to 8% and China has begun the transformation and upgrading of the secondary and tertiary industries, while India has greater dependence on agriculture, and the proportion of its industry in GDP is still below 30%.

Exhibit 41: Urbanization rate of China and India



Source: WDI

Exhibit 42: GDP Composition of China and India



Source: WDI

Brazil's development is different from India, but it is another state in which the government non-intervention of allocation of land resources exerts adverse effects on the economy. Brazil's land system evolved from the large manor system of Latin American colonialism. At the end of the 19th century, Brazil began the modernization, but the degree of land concentration increased in some sort rather than decreased. By 1950s[1], 78% of farmers in Brazil still had no land, while the large manors had a large scale of operations with an average operating area of 2,000 square kilometers. In 2003, its manors with more than 2,000 hectares accounted for 0.8% of the total number of farmers, but these manors' land represented 31.6% of the total land[2]. Under the system in which the land is highly concentrated in the manor owners, Brazil's urbanization has experienced abnormal development. As a large number of landless farmers rushed into the city, Brazil completed its urbanization in the 1980s, and its urbanization rate rose to 84.2% in 2005. However, the formal housing market has limited capacity, and the poor rural labor force that entered the city has no ability to buy a house. For these reasons, the constraints of both supply and demand have led to the failure of Brazil's urbanization economy to start effectively. Therefore, the slums have been growing and spread across all large and medium-sized cities in Brazil. According to census in 2000, there were 3,905 slums in Brazil, an increase of 717 from 1991. There was a population of 5.85 million in urban area of Rio de Janeiro, among which, more than 1.5 million lived in 513 slums. The Rosinia slum, with a population of more than 300,000, is known as the largest slum in Latin America. In the mid-1970s, the population of working in Brazil's manufacturing field accounted for 20% of the total working population, while the urban population represented 61% of the total population. It can be seen that the industrialization divorced from urbanization[3].

Second, land conversion has an all-round impact on regional economic development, including enterprise entry, industrial transformation and upgrading, etc. And the enterprise entry and industrial transformation will be greatly improved when the government can reasonably guide the allocation of land resources.

[1] HAN Jun, CUI Chuanyi and ZHAO Yang, 2005: Slum Issues in the Process of Urbanization in Brazil and its Implications for China, China Development Reservation, No. 06.

[2] LI Ruilin and WANG Chunyan, 2006: Urbanization in Brazil and its Implication for China-Compared with China's Urbanization, Journal of Yanbian University (Social Science Edition), No. 02

[3] ZENG Xianming, 2011: Land Problems in the Process of Industrialization and Urbanization-A Case Study of Brazil, Productivity Research, No. 01.

This is well demonstrated by the case of "Industrial Relocation and Re-planning Program" (i.e. the partial enterprises move from Tiexi District to Economic and Technological Development Zone), which we learned in the process of investigation in Shenyang. In 2002, the reform of state-owned enterprises in Tiexi District was faced with many difficulties. For example, the asset-liability ratio of more than 1,100 state-owned enterprises was over 90% and half of 300,000 industrial workers were on the verge of unemployment. Accordingly, Tiexi District government proposed the "Industrial Relocation and Re-planning Program", and successfully revitalized old industrial area through rational land development and utilization. Tiexi District government allocated the land resources to those in need through conversion of the industrial land where the city center enterprises are located into the commercial land. At the same time, the district government solved the urban environment construction of old city by using income of land price difference and reestablished the factory in the western development zone for enterprises moving out. By 2005, Tiexi District has basically weathered the difficulties of state-owned reform. Regarding RMB14 billion income from land exchange, RMB5 billion was used to resolve the historical legacy of state-owned enterprises, RMB5.5 billion to support new establishment and development of enterprises moving the west, and RMB3.5 billion to reconstruct the center of old city so that RMB3 billion of debts can be repaid and 150,000 workers can be resettled. The dilemma of the reform of state-owned enterprises in 2002 indicates that some land resources in Tiexi District had been unreasonably allocated. To be specific, on the one hand, the old city was unable to provide industrial enterprises with elements necessary for further industrial development, so these enterprises were faced with the development difficulties; on the other hand, the old city had a large population and demands due to many years of its construction and had great appeal to commercial development investors, but investors cannot enter the old city due to then planning. Tiexi District government's bold transformation of land use patterns is line with the demands for rational distribution of resources, has successfully repaid the reform costs of state-owned enterprises, and completed industrial transformation of the old city and the construction of a new development zone.

② Government can play an active role in the conversion of land usage

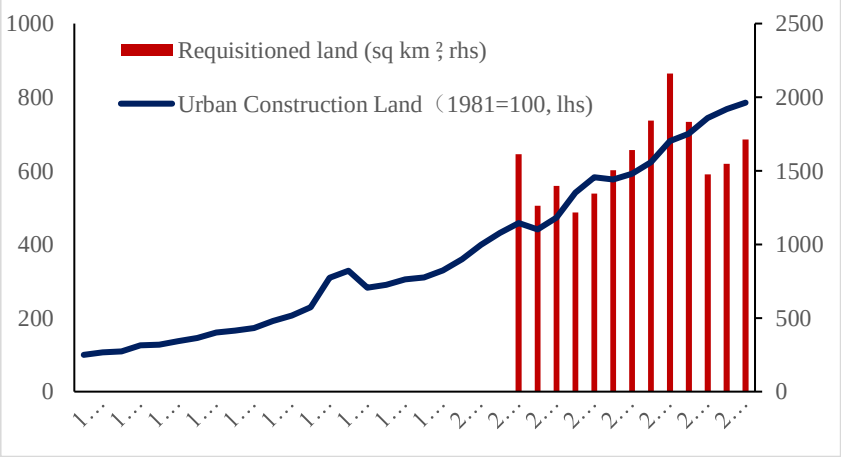
The development experience in China's real estate market over past two decades indicates that regardless of land ownership, government can play an active role in the conversion of land usage.

First, local governments need to be incentivized to help reduce the transaction costs of land conversion. In China, local governments instead of the real estate agents is directly involved in negotiations with users of agricultural land, greatly accelerating the conversion of land from agricultural to non-agricultural. On the one hand, the government's ability to coordinate and negotiate is far greater than that of a single developer. And the government can collectively negotiate with the land users in the relevant district, which improve the feasibility of the whole conversion of land use patterns in the relevant district. On the other hand, the flexibility of government negotiations is stronger than that of a single developer. In addition to cash compensation, the government also provides non-cash compensation through comprehensive use of resources, such as settlement of employment, significantly reducing negotiation costs.

What's more, the Chinese government has closely tracked the least cultivated land areas in the process of coordinating the conversion of land from agricultural to non-agricultural. The government has paid close attention to changes in cultivated land areas and strictly implemented a "red line" of 1.8 billion mu (120 million hectares), which provide a greater guarantee for China's food security.

Since implementing the policy of reform and opening-up, China's urban construction land areas have risen rapidly. The start of housing reform policy and real estate market in 1998 also promotes the urbanization process. The national urban construction land area was only 6,720 square kilometers in 1981, and in 2016 it has reached 52,671.3 square kilometers.

Exhibit 43: Expansion of Urban Construction Land in China



Source: NBS of China

Exhibit 44: Land Conversion in China

Source: NBS of China, Ministry of Natural Resources, ACCEPT calculation

Second, there needs to be top down overall planning of land usage, including urban planning, regardless of ownerships. In China, the land and resource authorities and the urban planning organs make an overall plan on the distribution of land use patterns. In the United States and Europe, despite the private ownership of land, the relevant government authorities still manage the land use patterns. There are development planning departments at various levels of the U.S. government[1]. The federal government is responsible for conducting the national development planning and adjustment, while local governments at the city or county level directly participate in the specific urban planning. The local urban planning department issues the *Guidelines for Urban Master Planning and Development* with a valid term of twenty years to illustrate the objectives and location of the residential, commercial and industrial land. Based on the Guidelines, the planning department of each community specially determines the detailed construction objectives of each sub-district, including land use, transportation and public service facilities. Moreover, the U.S. urban planning commission sets forth requirements on the storeys, floor area ratio and even appearances in a certain area. For example, when Trump planned to build a Trump Tower[2] in New York, he conducted a long-term negotiation and communication with

[1] SHI Jian and XU Liqun, 2004: Discussion on the U.S. Urban Planning System: A Case Study of San Diego County, Foreign Urban Planning, No. 04.

[2] Tony Schwartz and Donald Trump: *Trump Autobiography*, pp. 112-113.

local urban planning committee in order to build a tall building with a floor area ratio of 21.6 among lower building complexes, and finally obtained the affirmative votes of the commission through media and other multi-party operation. Furthermore, in the preparation of the Trump International Building in Chicago, a tug-of-war with the local urban planning committee was also carried out due to public transportation problems. These indicate that the United States government is very strict with the management of land use. In Germany[1], the Urban Development and Research Department publishes the urban construction plan in a legal form, providing for the possible usage of all development projects. The management scope of the construction plan covers whether a certain residential area is allowed to build partial office or industrial buildings and that no any buildings may be built within the scope of the land allocated to public facilities and roads[2].

After the Second World War, with the guidance of the United States and the cooperation of each relevant government, Japan, South Korea and Taiwan implemented the policy of compensated land use to reform the feudal land ownership and reduce the concentration of agricultural land and monopoly. Moreover, before the 19th century, the United States experienced a series of problems such as overcrowding and poor sanitation due to lack of planning for urban development and land use. Finally, "Zoning Regulations" was adopted in New York State in 1916, and by 1926, all states in the United States adopted their own Zoning Regulations to plan and guide the land use patterns[3].

In addition to regional economic development and urbanization, the government's direct or indirect guidance of allocation of land resources also contributes to the construction of important public facilities and infrastructure. In China, the urban land is owned by the state, so it is easier for the government to carry out the infrastructure construction including road. In the United States, based on the private ownership of the land, each of the federal and state government owns a part of the land in order to carry out the important infrastructure construction. Take Santiago, the land owned by the

[1] WANG Tian, JIANG Yao and YANG Chengquan, 2009: German Urban Planning and Construction, Urban Development Research, No. 6.

[2] WANG Xiaochuan, 2005: Germany: Statement and Cases of Urban Planning Public Participation System, Beijing Planning and Construction, No. 06.

[3] SUN Shiwen, 1999: Urban Planning System of the United States, Urban Planning, No. 07.

federal government accounts for 27.7%, and the state government, 27.1%[1]. Besides, the *Important Space Law* in the United States also ensures that the government can reasonably expropriate the land with compensation to carry out the construction of public facilities involving defense, water conservancy and transportation[2].

③ Local governments need to be incentivized to mitigate the social problems of a free real estate market

After two decades of development, China's real estate market have significantly improved the living conditions of residents and formed China's largest asset market. Although the government's guidance of land resources has promoted economic development, the government still needs to further improve the rational regulation on the real estate market, and accordingly the Chinese real estate is facing with many problems.

First, the Chinese local governments face more incentives to build industrial parks than housing, causing high housing prices. The Chinese local governments are encouraged to promote economic development by guiding the allocation of land resources. In addition, the long-term tax revenue generated by attracting investment is far higher than the fiscal revenue brought by one-time land transfer (taking into account the compensation for demolition and other issues, the government can actually receive limited income from transfer of land), so the Chinese government give priority to increasing the proportion of industrial land when deciding how to use the land. Under local land transfer system with pursuit of economic growth, the industrial and commercial land proportion in the urban construction land stays at a high level, and the supply of residential land is seriously insufficient. This has greatly promoted rapid development of China's economy, but this rapid development is at the expense of a large amount of land consumption and transfer of land at high prices. In terms of increments, the proportion of residential land in newly added land each year is less than 30%, and the proportion of newly added supply of residential land in first-tier cities is kept at 20% or low. Regarding the stocks, China International Capital Corporation released an analysis report on the supply potential of China's construction land at the beginning of 2010. [3]According to the data in this report, the residential land in Japan accounts for 76% of its land. The residential land in New York accounts for 42.4% of construction land, Seoul, 62.5%, and London, 46.7%. However, this indicator is only

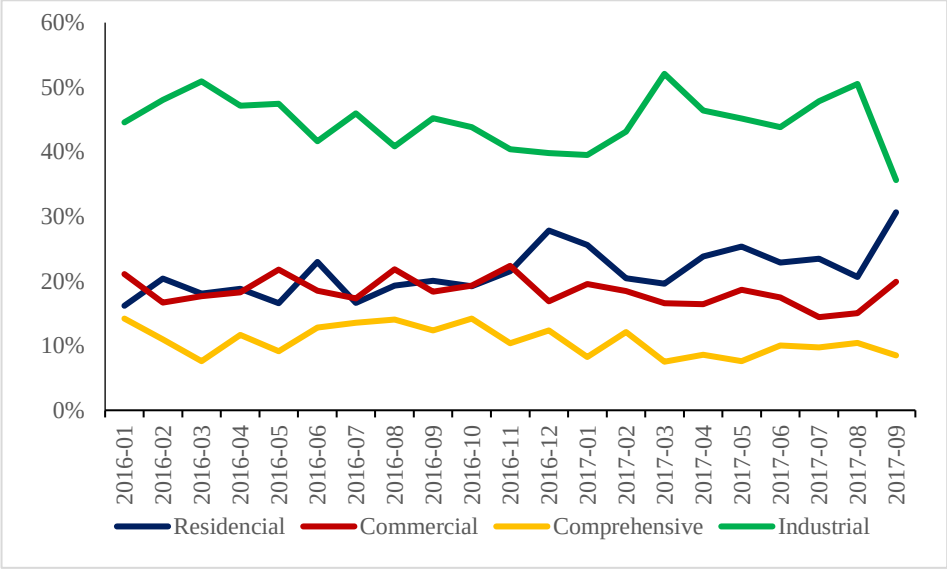
[1] SHI Jian and XU Liqun, 2004: Discussion on Urban Planning System of the United States: A Case Study of San Diego County, Foreign Urban Planning, No. 04.

[2] BAO Donghai, 2004: How the United States Prevents the Abuse of Demolition Privileges, China Real Estate Information, No. 02.

[3] CICC-100112: Real Estate-Land is not scare, so we will analyze the construction land supply potential in China

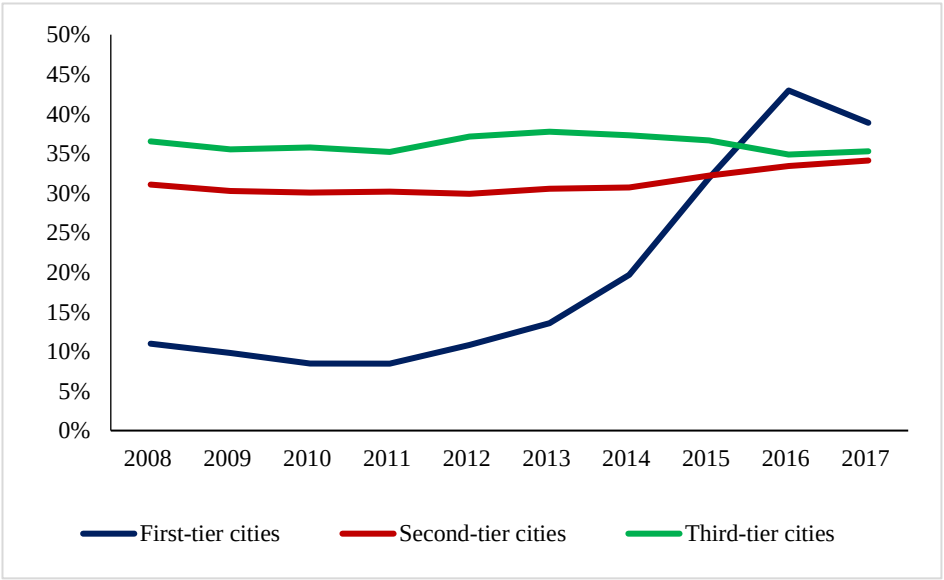
30% in China's cities. The reason why the urban housing prices has been rapidly rising and staying at a high level is the lack of supply of residential land.

Exhibit 45: Proportion of Land Supplied: Usage (Monthly)



Source: NBS of China, Wind

Exhibit 46: Proportion of Residential Land in Total Land Supply



Source: NBS of China, Wind

sSecond, the real estate market has achieved rapid development as a whole and the per capita housing area has increased fast, but the distribution of housing resources has experienced a serious imbalance. The low- and middle-income people are unable to afford the housing due to the continuous rise in housing prices. This phenomenon is

particularly serious in large cities such as Beijing. China's urbanization will encounter similar challenges with Brazil if this contradiction cannot be effectively alleviated.

Last, the government has stronger negotiation ability in the process of the converting land from agricultural to non-agricultural, so the interests of agricultural land owners are damaged. China's provisions on compensation for demolition and settlement of "nail households" have been constantly improved, but they still need to be further clarified. In addition, the government should have different ideas for guiding the land use patterns in different stages of economic development. At present, as the urbanization has developed to a higher level, China is reforming the agricultural land expropriation, and developers in some regions have begun to negotiate directly with farmers.

Since its inception, the Chinese real estate has served as dual position for promoting economic development and improving residence. In the past two decades, the overall positioning of the real estate market was inclined to its economic function. For example, one of the purposes of the housing reform in 1998 was to cope with the Asian financial crisis in 1998. In addition, China made its major efforts to develop and invest in the real estate market in order to answer for the global financial crisis in 2008. Faced with the above problems, China's real estate market is experiencing a transformation of the function from economy to people's livelihood. China should learn from the countries and regions that better perform the function of people's livelihood of the real estate market, and should properly balance and transform between two functions of the real estate market.

The German approach：To promote and regulate the rental market

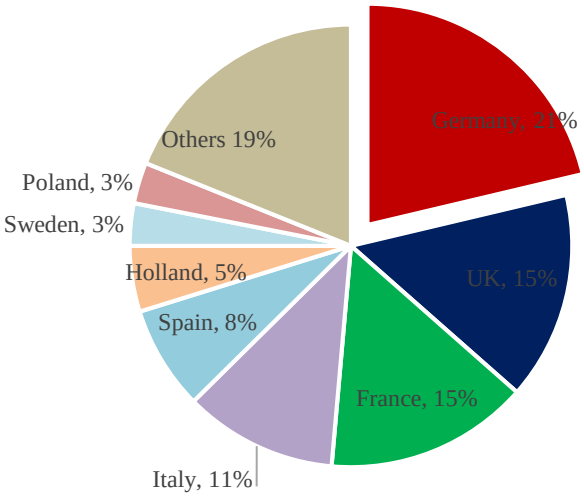
Housing prices in Germany have been stable and have not experienced significant fluctuations in the past decade. After the 1990s, European countries emerged from the real estate market bubble burst and experienced a new round of housing price growth, while housing prices in Germany "remained unmoved" and was extremely stable. During seven or eight years before 2008 economic crisis, the price-to-income ratio of UK, France and the United States continued to expand, raising by an average of 30%, while this ratio in Germany is not only the lowest among four countries, the trend was extremely stable, and this ratio had fallen slightly even in many years. During the economic crisis, the other three countries experienced the bursting of real estate market

bubble and their housing prices underwent difference degrees of cliff-like decline. In contrast, the German housing market survived this crisis steadily. Germany contributed to the recovery of the European and even the world economy after economic crisis.

Looking at Germany, in the past ten years, in addition to the negative impact of the global financial crisis in 2009, the German economy has maintained steady growth, and national income has increased. Moreover, the growth rate of Germany's housing price is far lower than that of GDP in the most of time.

In terms of horizontal comparison, the German economy is highly developed and its economic volume accounted for about one fifth of the total economic output of European Union (28 countries) in 2007, but housing prices in Germany were far lower than other European countries. In 2007, the aggregate GDP of Germany, UK and France represented about a half of the EU economy, but the average price of the commodity house in Germany was EUR5,907, far lower than UK (EUR23,932/sqm) and France (EUR12,796/sqm). Compared with other EU countries, Germany's housing prices were at a low-and-medium level in the EU countries. In short, Germany has created a "miracle" of stable housing market prices for many years at the time as it maintains stable economic growth. This is a rare case in the world, and China learn from the experience of Germany.

Exhibit 47: Proportion of GDP for Major EU Countries in 2017



Source: IMF and EuroStat

An important reason why German housing prices are stable is that Germany has a well-established leasing market and imposes strict tenancy control to fully protect tenants' rights and interests. About of 60% of the population in Germany live in rented house, and the remaining 40% have their own homes. The renting rate is as high as 82% in such big cities as Berlin, Hamburg and Frankfurt as well as the surrounding regions. At present, the government-subsidized housing and the market-based rental housing represented about 8% and 92% respectively in the housing renting market in Germany. [1]The German government imposes strict rent control on both government-subsidized rented housing and market-based private leasing markets, namely, the implementation of the rent price guidance system. Local governments and industry associations prepare a list of rent according to different locations, housing structures and quality, and propose the rent guidance price in line with the market conditions of various regions as the reference for execution of the contract by and between the leaser and the lessee. The government also promulgates the corresponding laws and regulations to ensure the implementation of the guidance price. If the rent for a new contract exceeds 20% of the rent of a house with the same quality and on the same district, such rent shall be deemed as the "extra high rent". The tenant can bring a lawsuit in accordance with the *Economic Crimes Act*, demanding that the rent be reduced to a reasonable extent, and the landlord will be fined up to 100,000 marks at the same time. If the rent fixed by the landlord exceeds 50% of guidance price, such landlord shall be deemed to commit the "excessive profit of rent" and be sentenced to up to 3 years in prison. [2]The landlord shall not raise the price arbitrarily once the housing contract is executed. If the rent increases by more than 15% within 3 years, such rent will be also regarded as "extra high rent", and the landlord will be subject to punishment in accordance with law. What's more, the landlord shall not be entitled to terminate the tenancy agreement at its will. Generally speaking, the term of tenancy agreement is indefinite in Germany. Unless the tenant fails to fulfill its obligations as specified in the agreement, the landlord may terminate the agreement only after giving reasonable reasons and notifying the tenant by 9 months' notice.

Second, Germany implements the strict housing pricing mechanism to directly guarantee the stability of housing prices. The housing prices in Germany are

[1] YI Yuzhu, 2015: Housing Renting: A Choice of Most Germans--Germany's Perfect Housing Renting System, China Construction, No. 06.

[2] HE Fang and TENG Xiuxiu, 2017: Reference and Enlightenment from Control on German Residence Renting and Preparation of Rent System, Price Theory and Practice, No. 03.

determined by independent property appraisers and the appraisers are legally responsible for appraisal prices. What's more, the guidance price have legal effect, all rest estate transactions are obliged to comply with this guidance price, and the transaction price must float with reasonable scope. According to the *Economic Crimes Act,* if the a real estate developer sells the houses at the price higher 20% than the reasonable price, this price shall be deemed as the "excessive housing price", and if the developer fails to reduce the price to the reasonable range immediately, then the seller will be fined up to EUR50,000. If a real estate developer fixes a housing price higher 50% than the guidance price, such developer shall be deemed to commit "excessive profit of housing prices", and the seller may be sentenced to less than three years in prison in addition to the huge fines.[1]

Third, Germany focuses on strengthening the social attribute of housing and weakening its financial attributes. The German government has clarified in its Constitution that the basic functions of the state and the government are to guarantee the living conditions of residents, and the housing is used as the consumption product to meet the needs of citizens rather than investment products. On the one hand, the government provides a stable amount of social welfare housing each year, to meet the housing needs for low-income groups in the form of in-kind subsidies. On the other hand, German government grants monetary housing subsidies for residents to rent and purchase homes nationwide. The speculation in the real estate markets is also severely restricted by the corresponding tax system. The property tax in Germany mainly includes two aspects: property holding tax (property tax) and transaction tax. [2]The former is levied on the residential houses each year. The tax rate determined by the federal government is 0.26%-0.60% of the housing appraisal prices, then the local governments multiply the above ratio by the local coefficient, and the final tax rate is generally between 0.98% and 2.84%. The first self-owned home is subject to the lower tax rate, and those holding several homes are subject to a higher property tax. In terms of transaction tax, the laws in Germany provide that the housing transacted within 10 years shall be subject to 3.5% of transfer fee, 1-5% of assessment fee, 25% of capital gain tax and personal income tax with progressive tax rate, and without payment of capital gain tax for a house with more than 10 years. If the house with less than 7 years

[1]YE Chuanjie [2017-07-14].*Long-term Regulation--How do we imitate the "New German Model"?* https://www.sohu.com/a/157172867_617246

[2] WANG Jianqiang, 2012: Experience in German Housing Prices Regulation and its Enlightenment for China, Price Theory and Practice, No. 02.

is transferred, it may be subject to the comprehensive tax rate of up to 50%. The German government has greatly increased the cost of real estate speculation through establishment of tax system to effectively suppress the speculative transactions in housing.

Forth, in addition to economic policy factor, the stability of German housing prices is also attributed to certain historical and political reasons. Germany has been in a long-term division in history until the second half of the 19th century. For a long time, hundreds of independent states have contributed to unique historical conditions, and Germany was not allowed to concentrate resources on development of its capital. Germany has adopted the federalism to this day. Each state has independent economic and cultural autonomy. Resources will not be excessively concentrated in the capital, finally forming a balanced urban model. Germany has not seen a very large-scale city with a population of 10 million, but it has many small and strong world-class cities such as Frankfurt and Munich, which avoid the objective pressure of high housing prices brought about by high population to a certain extent. However, with the acceleration of domestic economy, improvement of the employment market and the lack of supply of existing homes in recent years, some major cities in Germany are also faced with the pressure of the rapid rise in housing prices. Currently, Germany is studying the tax incentives to be promulgated to grant tax preference to the construction of ordinary new houses, increase the supply of housing market and "cool down" the housing market.

We can learn a lot from Germany's stable real estate: firstly, we will decentralize function of large cities to alleviate the pressure on urban population. At present, China's high housing price problem is particularly prominent in first-tier and quasi-first-tier cities. These cities have concentrated population and heavy traffic, so the limited land supply within a certain period of time will inevitably lead to objective problems of high housing prices. We will realize the functional division of large cities and gradually drain the population to second- and third-tier cities, alleviating the excessive intensive pressure of large cities and also promoting the balanced development of regions and cities. Secondly, we will imitate the guidance price system of housing prices and rent implemented by Germany, and guide buyers to form rational and reasonable housing rent expectations. In the past ten years, housing prices have continued to grow and other investment channels are limited. Many people still regard the house as the most important investment channel for wealth growth and have speculative psychology.

They hope to sell and purchase the houses purchased to realize rapid wealth appreciation. Regarding the fact that people waited in line at the sales office to buy the housing overnight in the second- and third-tier cities in past two years, it is not difficult to see that many speculators expect that the housing market in these cities will replicate the history of rise in housing prices in the first-tier cities such as Beijing, Shanghai, Guangzhou and Shenzhen, and prepare to "try their best". Therefore, it is important to guide the people to form a reasonable expectation of the real estate market. To implement the price guidance system will provide the help and guidance for really forming the reasonable prediction and rational cognition that "housing is used to live, not for speculation". Thirdly, we will severely crack down on speculation, increase capital gain tax on real estate transfer transactions in a short period of time and property holding tax on idle housing, and encourage that the idle housing will be rented to increase the supply of renting market.

The Singaporean and Hong Kong approach: Public housing provided by the government

Singapore is a city state with a small land area and dense population. The population density is about 7,300 persons per square meter. It is one of the world's top three crowed countries, but it has successfully achieved the "Home Ownership Scheme", and the ratio of homeowner households is 90.7%, ranking the second in the world[1]. The main measures taken by the Singapore government to successfully solve the housing problem are to fully develop and provide low-rent and low-cost housing--"HDB flats". A dual-tract system consisting of the public HDB flats as the first and the private housing as the second is formed.

According to the Housing and Development Board (HDB) of Singapore, by March 2017, about 82% of population lived in government-built HDB flats, and the remaining 3% of low-income families rented HDB flats from the government. The government has strict requirements for the purchase and application of HDB flats. Only Singaporean citizens can purchase new HDB flats, and permanent residents can only buy second-hand HDB flats. Except for public HDB flats, the remaining 18% of housing system is made up of private housing. The buyers of private housing mainly

[1]Wikepedia https://en.wikipedia.org/wiki/List_of_countries_by_home_ownership_rate

include high-income Singaporeans, Singapore permanent residents and foreign investors.

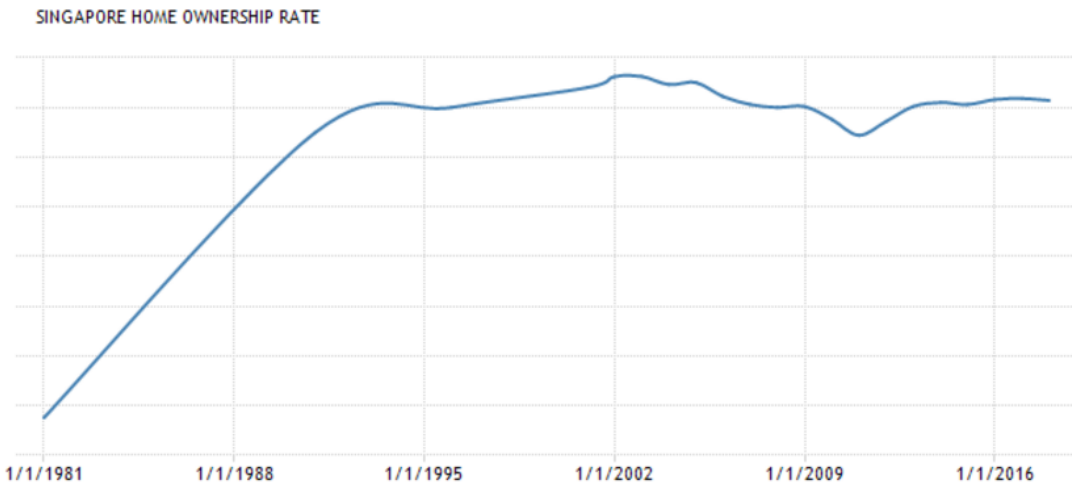
Singapore's existing housing system, which is dominated by HDB flats and supplemented by private housing, is not "one-stop". After the Singaporean autonomy, the government's housing policy has gone through five stages. The main trend is that public HDB flats have gradually shifted from rent to ownership. A diversified residential market will be developed when the residents self-owned house rate is stabilized to a certain degree.

Early the Singapore's autonomy, the government promulgated the *Housing Development Law* in 1960[1] to establish the Housing Development Board (HDB) and build low-standard, small-sized houses on a large scale, so as to mainly meet the housing renting demand of law-and middle-income people. Subsequently, in order to enhance the national identity of the people, the government began to encourage the low-and meddle-income groups to purchase HDB flats by installments, gradually increasing the housing ownership rate. In 1964, the Singapore government issued the "Home Ownership Scheme" to encourage the home ownership; and in 1968, the *Central Provident Fund (Amendment) Act* was introduced to allow home buyers to use the central provident fund to purchase public HDB flats. Since the 1970s, the scope of the subjects to which the public HDB flats are provided has gradually expanded from low-income to middle-income groups. By 1975, 47% of the country's population lived in HDB flats. After the problem of housing shortage for low-and middle-income residents was basically solved, the government begun to focus on improving the quality of HDB flats, increase the types of housing units, and develop the high-rise and high-density housing. Around the 1980s, the public housing market entered a mature period, the supply of HDB flats become saturated, the number of new houses was significantly reduced each year and the resale transactions of HDB flats gradually increased. The ratio of homeowner households reached around 90% in 1990, and the proportion of people living in HDB flats peaked at about 87%. Since the 1990s, the housing security function of small-sized HDB flats had been fully utilized, and the supply of HDB flats begun to be dominated by large-sized units (four or five bedrooms). With the improvement of people's income level and the development of globalization, the

[1] China Report Network, [2017-10-16]. Analysis of China's Real Estate Market Status and Research Report on Investment Development Trend.
http://market.chinabaogao.com/fangchan/10162a4N2017.html

demands of private housing for high-income residents, permanent residents and foreigners are growing. The government began to give policy support to the private residential market and promote its gradual development. The proportion of the population living in HDB flats has also begun to decline, from 87% in 1990 to 82% in 2017.

Exhibit 48: Ratio of Homeowner Households in Singapore



Source: Trading Economics, Singapore Statistics

The public HDB flats in Singapore are characterized by government subsidies for construction, adequate supply and stable prices. The Singapore government is the only seller of new HDB flats and fully controls the pricing power of HDB flats. It implements this policy on prices of HDB flats in order to maintain a stable low growth rate. Secondly, the Singapore laws provide very strict and clear rules for the application of the public HDB flats[1]. To be specific, there are clear income restrictions for purchasing new public HDB flats. The people with the monthly household income exceeding the upper limit only apply for buying the HDB flat on the second-hand market. Furthermore, each family can only buy one set of flat. If you want to purchase a second set, you can buy the one that is more expensive than the new HDB flats from the second-hand market only after selling the first set. What's more, the laws also require the identity of the applicants of HDB flats, namely, the applicants must be Singapore citizens or Singapore permanent residents. Thirdly, besides the construction and supply of HDB flats, the government has implemented a clear and reasonable system of public HDB flats distribution, and adopted the purchase and rent subsidy

[1] ZHANG Handong, 2018: Singapore's HDB Flats System, Zhejiang Economics, No. 01.

policy in order to increase the residents self-owned house rate. For example, in terms of rents, the government requires that the rents generally account for 4 to 15% of household income, [1]far lower than the market-based housing prices. Regarding the housing prices, the government has set the principle that 90% of families can afford three-bedroom flats, and 70% of families can afford four-bedroom homes. HDB provides corresponding purchase price concessions according to different types of HDB flats. The smaller the size of the HDB flats, the higher the discount. For example, the three-bedroom and four-bedroom discount is 44% and 33% respectively, and the like. In addition, the government also has directly granted the housing purchase and rent money subsidies to some eligible people, such as first-time married buyers, single Singapore citizens, and low- and middle-income people.

Singapore has perfected its established HDB flats System. Objectively limited by the extremely low per capita land occupation rate, it has realized the "Home Ownership Scheme", and is leading in the world's home ownership rate. The enlightenment and reference for us includes:

First, the government should directly participate in the supply and management of the housing market. Singapore implements a market economy, but its housing construction and distribution do not rely on the market forces entirely. The government establishes and fully guides the housing market dominated by the affordable HDB flats system. Its government not only sets up a special administrative management agency-HDB to conduct the centralized planning, construction, distribution and management, but also establishes a financial support system including the corresponding provident fund system and promulgates perfect laws and regulations to guarantee the normal and smooth operation of HDB flats system. It turns out that a perfect housing system needs the cooperation and coordination between the government and market.

Second, the government should establish an effective land supply mechanism. The Singapore government has implemented a mandatory land acquisition policy and forced the expropriation of private land as construction land through legislation. As limited by the extremely scarce land resources, Singapore has become one of the few countries in the world to include the residential, commercial and industrial land into the

[1]LI Junfu, LI Wei, LI Zhigang and XUE Desheng, 2012.Study and Reference of Singapore's Affordable Housing Policy, International Urban Planning, No. 04.

scope of government land acquisition[1]. At present, the total land area of the Singapore government accounts for about 90% of the national land area. Therefore, the Singapore government has sufficient capacity to effectively regulate land supply and meets the needs of construction land of HDB flats in a timely manner[2]. The land market is closely related to the real estate market. To regulate and manage the real estate market, the government should first reorganize the relationship between the government and the land market in order to secure a stable real estate market with a sound land market.

Third, the government should improve the provident fund system. Singapore's provident fund savings are important financial support for the HDB flats and also financing guarantee for individual purchase of HDB flats. Singapore implements a comprehensive central provident fund system involving pension, housing, medical care, insurance, education and other purposes. Such system consists of ordinary, medical and special account. The ordinary account can be used to purchase the house, and is a mandatory savings plan in essence. The employee is required to pay 20% of its own salaries to individual account, and the employer is required to pay about 17% to the account of employees[3]. The provident fund paid by the individual and employer shall be uniformly collected, managed and operated by the Central Provident Fund Board (CPFB). On the one hand, in addition to retaining the withdrawal of its members, CPFB will transfer about 80% of the provident fund to the Central Government through the purchase of government bonds, and then the government will use this fund to build and subsidize the public HDB flats in the form of allocation and loan. On the other hand, the provident fund is also a part of the source of funds for residents to buy a house. According to the *Central Provident Fund (Amendment) Act* promulgated in 1968, the members of Central Provident Fund may use the provident fund deposits to directly pay the partial price for purchase of a HDB flat, and subsequently the government adopted a more liberal policy so these members can use the provident fund deposits to pay all prices for purchase a HDB flat. In certain circumstances, with the provident fund, price preference and housing subsidies, Singapore citizens can even purchase a house with zero down payment, and the residents' ability to buy homes is greatly

[1] LIU Anlin, 2005: Measures of Intensive Land Use in Singapore and its Development Trends, Science and Technology Management of State Land and Resources, No. 04.

[2] XIE Baofu, 2015: Success and Implication of Singapore's HDB Flats Policy-and Discussion of Enlightenment for China's Affordable Housing Policy, China Administration, No. 05.

[3] The payment rate will gradually decrease after the employee is over 50 years old.

improved. [1]This respect is worth learning by us. Accordingly, China need to improve the provident fund system to increase the residents' home affordability, guide the flow of domestic provident funds to the construction of government-subsidized housing, and also attract the other insurance fund into construction of government-subsidized in order to ensure adequate funding for public affordable housing construction.

[1] BAO Zonghua, 2005: See Importance of Regulating Housing Prices from the Experience of Singapore and Germany, China Real Estate Information, No. 07.

3. Financial Deepening and Financial Stability

(1) Achievement 1: The Chinese economy has managed to avoid financial crisis during the past 40 years

First of all, we feel it necessary to define the concept of "financial crisis". The academia tends to categorize financial crisis into currency exchange crisis, hyperinflation, international balance risk, debt crisis and banking crisis (Claessens and Kose, 2013[1]; Reinhart and Rogoff, 2009[2]; Eichengreen and Bordo, 2003[3]). Specific criteria include quantitative index and critical events. For quantitative index, , for instance, Frankel and Rose (1996)[4] define currency crisis as the exchange rate depreciation in a particular year exceeding 25% and at least 10% higher than the previous year. Reinhart and Rogoff (2009) define currency crisis as the exchange rate depreciation in a particular year exceeding 15%. For critical events, for instance, the bankruptcy of Lehman Brothers in 2008 is often regarded as the symbol of the outbreak of the 2008 global financial crisis.

According to this literature, we may argue that the Chinese economy has managed to avoid financial crisis during the past 40 years.

First, in light of currency exchange rate, during 1980-1994, China implemented the "dual track" exchange rate system in which official exchange rate and adjusted market exchange rate coexisted. During that period, the exchange rate used to fluctuate drastically, and this actually mainly reflected the government's subjective will and active adjustment. In 1994, the foreign exchange management system was greatly changed and China made it clear that the ultimate objective of RMB reform is free exchange. Official exchange rate and adjusted market exchange rate were unified, and RMB began to be unofficially pegged to the US dollar. The exchange rate of 1 US dollar to RMB rose quickly from ~5.8 to ~8.7. After that, the exchange rate remained basically stable. After the "811" exchange rate reform in 2015, the RMB began to depreciate but the maximum year-over-year monthly depreciation rate was merely ~7.5%. **We can say that there has been no currency exchange crisis since the start of China's Reform and Opening-up**.

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[1] Claessens, Stijn, and Mr M. Ayhan Kose: Financial Crises Explanations, Types, and Implications. No. 13-28. International Monetary Fund, 2013.

[2] Reinhart, Carmen M., and Kenneth S. Rogoff: This Time is Different: Eight Centuries of Financial Folly. Princeton University Press, 2009.

[3] Eichengreen, Barry, and Michael Bordo: Crises Now and Then: What Lessons From the Last Era of Financial Globalization? Monetary History, Exchange Rate and Financial Markets: Essays in Honor of Charles Goodhard, Cheltenham: Edward Elgar 2 (2003): 52-91.

[4] Frankel J A, Rose A K. Currency crashes in emerging markets: An empirical treatment. Journal of international Economics, 1996, 41(3-4): 351-366.

Second, in terms of inflation, Reinhart and Rogoff (2009) define hyperinflation as annualized inflation rate exceeding 40% when studying the inflation problems of economies after the Second World War. **Although China used to experience some periods of high inflation, the peak inflation (month over month) was below 30% and was quickly controlled, and no inflation crisis occurred.**

Third, in terms of balance of payments, according to the definition given by Forbes and Warnock (2011)[1], the combined growth of capital inflow in most recent four quarters being below the average value by 2 standard deviations is deemed one of the signs of "sudden stop" of capital inflow. According to data of China's international balance of payments (1998-2018) (In CEIC database, quarterly data in China's international balance of payments has used "non-reserve financial account" to measure capital inflows since 1998), **China has not experienced a "sudden stop" of capital inflows.**

Fourth, in terms of foreign debt crisis, the proportion of China's total foreign debts in its GDP is not high (the peak value is 17%), and there has been no sovereign debt crisis or systematic corporate foreign debt default. In terms of domestic debt risk, although China's rising macroeconomic leverage (especially local government debt and non-financial corporate debt) has attracted much attention over recent years, China addressed its debt crises fairly well within forty years of the Reform and Opening-up. For instance, China cleared up "chain debts" among enterprises in 1991. Around 2000, China disposed of bad assets of national commercial banks (they were chiefly enterprise loans). **In 2017, China actively and prudently resolved accumulated risks of local government debts, and there was neither bankruptcy of local government nor systematic bankruptcy of enterprises and financial institutions.**

Fifth, in terms of banking crisis, although there were times when the risks of individual banks flared up (e.g., the 1998 run on Hainan Development Bank) and in 1995-1997 some people argued that "the Chinese banking system is technically bankrupt" (the NPL ratio of banks exceeded 20% or even reached 40%, and their capital adequacy ratio was even negative). However, on the whole, **the Chinese government has maintained the stability of its banking system, and a typical example is that the government helped national commercial banks strip off their bad assets and go public during 2005-2010.**

It is noted that there are disagreements in the literature with respect to whether "stock market crash" (collapse in stock indexes within a short period of time) is treated as "financial crisis". Researchers like Friedman and Schwartz (1963)[2] and Eichengreen and Bordo (2003) tend to define a financial crisis from the perspective of "real economic effects" instead of "nominal effects" and pay particular attention to bank

[1] Forbes, Kristin J., and Francis E. Warnock: Capital Flow Waves: Surges, Stops, Flight, and Retrenchment, Journal of International Economics 88.2 (2012): 235-251.

[2] Friedman M, Schwartz A. A monetary history ofthe United States. Princeton University Press, 1963.

crisis and currency crisis. In fact, Samuelson (1966) once sarcastically commented that Wall Street indexes predicted nine out of the last five recessions.[1] Schwartz (1987)[2] argues that pure stock market decline or property price decline can be only seen as "pseudo crisis". However, people like Aliber and Kindleberger (2017)[3] maintain that the scope of financial crisis should be broader and include collapse in asset price. Reinhart and Rogoff (2009) introduce the concept of Kindleberger into a systematic analysis of financial crisis and use the method provided by Barro and Ursua (2009)[4] to define "stock market crash", i.e., cumulative, multi-year inflation-adjusted real returns that were –0.25 or less. But as a matter of fact, Reinhart and Rogoff (2009) do not shed much light on the analysis of "pure stock market crash" (e.g., the dot.com bubble burst in the US in 2001).

Based on the definition given by Barro and Ursua (2009), the time periods of Chinese stock market crashes are: 1993-1995 (-72.7%), 2001-2005 (-58.4%), 2008 (-68.5%), 2010-2011 (-34.2%), 2018 (-24.5% in the first ten months).[5]

Just as we are about to point out, one of the biggest problems facing the Chinese stock market is the limited function in rewarding the investors. The limited impact of stock market crisis on real economic activities is mainly reflected in the following two aspects: first, stocks are not a major investment target of residents. At present, the total market capitalization of the entire stock market is less than RMB50 trillion. In contrast, the balance of residents' deposits is ~RMB65 trillion, the balance of bonds exceeds RMB50 trillion, the balance of financial products exceeds RMB30 trillion, and the total market capitalization of real estate market is ~RMB280 trillion6. Second, stock financing is not a major financing method for Chinese enterprises and share price plays a limited role in corporate investment. As is discovered by Wang, Wu and Yang (2009)[7], due to limited informativeness of stock prices, corporate investment is not significantly influenced by fluctuations in the market capitalization of relevant companies. In this

[1] Quoted in: John C Bluedorn et al. Do Asset Price Drops Foreshadow Recessions? (2013), p. 4

[2] Schwartz, Anna J.: Real and Pseudo-financial Crises: Money in Historical Perspective. University of Chicago Press, 1987. 271-288.

[3] Aliber, Robert Z., and Charles P. Kindleberger: Manias, Panics, and Crashes: A History of Financial Crises. Springer, 2017.

[4] Barro, Robert J., and José F. Ursúa: Stock-market crashes and depressions. No. w14760. National Bureau of Economic Research, 2009.

[5] It is noted that the reason why the 2015 "stock market crash" is not included here is that the literature including Barro and Ursua (2009) emphasizes that a stock market crash means "a long period of decline" instead of a "short period of fluctuations" of the stock market. In 2015, the Chinese stock market experienced a period of "sharp growth" before declining. The stock market generally exhibited a rising trend in the whole year.

[6] The total market capitalization of the Chinese real estate market is ~RMB280 trillion based on our forecast on China's real estate sector.

[7] Wang Y, Wu L, Yang Y.: Does the Stock Market Affect Firm Investment in China? A price Informativeness Perspective [J]. Journal of Banking & Finance, 2009, 33(1): 53-62.

sense, we are more inclined to adopt the reasoning of Eichengreen and Bordo (2003) and define financial crisis from the perspective of real economic effects. **None of the previous "crashes" of the Chinese stock market led to systematic business failures, bankruptcy of financial institutions and a serious decline in residents' living standards, and we do not take such crashes as the occurrence of financial crisis.**

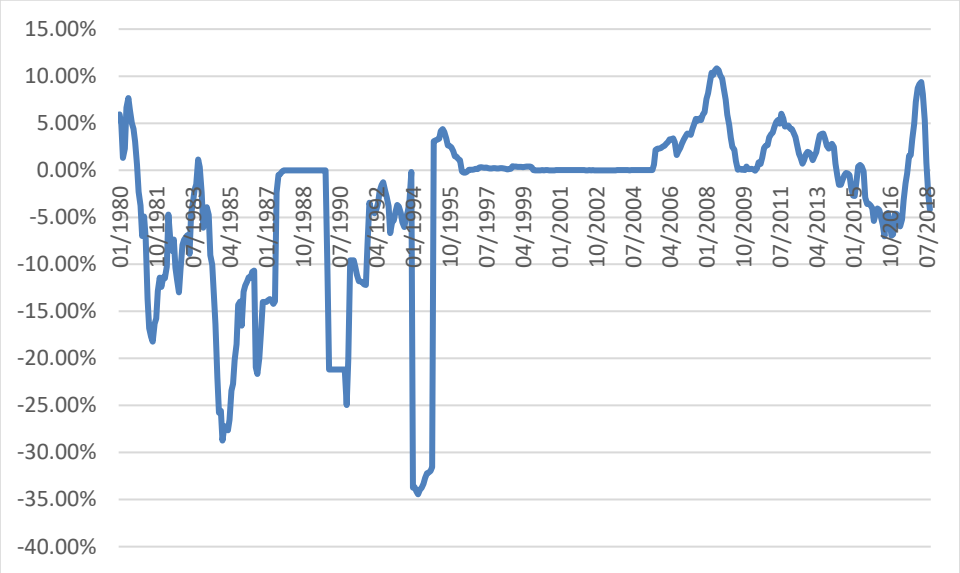


Exhibit 49 Fluctuations in the exchange rate of RMB against USD (on a YoY basis)

Source: CEIC Database

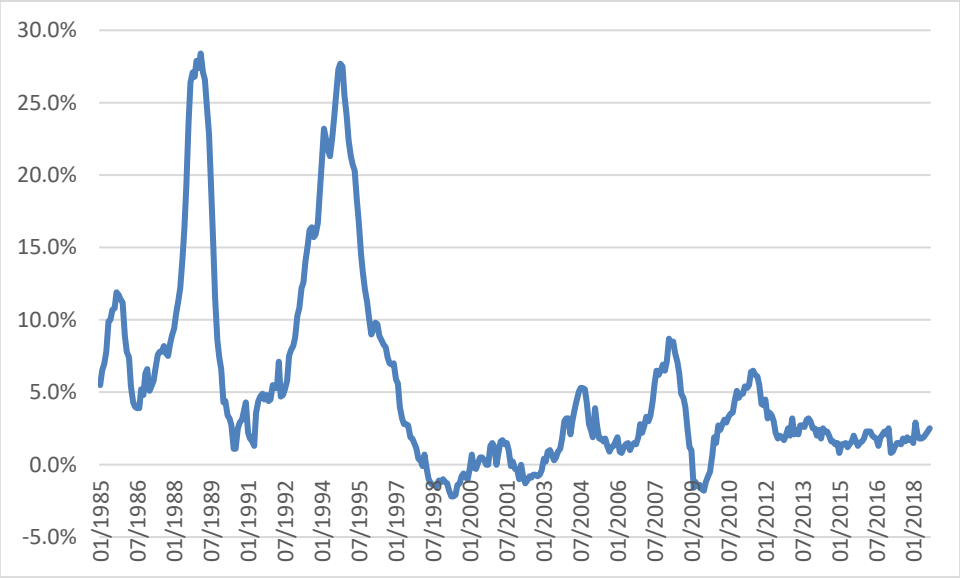


Exhibit 50 Inflation (Consumer Price Index growth, monthly, YoY)

Source: CEIC Database

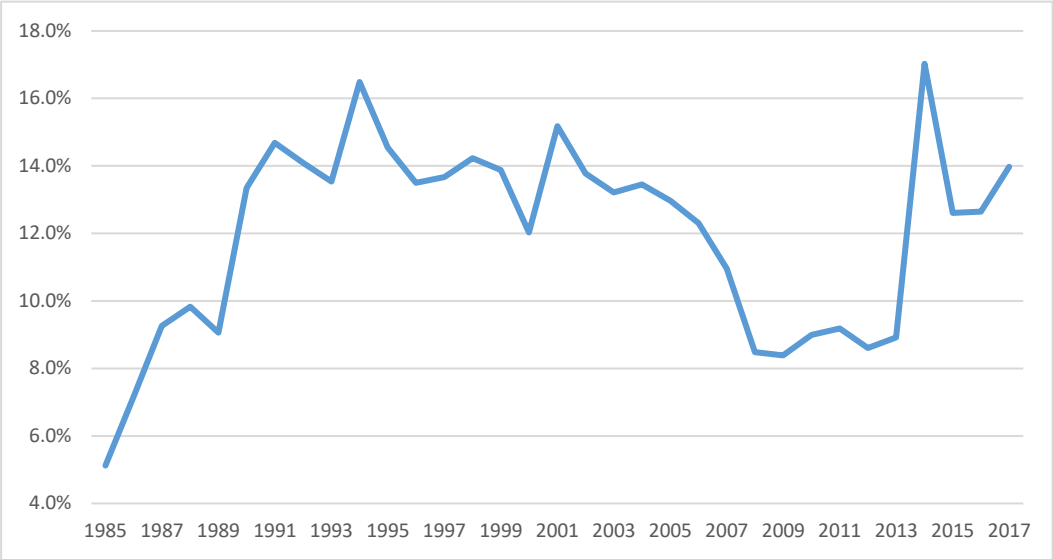


Exhibit 51 The ratio of China's foreign debts to its GDP

Source: CEIC Database

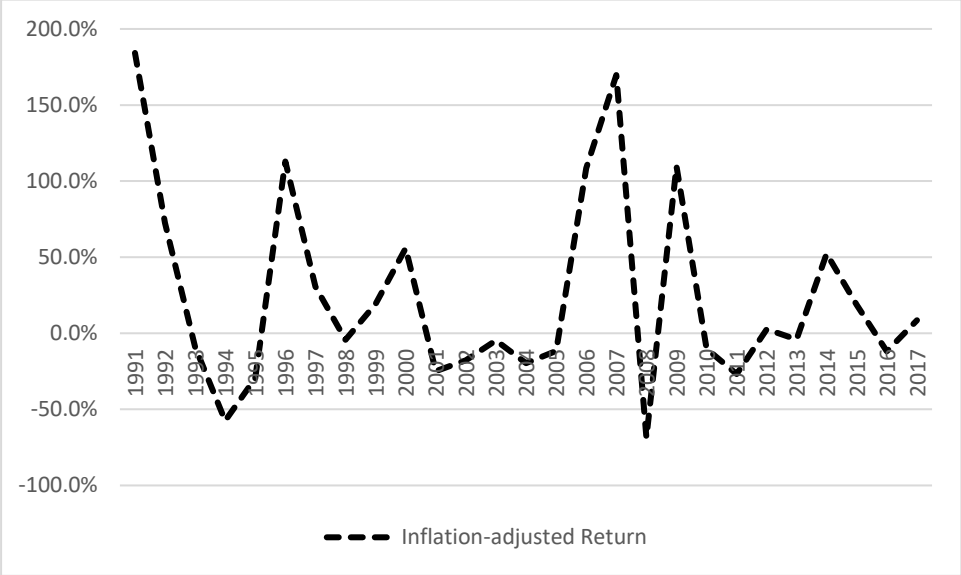


Exhibit 52 Annual return of Chinese stock market (composite A-shares market, tradable market value weighted)

Source: CSMAR Database, CEIC Database, ACCEPT calculations.

Transitional economies tend to be hit by financial crisis after a certain period of high-speed growth. In history, the Japanese economy grew fast after the Meiji Restoration and "profited a lot from war" via export trade during the First World War. Later on, Japan fell into economic downturn and the "Showa Financial Crisis" broke out. South Korean economy began to take off in 1960s but was hard hit during the 1998 Asian financial crisis and had to resort to the International Monetary Fund (IMF). In 1930s-1980s, Latin American countries adopted the import substitution industrialization and their economies continued to grow. However, their foreign debts increased dramatically, and those economies suffered from debt crises successively, such as Latin American

debt crisis in 1982, Mexico financial crisis in 1994 and Brazil financial crisis in 1999. Even the United States was frequently hit by financial crises during its early development stage. Financial panic (bank failures, economic recession) broke out in the US in 1792, 1797, 1819, 1837, 1857, 1873, 1884 and 1893 respectively.[1] China outshines others in this respect. In the last forty years of its Reform and Opening-up, China have been enjoying continued high-speed growth without financial crisis.

On the one hand, China fended off the impact of global and regional financial crises. For instance, during the Asian financial crisis in 1998, the Chinese stock market was relatively stable and even grew positively as compared with countries like Japan and South Korea, and the RMB exchange rate remained stable and China's GDP maintained high-speed growth. The Chinese economy resisted the spread of the crisis and made a huge contribution to regional stability and economic recovery. In 2008, when the US subprime crisis evolved into a global financial crisis, the Chinese government responded actively. As a result, China's economic growth stayed at a relatively high level and the real estate price fell only slightly before recovering quickly.

On the other hand, China tried to avoid the occurrence of its own financial crises. For example, at the end of 1990s, the problem concerning non-performing loans of domestic banks began to emerge intensively and the Chinese government intervened in time. Thanks to concerted efforts of such departments as State Economic and Trade Commission, the People's Bank of China (PBOC) and the Ministry of Finance, banks stripped off their non-performing assets, which were transferred into the four new-established asset management companies. As a result, the successful reinvigoration of those banks prevented the outbreak of a potential financial crisis. Just imagine if China also fell into a financial crisis triggered by bad loans of its banks during the Asian financial crisis, Asia would have lost its most important stabilizer and the financial crisis would have exacerbated and evolved into a global financial crisis or turmoil[2].

[1] https://en.wikipedia.org/wiki/List_of_banking_crises

[2] For specific measures taken by the Chinese government, refer to 1 (4) of Part II of this Article.

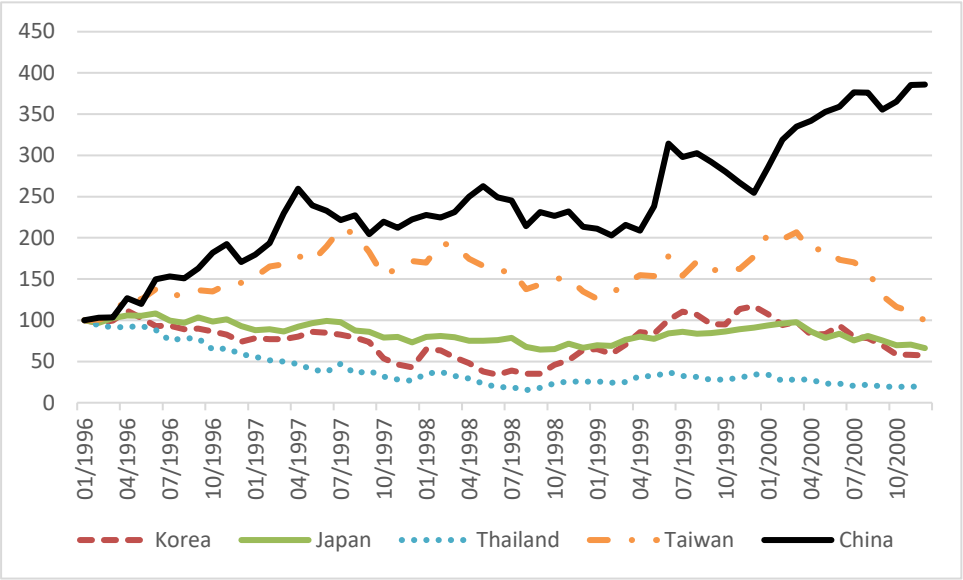


Exhibit 53 The trend of stock indexes in some economies during the 1998 Asian financial crisis (January 1996 = 100)

Source: CEIC Database

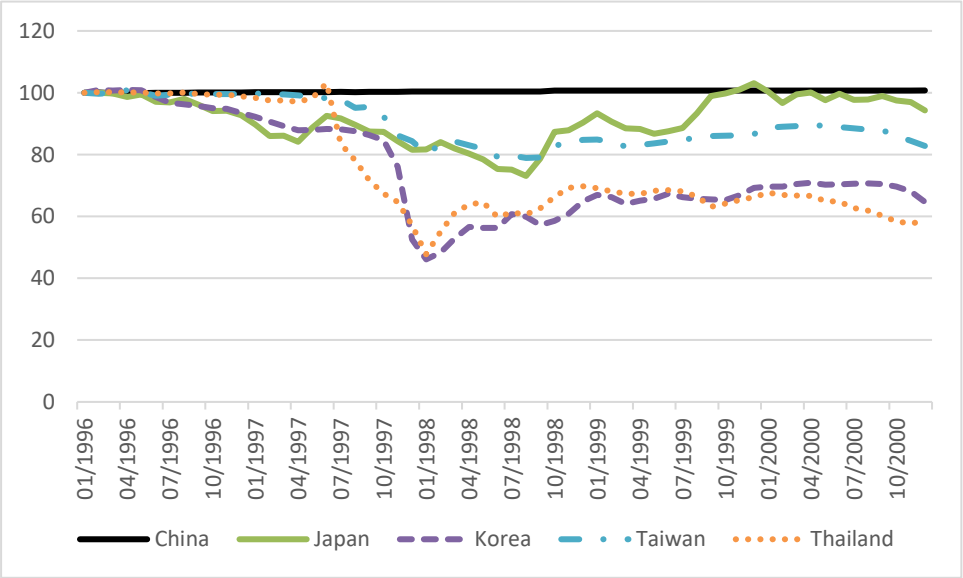


Exhibit 54 Exchange rate fluctuations in some economies during the Asian financial crisis (exchange rate of 1 unit of home currency against the US dollar in January 1996 is used as base number)

Source: CEIC Database

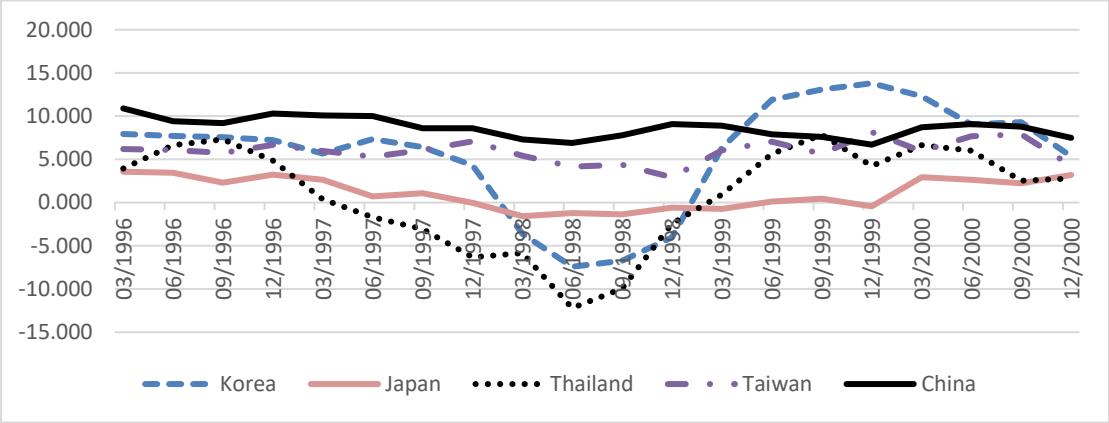


Exhibit 55 GDP growth of some economies during the 1998 Asian financial crisis (quarterly)

Source: CEIC Database

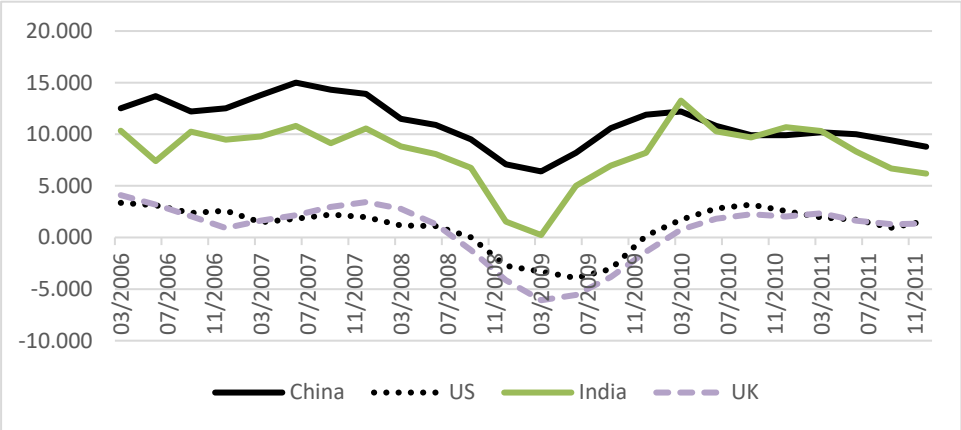


Exhibit 56 GDP growth of some economies before and after the 2008 global financial crisis (quarterly comparison on a YoY basis, %)

Source: CEIC Database

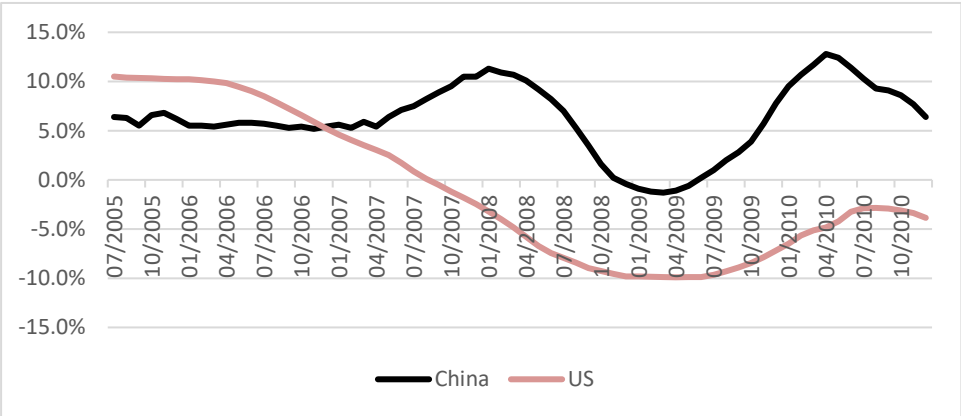


Exhibit 57 Comparison between housing price fluctuations in China and the US before and after the 2008 financial crisis (monthly comparison on a YoY basis, %)

Source: Zillow, CEIC Database

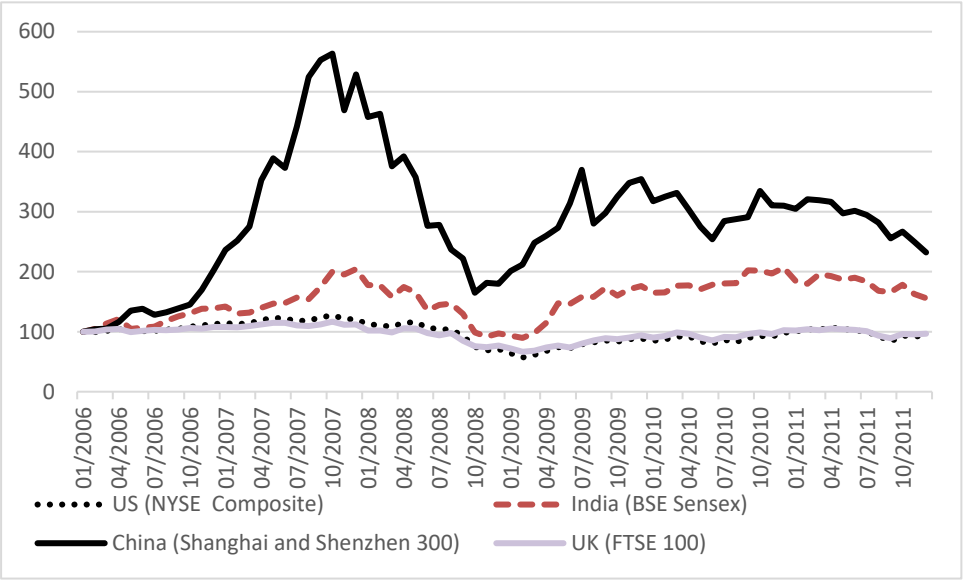


Exhibit 58 The trend of stock indexes in major markets before and after the 2008 financial crisis (January 2006 = 100)

Source: wind

(2) Achievement 2: The financial system has been supporting the development of the real economy

The financial market played a significant part in the rise of such powers as the UK, the Netherlands, US and Germany. Karl Marx knew the importance of financial capital in promoting the growth of the real economy. He once said, "if the world had to wait for a certain capital to grow big enough to build a railway, there would be no railway today on the world. But the matter is completed by capital centralizing of share-issuing company in a flash". Through a review of China's development within forty years of the Reform and Opening-up, the financial market has made a great contribution. In particular, the market has played a positive role in such aspects as enterprise growth, reform of State-owned enterprises (SOEs), real estate development, infrastructure investment and innovation & entrepreneurship, and helped boost the development, transformation and upgrade of the Chinese economy. **Within the past four decades, the financial market assumed the role in converting national savings continually accumulated during China's development into investments, and meanwhile steady and local-currency-based financial deepening ensured that the Chinese economy always remained generally stable during its rapid growth.** Aggregate financing represents the financing of financial system to the real economy. If we use capital formation to indicate the aggregate financing of the real economy, then the ratio of aggregate financing to capital formation can to some extent measure the contribution of the financial system to the real economy. Our estimation shows that the contribution

of the financial system to the real economy remained at 50%-60% in most years and even exceeded 80% in certain years during the period between 2002 and 2017.

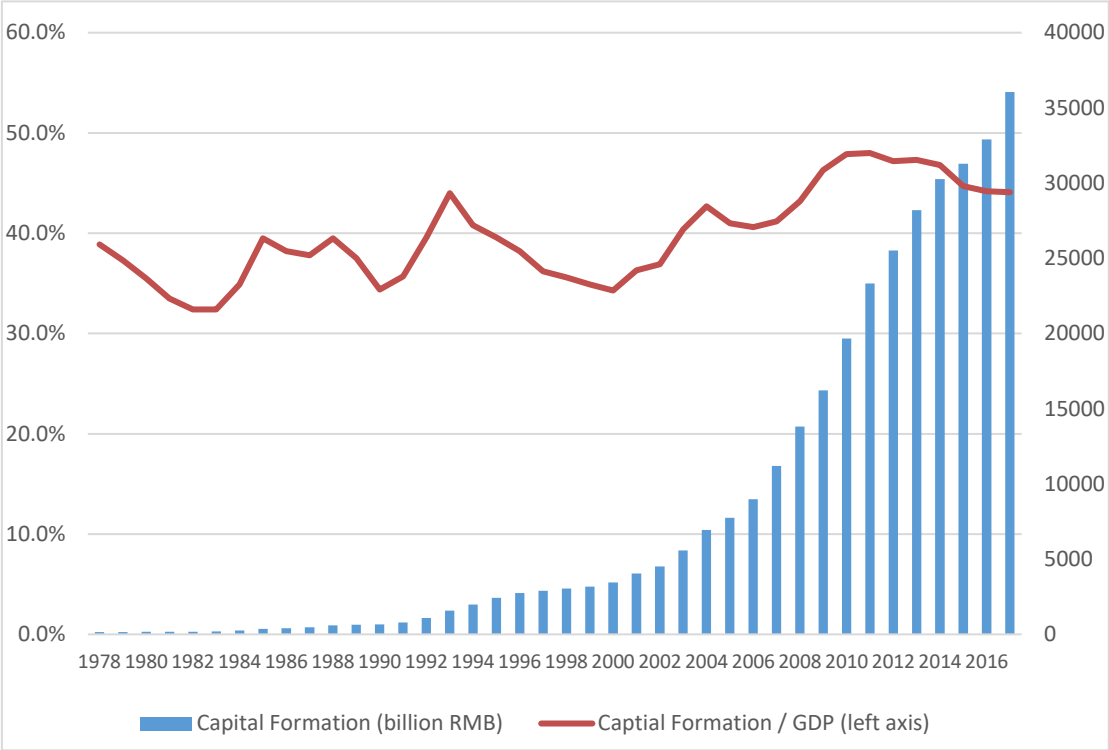


Exhibit 59 Change in China's capital formation and the ratio of China's capital formation to its GDP (1978-2017)

Source: National Bureau of Statistics of China

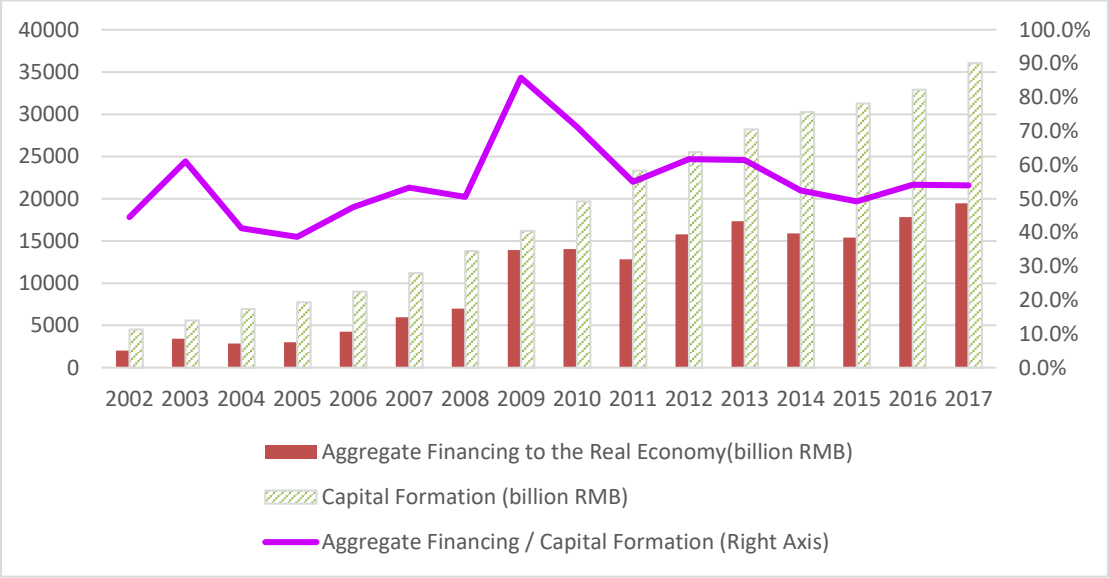


Exhibit 60 The contribution of aggregate financing to capital formation

Sources: National Bureau of Statistics of China, ACCEPT

Over the past forty years, the Chinese financial system has provided key support for the development of a large number of enterprises from small to big and from weak to strong.

Enterprises are the most important carrier of economic growth, and the great achievement in Chinese economy as from the Reform and Opening-up is created by various types of emerging and growing enterprises to a great extent. The number of Chinese enterprises increased from merely more than 200,000 in 1978 to 140 million in 2017. According to data from State Administration for Industry and Commerce, the daily average number of newly registered enterprises in 2017 reached 16,600. Within forty years when enterprises of various types were established and grew stronger, the Chinese financial system provided critical support, which included not only indirect financing support from the banking system but also direct financing support from the bond market and stock market. In light of indirect financing, credit support from banks played a key role in contribution to the development of a large number of high-quality enterprises. According to data from the People's Bank of China, the balance of all loans granted by financial institutions in China to the real economy by the end of June 2018 was RMB125.6 trillion. In light of direct financing, many enterprises developed fast and conducted overseas expansion thanks to IPO, additional issuance, merger & acquisition (M&A), reorganization and other functions of the capital market. Since the capital market was set up 28 years ago, the A shares market has realized RMB12 trillion of stock financings and RMB17 trillion of M&A and reorganization on an accumulative basis.

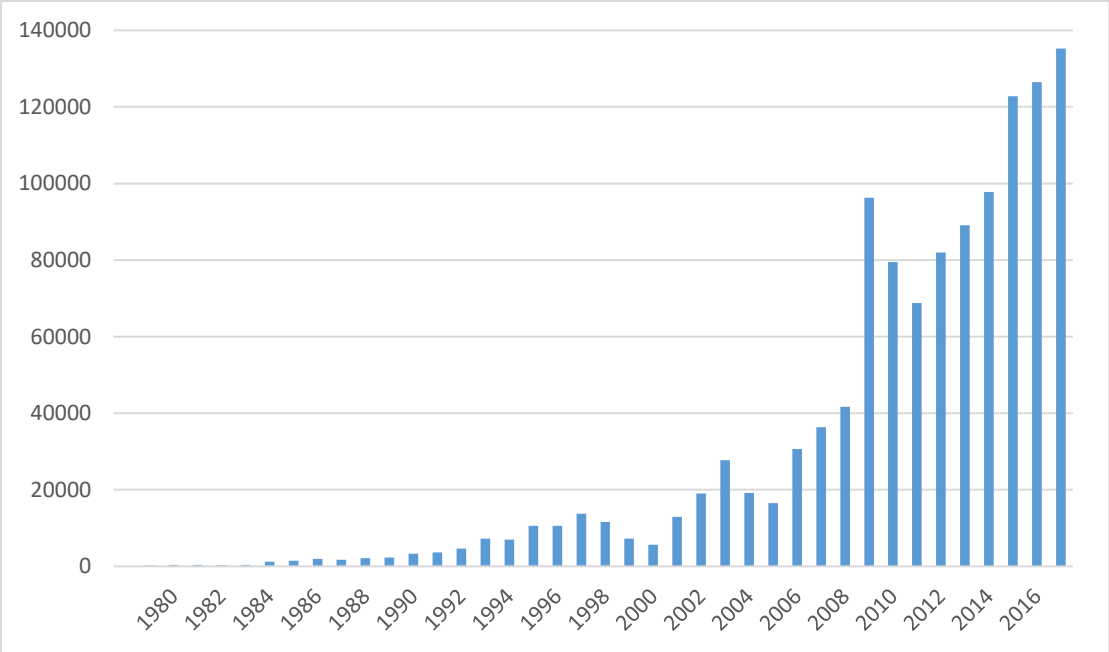


Exhibit 61 The amount of new RMB loans granted by banking financial institutions to the real economy (RMB100 million)

Source: People's Bank of China

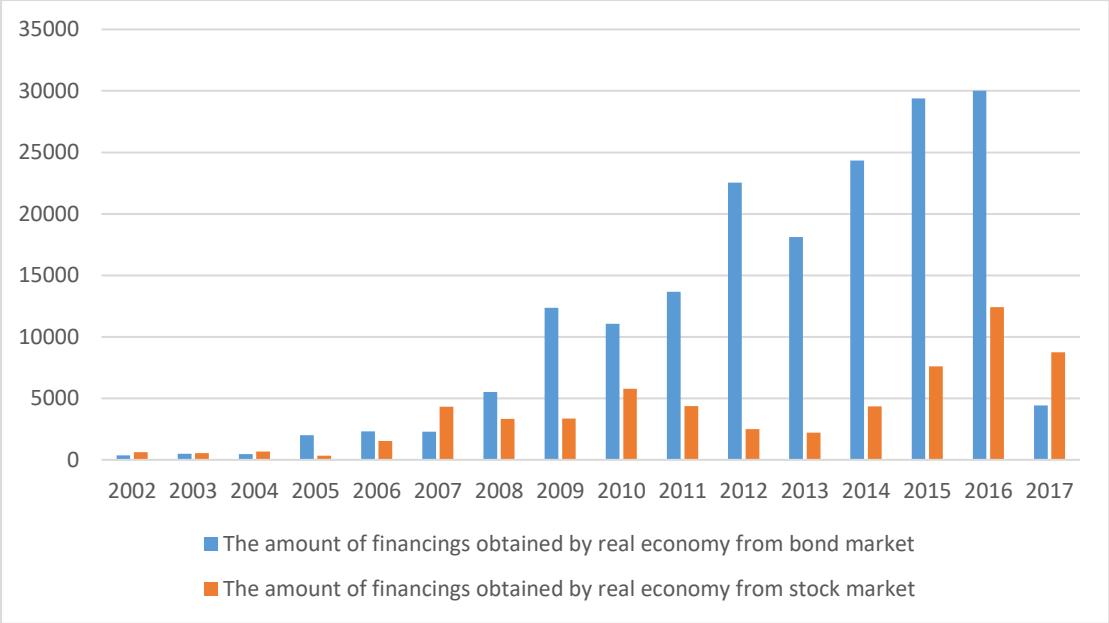


Exhibit 62 The amount of financings obtained by real economy from stock market and bond market

Source: People's Bank of China, China Securities Regulatory Commission

The capital market has played an important part in supporting the reform of State-owned enterprises (SOEs). During the transition from planned economy to market economy after the Reform and Opening-up, problems existing in State-owned enterprises like government departments' running or managing enterprises, blind expansion, low efficiency and inadequate incentive gradually evolved in serious debt issues in middle and late 1990s. The stock market, which was still at an early development stage, provided the conveniences for solving the funding and management dilemmas of SOEs. Firstly, the stock market reversed the long-term loss-making status of some SOEs. SOEs secured fund support urgently needed for their development through the capital market, and thus renovated and transformed their equipment and hired high-caliber technical and management talents. All this laid a solid foundation for their turning losses into profits. Secondly, the stock market solved the problem of grossly inadequate incentive existing in SOEs. The results of business operations can be reflected in price fluctuations in the capital market, and market investors can determine the survival or elimination of enterprises by "voting with feet". Thirdly, the stock market solved the corporate governance issue of SOEs well. After the IPO of SOEs, shareholders' meeting, board of directors and board of supervisors were set up and specialized operation management teams were retained, thus providing a systematic guarantee for long-term, healthy development of enterprises. With the help of the capital market, Chinese SOEs achieved leapfrog development and their profitability, management ability and international competitiveness improved considerably. The above analyses show that the capital market is an extremely important platform for the reform and development of SOEs. Judging from data, by

2017, of 98 central enterprises, 83.7% of them had listed-company platforms and most of central enterprises had more than one listed company. In terms of assets, the total assets of central enterprises were RMB54.5 trillion and 65% of that amount was already injected into listed companies. About 40% of the assets of provincial SOEs were injected into listed companies, and the figure exceeded 50% in such cities as Shanghai, Chongqing and Anhui. The above mentioned central enterprises refer to industrial central enterprises under supervision and administration of the State-owned Assets Supervision and Administration Commission of the State Council (SASAC). If we further consider the development and strengthening of financial central enterprises including top 4 banks through corporate governance under listing rules, the capital market has played an irreplaceably important role in China's SOE reform.

The financial system contributed to the development of China's real estate market from scratch. Since the reform of housing commercialization in 1998, the financial system has helped China in developing the world's largest real estate market within merely twenty years[1], and the real estate market has thus become China's largest wealth carrier with total market value of RMB280 trillion. At the end of 2017, the balance of individual housing loans of Chinese residents was RMB21.86 trillion and the balance of real estate development loans was RMB8.32 trillion. The combined amount of the foregoing two items exceeded RMB30 trillion, which represented nearly 25% of the balance of RMB loans within the same period. It is especially noted that the policy of renovating shanty towns aimed at resolving the problems of dilapidated houses in urban areas and improving the housing conditions of poor households was implemented nationwide on a large scale thanks to policy-based finance. Since the policy was launched in 2009, China has completed the reconstruction of more than 30 million housing units and thus greatly improved the housing conditions of urban low- and middle-income families. Although the disputes over whether the financial policy has pushed up the housing prices have never stopped, there is no doubt that the financial system has played an irreplaceable role in developing China's real estate market and solving the housing problems of Chinese residents in the past two decades. China, a country whose urban population exceeds the total population of Europe, has topped the list of major economies in the world by the proportion of home ownership and overtaken major developed economies like the UK, Japan and Germany by per capita living space.

The great improvement in China's infrastructure in the past forty years is also largely attributed to the financial system. Over the past four decades, China has overtaken the world's major economies quickly in terms of infrastructure construction. According to data from the National Bureau of Statistics of China, China's railway

[1] According to the latest data from Zillow, the global largest real estate data platform, the total value of the US real estate market was US$31.8 trillion by the end of 2017. Based on our estimation of the real estate sector, the total value of the Chinese real estate market is ~RMB280 trillion.

operating mileage was only 51,700km and average railway speed was less than 40km/h at the beginning of the Reform and Opening-up. By the end of 2017, forty years after the Reform and Opening-up, China's total railway operating mileage reached 127,000km. Among others, China's high-speed railway operating mileage reached 25,200km, which accounted for 66.3% of the world's total and made China the world's largest country by this measure. China also ranked first in the world with its proportion of electrified railway reaching 68.2%. At the start of the Reform and Opening-up, China's highways were short and of poor quality and its total highway mileage was merely 890,200km. By the end of 2017, China's total highway mileage reached 4,773,500km. Among others, China ranked first in the world with its total expressway of 136,400km. In 2017, seven of the world's top 10 ports by cargo throughput and container throughput were Chinese ones. Improved infrastructure not only boosted the scale effect and operating efficiency of the Chinese economy on the whole, but also represented an important component of the country's economic growth. In particular, infrastructure will play a prominent role in stabilizing investment and economic growth during economic downturn. For funding sources of China's infrastructure investment, a fraction of[1] those funds come from budgetary funds, and the vast majority of such funds are raised from the financial market, including loans from policy banks and commercial banks, local government special bonds and quasi-municipal bonds. It is especially noted that China Development Bank worked with Wuhu City of Anhui Province in 1998 and adopted the "project legal person bundling" model on urban infrastructure loans in China for the first time. **This created a precedent for bank funds supporting local infrastructure construction and cracked the problem of difficulty in financing for urban infrastructure construction**[2]. After that, this model was popularized across the country and boosted China's urbanization.

[1] According to Wind's data calculation and estimation, less than 20% of infrastructure investment funds come from financial budget funds and the vast majority of infrastructure investment funds are raised from the capital market.

[2.] The particulars of the Wuhu model are as follows: Firstly, subject to China Development Bank's suggestion, the Wuhu municipal government set up an enterprise with the name of "Wuhu Construction Investment Co., Ltd." ("Wuhu Construction Investment") and used that enterprise as the borrowing entity. Secondly, the Wuhu municipal government injected a large number of quality assets like land reserves and expressways into Wuhu Construction Investment. Wuhu Construction Investment borrowed loans from China Development Bank with the foregoing assets as collateral, and the local government just "stood aside" and was not required to provide any guarantee for this process. Thirdly, Wuhu Construction Investment bundled projects with poor financial quality (no loans may be secured through normal approaches) with projects with good financial quality to apply for loans and repay loan principal and interest together so that projects with good cash flows (e.g. expressways) could make up for projects with poor cash flows (e.g., garbage treatment). This model was known as the "project legal person bundling" model. Lastly, China Development Bank further made "land sale revenue" into collateral. In 2002, the Wuhu municipal government authorized Wuhu Construction Investment to apply for RMB1,095 million of loans from China Development Bank "with the pledge of proceeds from land transfer as a major repayment guarantee". With the bank issuing loans first, the government

The transformation & upgrade and innovation and entrepreneurship in the Chinese economy are also backed up by the financial market. Over recent years, the Chinese economy has gradually transitioned from a high-speed growth stage to a high-quality development stage and shifted from the factor-driven, investment-pulling growth pattern to the innovation-driven development pattern. The transition from old driving forces to new driving forces has accelerated. According to data from the National Bureau of Statistics of China, the proportion of the new economy in China's GDP reached 16% in 2016 and the proportion of the new economy exceeded 30% in cities like Beijing, Shenzhen and Shanghai. An important factor behind accelerated growth of the new economy and new driving forces is the rapid development of the financial force including private equity and venture capital funds, which is catalyzing and fostering a large number of innovative start-ups. Those enterprises no longer depend on bank credit and are less sensitive to traditional economic cycles. This is the very direction and force of China's economic transformation and upgrade. Data shows that 62.5% of 522 enterprises listed on the A-share market since 2017 are backed up by venture capital funds, and that 100% of 98 existing unicorn enterprises in China are supported by venture capital funds.

(3) Achievement 3: The Chinese financial sector has become pretty comprehensive in the scope of products and services

Since the Reform and Opening-up, China's financial system has gradually improved and basically taken shape with the development of the real economy. Compared with major developed economies, China made a late start but developed fast in terms of the construction of its financial market. Within merely forty years, China has fostered and developed a basically matured financial system with full varieties of financial products. To understand China's basically matured financial system, we must look back on the development of its financial system in the past four decades. Before 1980, under a highly centralized planned economic system, China's economic activities were marked by fiscal dominance and the country had no financial market in a strict sense, let alone a financial system. In early 1980s, top 4 banks successively spun off from the central bank, which signaled the establishment of a two-tier banking system with the central bank and commercial banks undertaking different functions. In 1988, non-banking financial businesses like trust, securities and insurance developed initially and the People's Bank of China (PBOC) began to implement its supervision function. In 1990, Shanghai and Shenzhen stock exchanges were set up and the central bank officially announced that securities companies were financial institutions specialized in securities business, which showed the beginning of separate operation. China Securities Regulatory Commission (CSRC) and China Insurance Regulatory Commission (CIRC) were set up in 1992 and 1998 respectively. In 1993, separate management as a principle

received and invested loan funds in infrastructure construction before selling land and repaying the loans.

was written in the relevant document of the State Council. In 2003, the founding of China Banking Regulatory Commission (CBRC) signaled the construction of the Chinese financial system marked by separate operation and separate regulation. With an increasingly remarkable trend of mixed operation over recent years, China Banking Regulatory Commission (CBRC) and China Insurance Regulatory Commission (CIRC) were merged into China Banking and Insurance Regulatory Commission (CBIRC) in 2018.

To understand China's financial system, we can proceed from various dimensions like institution, supervision, trading, investment and financing. We attempt to briefly review China's financial system from the perspective of institutions. **In terms of major categories, the Chinese financial system covers major fields including banking, trust, securities, public equity, insurance, futures, asset management and private equity**[1]. From the perspective of supervision, banking, trust and insurance are subject to supervision of CBIRC, while securities, public fund, futures and private equity are subject to supervision of CSRC. Depending on product categories, the bulk of the asset management industry is subject to supervision of CBIRC and a small fraction of that industry is subject to supervision of CSRC. In addition to the foregoing institutions, stable operation of the Chinese financial system depends on a series of financial infrastructures, such as venues of stock/equity trading including Shanghai Stock Exchange, Shenzhen Stock Exchange and National Equities Exchange and Quotations and equity exchange centers in different provinces, venues of futures goods trading including Shanghai Futures Exchange, Dalian Commodity Exchange, Zhengzhou Commodity Exchange and China Financial Futures Exchange. Transactions in bond market are carried out in interbank markets and exchange markets respectively, and registration and clearing institution of financial products of various types include China Central Depository & Clearing Co., Ltd., China Securities Depository & Clearing Co., Ltd. and Shanghai Clearing House, and payment institutions include China UnionPay. All of the foregoing institutions constitute a basically matured Chinese financial system covering a wide range of fields. Among all financial institutions, the banking system enjoys the largest size of assets. By the end of 2017, the total size of home and foreign currency assets in all banking financial institutions in China was RMB252 trillion, which represented more than 70% of the total asset size of the financial industry as a whole. Judging from other components of the financial sector, the asset size of the trust industry, securities industry, insurance industry, public equity industry and private equity industry in 2017 was RMB26 trillion, ~RMB6 trillion, nearly RMB17 trillion, RMB11.6 trillion and RMB11.1 trillion respectively.

[1] Of course, the financial system also include financial institutions like rental, microcredit, finance companies and P2P, but those types of financial institutions have smaller size and less strong influence than the types of institutions listed in the body text. Therefore, they are not enumerated here.

Exhibit 63 Comparison among major components of China's financial system by asset size (Unit: RMB trillion)

Asset in trillion RMB	Banking	Trust	Securities	Insurance	public equity	private equity
2012	133.62	7.47	1.72	7.35	3.62	-
2013	151.35	10.91	2.08	8.3	4.22	-
2014	172.34	13.98	4.09	10.2	6.68	2.63
2015	199.35	16.3	6.42	12.4	8.4	5.07
2016	232.25	20.22	5.79	15.12	9.16	10.24
2017	252	26.25	6.14	16.75	11.6	11.1

Source: China Banking and Insurance Regulatory Commission, China Trustee Association, Securities Association of China, Insurance Association of China, Asset Management Association of China

Review and summary of the development of the Chinese financial system in the past four decades, the following two points deserve our attention. **Firstly, the basically matured financial system is gradually developed** on the basis of the Chinese government carefully and prudently guiding and utilizing market forces, and **spontaneous market forces and governmental guidance are indispensable to the development of the financial system.** Take the development of stock market as an example. In middle and late 1980s, the so-called "old eight stocks" appeared and neither Shanghai Stock Exchange nor Shenzhen Stock Exchange was set up at that time. This was a natural outcome of market forces when the Chinese economy developed at that stage. In response to this historical trend and with reference to the experience on the development of overseas stock markets, the Chinese government set up Shanghai and Shenzhen stock exchanges in 1990. After that, China established the Securities Commission of the State Council and China Securities Regulatory Commission, which gradually standardized the buying and selling of stocks.

Secondly, the structure of the Chinese financial system differs from that of developed economies. In terms of the completeness of fields covered by financial system, China has generally caught up with major economies like the US, the UK, Germany and Japan. For any type of financial institutions existing in developed countries, China also has such type of financial institutions; China even have some types of financial institutions that do not exist in some developed countries. However, the structure of the Chinese financial system differs much from the structure of the financial system of developed economies. The Chinese financial system differs from American and British financial systems dominated by direct financing, and it is not fully identical to the German and Japanese financial systems dominated by the banking system. On the one hand, compared with the US and the UK, the proportion of direct financing in China is still much lower. The proportion of direct financing is around 60%

in the US and the UK, and the proportion of direct financing is only 40% in China in 2016[1]. Structurally speaking, China does not lag far behind the US and the UK in terms of the proportion of stock market, but the proportion of bond market in China is obviously too low; the proportion of treasury bonds and corporate bonds is rather low in the Chinese bond market; the bond market is highly segmented and the channel between interbank market and exchange market is not yet built. On the other hand, similar to the situation in Germany and Japan, the banking system is the most important funding source for the real economy in China. Nevertheless, China obviously beats Germany and Japan by such measures as activity of multi-level equity market and the size and growth of private equity and venture capital funds, and it clearly outperforms Germany and Japan and is second only to the US in terms of the growth and size of innovative start-ups. According to the latest statistics of CB Insights, a global leading venture capital research firm, China is second only to the US by number of unicorn companies, which accounts for 25% of the world's total, and far exceeds major developed economies like Japan, Germany and France.

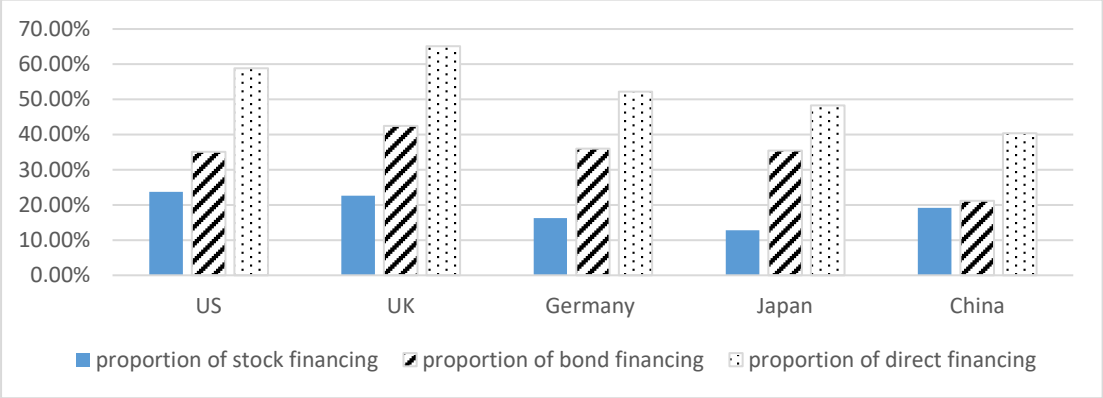


Exhibit 64 Comparison among China and major developed economies by proportion of direct financing[2] (2012-2016 average)

Source: Bank for International Settlements, World Bank, People's Bank of China

[1] The calculation of direct financing may adopt the inventory method and the incremental method. The incremental method is largely subject to fluctuations in annual financings, so the data in this Article is estimated according to the inventory method.

[2] According to the calculation method in mainstream literature, the proportion of direct financing is defined as (market capitalization of stock market + market capitalization of bond market)/(market capitalization of stock market + market capitalization of bond market + balance of bank credit). Based on this definition, the proportion of direct financing = proportion of stock market + proportion of bond market. Considering large fluctuations in annual data, the mean value of five years' (2012-2016) data is adopted here. Of course, direct financing in this diagram does not include the statistics of the New Third Board, regional equity markets and private equity markets. If the financings of those markets are included in direct financing, China will further surpass Germany and Japan in terms of equity market advantages.

(4) Problem 1: The Chinese financial system has not been able to provide stable and high returns to financial investors as in mature market economies

The Chinese stock market has notoriously low returns and high volatility. Shanghai Composite Index was 127.61 at the end of December 1990 and increased to 2630.52 by the end of October 2018, which indicated a growth of nearly 20 times; Shenzhen Component Index was 880.98 at the end of April 1991 and increased to 7482.83 by the end of October 2018, which indicated to a growth of 7.5 times. On the whole, suppose we buy composite A-shares worth RMB100 according to the tradable market value weighted price at the end of December 1990 and keep holding those shares until the end of October 2018 (for dividends obtained during such period, we continue to buy composite A-shares with them according to tradable market value weighted price), we will be able to get RMB1,880 after about 28 years, which shows a growth of less than 18 times. In contrast, the average monthly salary of employees in Shanghai was RMB243 in 1990 and the figure rose to ~RMB6,500 in 2018, which shows a growth of nearly 26 times. China's nominal GDP was RMB1.87 trillion in 1990 and rose to RMB82.7 trillion in 2017, which shows a growth of more than 43 times. **We may safely claim that stock price growth did not match that of labor income or GDP.**

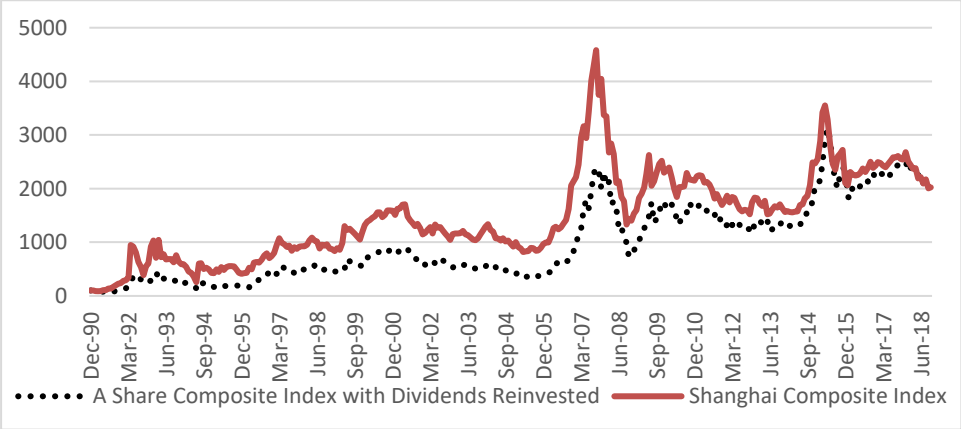


Exhibit 65 Change in composite A-share index including dividend reinvestment (tradable market value weighted) (index at the end of 1990 = 100)

Source: CSMAR Database, ACCEPT calculations.

Specifically, the Chinese stock market was performing rather well in the early stage, for example, the first 10 years (1991-2000). Based on Shanghai Composite Index, during 1991-2000, the stock price increased dramatically, with an average annualized holding return exceeding 32%. Shanghai and Shenzhen combined A-share market with dividends reinvested delivered 24% annualized return, which is quite considerable compared to other economies.

But in the next 18 years (2001-2018), China's stock market provided only limited returns to its investors, barely beating the inflation rate. This makes China's stock market one of the worst performing markets across the globe. Annualized return was

only 1.3%. Even with dividends reinvestment considered, the return would barely beat inflation.

Exhibit 66 Stock Index Returns (1991-2000)

1991-2000	start	end	# years	Average Annualized Holding Return
China	100	1624.9	10	**32.20%**
US	100	363.9	10	**13.80%**
UK	100	290.3	10	**11.20%**
Japan	100	57.8	10	**-5.30%**
Korea	100	460.1	10	**16.50%**
India	100	378.9	10	**14.20%**
Germany	100	460.1	10	**16.50%**
Singapore	100	203.4	10	**7.40%**
Taiwan	100	104.6	10	**0.50%**
HK	100	499.1	10	**17.40%**

Source: CEIC database (China Shanghai Stock Exchange Composite Index, US New York Stock Exchange Composite Index, UK FTSE 100, Japan Nikkei 225, Korea KOSPI Index, India BSE Sensex, Germany DAX, Singapore Straits Times Index, Taiwan Stock Exchange Market Capital Weighted Index, HK Hang Seng Composite Index)

Exhibit 67 Stock Index Returns (2001-2018)

2001-Oct 2018	start	end	# years	Average Annualized Holding Return
China	100	125.5	17.8	**1.3%**
US	100	175.8	17.8	**3.2%**
UK	100	114.6	17.8	**0.8%**
Japan	100	159.0	17.8	**2.6%**
Korea	100	177.9	17.8	**3.3%**
India	100	867.1	17.8	**12.9%**
Germany	100	177.9	17.8	**3.3%**
Singapore	100	156.7	17.8	**2.5%**
Taiwan	100	206.8	17.8	**4.2%**
HK	100	165.5	17.8	**2.9%**

Source: CEIC database (China Shanghai Stock Exchange Composite Index, US New York Stock Exchange Composite Index, UK FTSE 100, Japan Nikkei 225, Korea KOSPI Index, India BSE Sensex, Germany DAX, Singapore Straits Times Index, Taiwan Stock Exchange Market Capital Weighted Index, HK Hang Seng Composite Index)

What's more, we calculate China's Sharpe Ratio[1], a measure of "cost effectiveness" of stock returns-risks, and compared it with the corresponding figures of the US and India.

[1] Note: Sharpe Ratio is defined as the difference between mean annualized returns and mean risk-free interest rate divided by the fluctuation ratio of annualized return. China uses composite A-share index (tradable market value weighted, data starting from 1991) and adopts 1-year bank deposit rate as risk-free interest rate; the US uses S&P 500 (data starting from 1991) and adopts 1-year treasury yield as

Before 2009, the Sharpe Ratio of China's Shanghai and Shenzhen combined A-share composite market was quite considerable. **But during 2010-2018, the Sharpe Ratio dropped to literally zero, significantly lower than that of the US and India.**

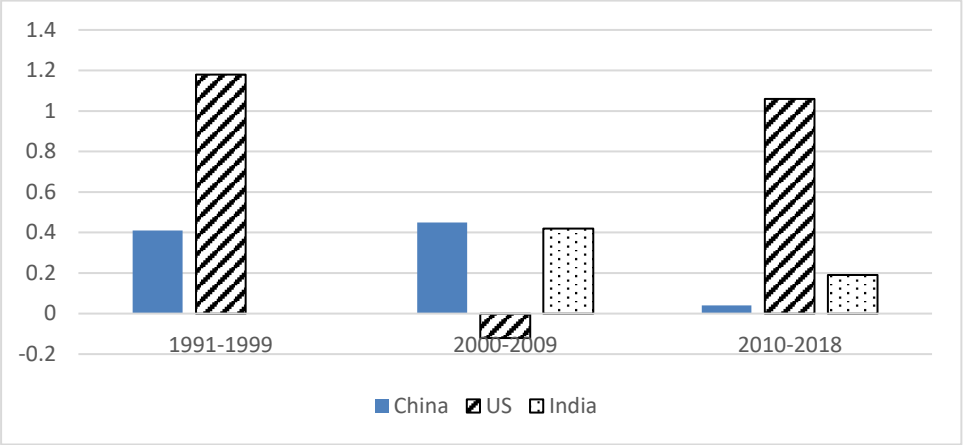


Exhibit 68 Sharpe Ratio among different countries

Source: CSMAR Database, ACCEPT calculations.

How about the returns of fixed income financial products, for example, bank deposits or treasury bills/bonds? Based on our estimation, if we deposited RMB100 as a 1-year fixed term deposit at the end of 1990 and re-deposited both the principal and the interests earned annually afterwards until the end of October 2018, we would get RMB310.4, which indicates an average annualized return of 4.2%. In terms of time variation, the interest rate was relatively high in 1990-1998 (5%~11%), then fell to 3% and further dropped to 1.5% after 2016. We take 1-year deposit rate as risk-free interest rate, and compared China with the US and India. The American risk-free interest rate (represented by 1-year treasury yield) was ~5% in 1990s, then fell to 1% and rebounded to 5% in 2006 and 2007. The United States implemented the low interest rate policy (almost zero) as from 2008 and the interest rate gradually rose to 2%~3% in recent years. For India, the risk-free interest rate was 8%~12% in 1990s and has hovered around 7% since 2000. **Low savings interest rates in China reflect the government's deliberately designed "mild financial repression", i.e., the government's active intervention in bringing down the deposit rates to reduce financing costs of enterprises and governments and support governmental infrastructure construction and corporate investment and expansion. However, the precondition for the delicate equilibrium is that the financial system keeps safe and stable.** If the financial system is unstable with frequent crises, people will demand higher returns or even become reluctant to hold financial assets including stocks and deposits and try all means to move their money overseas to other countries, e.g. the U.S.

risk-free interest rate; India uses Nifty500 (data starting from 1999) and 1-year treasury yield as risk-free interest rate. Dividends are considered but tax factor is excluded. The calculations here use monthly data as the basis, and mean annualized returns are equal to mean monthly returns multiplied by 12 and annualized fluctuation is equal to standard deviation of monthly returns multiplied by $\sqrt{12}$.

Additionally, lawful rights and interests of minority shareholders of listed companies cannot be guaranteed and the intensity of sanction against illegal acts is insufficient. There are the following main reasons:

First, the mechanism of minority shareholders' participating in corporate governance is imperfect. The board of directors and board of supervisors are generally regarded as "white elephants" and tend to serve the interests of the management and majority shareholders. Minority shareholders have no right of speech. In order to protect the rights and interests of minority shareholders and other stakeholders, China began to introduce the independent director system in 2003, but independent directors seldom oppose the management's proposals. According to the findings by Jiang, Wan & Zhao (2016), less than 6% of independent directors voice their objections. Another related matter is that corporate information disclosure mechanism is not sound. Many listed companies tend not to disclose their information in a timely, complete and transparent manner, and this is likely to trigger off tunneling behaviors of controlling shareholders and thus impair the interests of medium and small investors. If a particular company conducts complete information disclosure, especially information disclosure involving majority shareholder's tunneling, , then the medium and small investors may take measures to intervene in or object to any act of the controlling shareholder that may impair their interests. .

Second, the punishment of violations of corporate governance and securities regulations is not serious enough. On the one hand, our punishment on irregularities of majority shareholder and the management is not sufficient. The acts of majority shareholders and management teams abusing their power to seek personal gains and carrying out benefit transfer are nothing new, and such acts include, without limitation, creating price differences during private placement, transferring resources to affiliated enterprises, occupying or misappropriating funds and hiding important information, but the punishments are far from enough. For example, CSRC imposed the strictest punishment on Changsheng Bio-Technology's failure to make required information disclosure or its misleading disclosure or false information disclosure recently, and the details of such punishment were imposing a fine of RMB600,000 on that company, giving a warning to the personnel directly responsible for the issue, imposing a fine of RMB 300,000, and meanwhile taking a measure of lifetime ban from securities market. Such punishment is far from enough. On the other hand, our punishment on irregularities of some investors is not strict enough. For instance, with respect to the punishment against insider trading, China now metes out the following administrative penalties against insider trading: "for securities insider trading, if the amount of illegal gains is at least RMB30,000, the amount of the fine shall be at least 1 time but at most 5 times the amount of the illegal gains; if no illegal gains are achieved or the amount of illegal gains is less than RMB30,000, the amount of the fine shall be at least RMB30,000 but at most RMB600,000. For futures insider trading, If the amount of illegal gains is at least RMB100,000, the amount of the fine shall be at least 1 time but

at most 5 times the amount of illegal gains; if no illegal gains are achieved or the amount of illegal gains is less than RMB100,000, the amount of the fine shall be at least RMB100,000 but at most RMB500,000. If a unit is involved in insider trading, the person in charge directly responsible for the case and other persons with direct responsibility shall pay a fine in the amount of at least RMB30,000 but at most RMB300,000", and administrative supervision measures including ban from securities market may be also taken; the rules on criminal punishment are as follows: "if a person commits a insider trading crime, he/she will be sentenced to fixed-term imprisonment of not more than five years or penal servitude, alternatively or also pay illegal gains that are 1-5 times the amount of the fine. If a unit commits a crime, the unit shall pay a fine and the person in charge directly responsible for the case and other persons with direct responsibility shall pay fixed-term imprisonment of not more than 5 years or be sentenced to penal servitude. If the crime is especially serious, the person shall be sentenced to fixed-term imprisonment of at least 5 years and at most 10 years and pay a fine in the amount of 1-5 times that of illegal gains". In contrast, the highest punishment in the US against an individual guilty of insider trading is fixed-term imprisonment of 20 years and a fine in the maximum amount of US$5 million (or US$25 million for the relevant unit).

(5) Problem 2: The Chinese financial system has not been able to effectively force the exit of efficient firms

An important symbol to measure whether the financial system of a country is mature and efficient is the ability to effectively support the entry of new enterprises & good enterprises and timely obsolete inefficient firms. Within forty years' development, the Chinese financial system has accumulated much experience in supporting the entry of new and good enterprises but failed to do a good job in timely obsoleting inefficient firms. Dynamic change including entry and exit of new and old firms is an important manifestation of the operating efficiency of an economy, and this is similar to metabolism in human body. If inefficient enterprises are not eliminated out of the economic system in time, large quantities of element resources like capital, land and labor will be occupied and price signal will be also distorted, thus affecting the operating efficiency and quality of the entire economic system. An important background for the implementation of the supply-side structural reform starting from 2016 is the limited capability of the economy system including the financial system to eliminate inefficient enterprises.

According to SASAC's statistics, central enterprises needed to conduct special disposal and treatment on a total of 2041 "zombie enterprise" and extremely difficult enterprises in 2016, which involved assets worth RMB3 trillion in total. Through summarization of estimations of different research teams, zombie enterprises represents 5%-10% of industrial enterprises above designated size in China. Since the total assets of industrial enterprises above designated size in 2017 were RMB112.3 trillion, even if

calculated according to 5%, there are assets worth nearly RMB6 trillion that need to be disposed of. Compared with such a huge amount requiring disposal, the pace of the Chinese financial system in disposing of non-performing assets is obviously not satisfactory. According to the exiting size of inefficient enterprise assets estimated by Tsinghua University CCWE on the basis of listed banks' data on write-offs of non-performing loans (NPLs), ~RMB1.2 trillion of inefficient, ineffective assets were eliminated from the Chinese economy in 2017. Even if new inefficient assets are not considered, it takes 5 years for China to eliminate RMB6 trillion of existing inefficient, ineffective assets at the foregoing rate. If we calculate according to current average loan term of about three years, RMB6 trillion of assets not disposed of will each year occupy nearly RMB2 trillion loans, which means approximately 15% of bank loan resources. On the one hand, slow exit of inefficient enterprises exacerbates the problem of costly and difficult financing. Low-quality enterprises being given priority in use of financial institutions' credit resources may help banks cover up their problems and reduce their bad loan ratios on book. But new and good enterprises will have greater difficulty in securing loans, thus pushing up their financing costs. On the other hand, inefficient enterprises usually have poor technologies and low product quality. They are more willing to carry out price war and rely on low prices to survive. This will drag down the performance of good enterprises and disturb market order. More seriously, slow exit of inefficient enterprises will also lead to the occupation of production factors like land and labor and reduced productivity of the economy. The ability of capital market to eliminate inefficient enterprises is also inadequate, and the problem of difficult de-listing of Chinese listed companies is also prominent. In 2001-2017, a total of 60 listed companies were delisted from the Chinese A-share market for such reasons as loss, fraudulent issuance or privatization and the accumulative delisting rate was merely 1.83%. On average, there are about 150 IPOs in the American stock market each year, and about 400 companies are eliminated from the stock market each year due to such factors as merger, bankruptcy and delisting. As a result, 200-300 listed companies are delisted each year on average.

(6) Economic analysis

① The development of the financial system cannot do without governmental fostering and regulation

China's 40-year development of financial system clearly demonstrates that autonomous adjustment of the financial system alone can hardly guarantee efficient,

stable operation of the financial system and the government must participate in fostering and regulation of the financial system. On one hand, because of complexity and relevance of the financial system, the distortion or failure of the financial system will cause more serious damage than other markets. On the other hand, because smooth operation of the financial system has much to do with the development of individuals, enterprises and economy, the financial system is a pubic goods and has huge externality.

On the micro level, financial market behavior of micro-economic subjects needs to be regulated by the government. Due to capital's motive of pursuing profits, autonomous adjustment and correction of financial subjects alone tends to lead to distortion and chaos in the end. For example, before the founding of CSRC in early 1990s, "stock craze" swept the whole country and autonomous, arbitrary stock issue by enterprises, small and large, and securities markets spread unchecked in different cities. People even developed a misconception that "buying is earning". Under such crazy atmosphere, people struggled for stock subscription sheets. In 1992, the notorious "8·10 Incident" shocked the whole nation. This incident showed that with the deepening of shareholding reform and issuance of negotiable securities of various types, especially rapid development of the stock market, it was imperative to establish a centralized, unified supervision agency to unify regulations and systems and implement unified supervision. It was against such background that the State Council set up China Securities Regulatory Commission (CSRC).

In terms of industry development, government regulation is an effective force driving industry reform. In 1990s, State-owned commercial banks developed plenty of risks, which used to arrest much attention of international communities. At that time, some international media and institutions even asserted that Chinese solely State-owned commercial banks were "technically bankrupt". In order to solve huge non-performing assets of solely State-owned commercial banks, the government invested large quantities of resources. For instance, the government issued RMB270.0 billion of special bonds in 1998 to supplement statutory capital of four solely State-owned commercial banks. In 1999, China stripped RMB1.4 trillion of NPLs from four banks[1]

[1] According to the Several Issues Concerning the Reform of State-owned Commercial Banks — Speech at 2005 Academic Conference of China Society for Finance and Banking delivered by Tang Shuangning on March 25, 2005, RMB1,393.9 billion of assets stripped at that time included approximately RMB1 trillion of NPLs of four major State-owned banks, RMB100.0 billion from China Development Bank, over RMB100.0 billion of on-balance-sheet interest, and over RMB100.0 billion of normal loans stripped for debt for equity swap.

and transferred those loans to four specially established financial asset management companies for disposal. After 2003, China implemented the shareholding reform and listing of State-owned commercial banks. It can be seen that without government intervention and support, banks alone could not safely resolve crises at that time.

On the macro level, the resolution of systematic crisis requires government intervention. Take 2008 economic crisis as an example. Before that, the core idea of the neo-liberalism prevalent in the Western society is restricting governmental activities and maintaining that an unregulated market is more superior. The outbreak of the crisis indicated that market self-correction alone could not control risks, restore confidence, re-create balance sheets or re-start economic growth. Only national force and government agencies could solve the following problems: playing the role of "life raft" for the financial system at critical periods to prevent the collapse of the financial system; providing direct incentive for the real economy to make up for a drastic decline in private demand; designing national and global supervision mechanisms to prevent the reoccurrence of similar crises. As a matter of fact, for systematic financial risks and crisis events, there is so far no other alternative private financial market solution that is comparable with strong government intervention.[1]

② A steady progress of local-currency-based financial deepening is essential for fast investment in the real economy, channeling savings into investment

Financial deepening is mainly reflected in the expanding varieties and quantity of financial products and services, and in the enlarging population who have access to these financial products and services.

The academia often uses the ratio of broad money supply (M2) to GDP to measure the degree of "financial deepening". Broad money M2 has been expanding since the start of the Reform and Opening-up. At the end of 1990, M2 stock amounted to RMB1.5 trillion and the M2/GDP ratio was only 0.78. At the end of 2017, M2 stock reached RMB167.7 trillion and the M2/GDP ratio rose to 2.07. Another indicator frequently used to measure the financial deepening degree is the proportion of the financial industry's added value in GDP. It was 5.45% in 1992, but rose to 7.95% in 2017. As a comparison, in 2017, the added value of the finance and insurance industry in the US accunted for around 7.5% of its GDP.

[1.] Ma Yong, Chen Yulu. Government-Market Relationship in Financial Development: National Endowments and Efficient Frontier [J]. Finance & Trade Economics, 2014, 35(3):49-58.

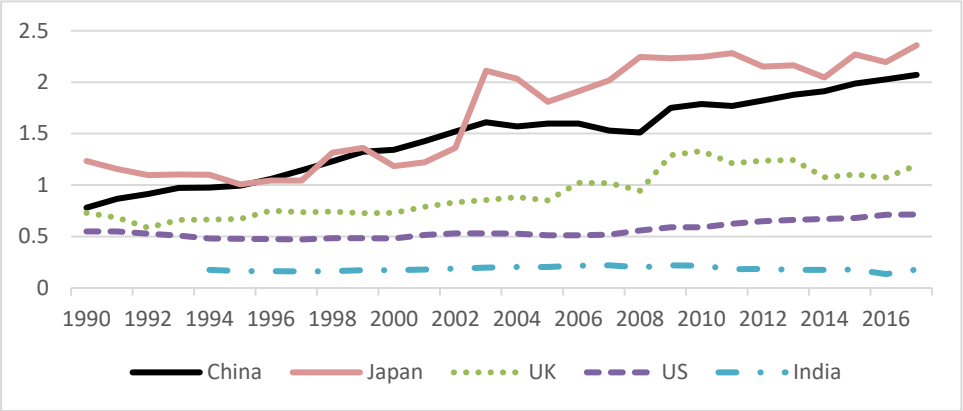


Exhibit 69 M2/GDP ratio in different countries

Source: CEIC Database

In terms of financial product varieties and quantity, financial assets held by residents were chiefly savings deposits before the Reform and Opening-up. Since 1990, bond and stock markets have been developing and growing from scratch. By the end of December 1992, the balance of bonds (government bonds and corporate bonds) was merely RMB210.5 billion and the total stock market capitalization was merely RMB104.8 billion in China. At the end of September 2018, the balance of bonds (government bonds and corporate bonds) reached RMB52.2 trillion, about 248 times of that in 1992; the total stock market capitalization reached RMB48.7 trillion, about 464 times of that in 1992. Additionally, based on relevant estimation, the balance of financial products of various types neared RMB30 trillion by the end of 2016.

The venture capital (VC) industry has also developed fast and China has become one of the world's largest VC markets. According to statistics from Zero2IPO Research, China's VC investment size totaled US$30.0 billion and the ratio of VC investment to GDP reached 0.25% (5 times the 2006 figure) in 2017. In terms of VC investment amount and quantity of VC institutions, China may be the world's second largest VC market[1]. In terms of financing amount, VC financing size in China reached US$51.0 billion in 2017, which surpassed the corresponding US figure for two consecutive years and made China the world's No. 1 VC financing market. The ratio of VC financing amount to GDP in China reached 0.4% (the US figure generally ranged between 0.2% and 0.3%). Due to the fact that new funds raised outnumbered investments, the amount

[1] According to data from FactSet , among global VC investment amount in 2017, the US ranked first with 55% share and China ranked second with 17% share. According to data from Preqin, measured by number of VC institutions, the US now ranks first with 1,199 VC institutions and China ranks second with 368 VC institutions among the world's major markets.

of existing investable capital in China continued to rise and now reaches US$114.0 billion, which is close to the US level[1].

It is also noted that new financial products featuring Internet-based FinTech have been growing fast over recent years. According to iResearch's survey report, the transaction size of general online credit products exceeded RMB10 trillion and the size of Internet-based asset management industry reached RMB3.5 trillion in 2017.

Based on the above analyses of various financial assets and the foregoing compilations of statistics on asset size of different financial categories, we have figured out the changes in the value of China's financial assets in recent years, and the ratio of financial assets value to GDP. China's financial assets have been expanding fast over recent years. The size of China's financial assets rose from RMB54 trillion in 2012 to RMB324 trillion in 2017 and the ratio of financial assets value to GDP rose from 285% to 393%. This reflects China's continual financial deepening. [2].

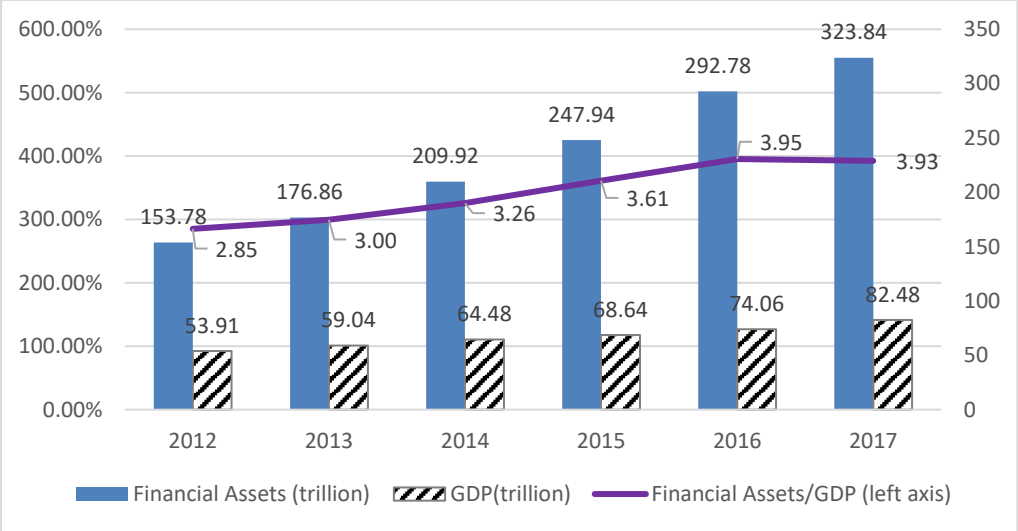


Exhibit 70 China's financial deepening over recent years

Source: National Bureau of Statistics of China, CBIRC, China Trustee Association, Securities Association of China, Insurance Association of China, Asset Management Association of China, estimations of the Institute for China's Economic Practice and Thinking, Tsinghua University

Residents holding huge amounts of financial assets are one side of the coin. The other side is robust growth of investments in infrastructure, equipment and land in the past 40 years of the Reform and Opening-up. According to National

[1] https://36kr.com/p/5147457.html

[2] It is noted that there are still omissions in the statistics of financial assets and the data of some small-sized categories like futures and options is not included here.

Bureau of Statistics of China, the accumulative completed social investment totaled RMB490 trillion during 1981-2017, which showed a CAGR of 20.2%.[1]

Participants in the financial market generally exhibited the following two characteristics. First, they account for a large share of the total population. Take stock market as an example. In October 2018, the stock market had a total of 140 million investment accounts. Even if calculated according to 2 accounts per person, the stock market should have more than 70 million investors. In May 2015, when the stock market "advanced triumphantly", the number of both SSE and SZSE accounts exceeded 100 million[2]. **Second, they are quite heterogeneous.** In 2017, the number of people with at least RMB6 million of investable assets ("HNWIs") approached 1.90 million[3], and their investment objectives are inclined towards wealth security, wealth inheritance and children's education instead of purely value appreciation. Those individuals attach greater importance to asset allocation at home and abroad and allocation of investment categories (e.g., purchase of overseas properties and insurance products). For qualified individual investors "whose household financial assets are worth at least RMB5 million, or whose annual average income over recent 3 years is at least RMB400,000 and who has at least 2 years' investment experience"[4], they may invest in privately-offered funds. In 2017, the total size of all privately-offered funds in China exceeded RMB11 trillion and the number of such funds issued exceeded 24,000[5]. For ordinary individual investors, they generally invest in bank deposits, bank financial products and publicly-offered funds. Among others, with increasing popularity of products like Yu E Bao, money market funds have substantially squeezed the share of bank deposits. At the end of September 2018, the total size of money market funds reached RMB8.92 trillion[6], while the total size of publicly-offered funds was RMB11.6 trillion. Banks depended on wealth management products to retain investors and improve profits. At the end of 2017, the value of existing wealth management products aimed at ordinary individual investors was RMB14.6 trillion, which indicated an annual growth of nearly 1/4 and accounted for nearly 1/2 of the total size of wealth management products.

[1] http://www.stats.gov.cn/ztjc/ztfx/ggkf40n/201809/t20180906_1621360.html
[2] http://data.eastmoney.com/cjsj/yzgptj/2015-05-25%5E2015-05-29.html
[3] https://baijiahao.baidu.com/s?id=1603692687261408251&wfr=spider&for=pc
[4] https://finance.sina.com.cn/stock/y/2017-11-17/doc-ifynwnty4270779.shtml
[5] http://funds.hexun.com/2018-03-21/192673561.html
[6] https://baijiahao.baidu.com/s?id=1616015285883827077&wfr=spider&for=pc

Since the Reform and Opening-up, China's financial deepening has been robust and based on local currency. First of all, the government precisely controls and closely supervises the innovation and development of financial products. For example, in March 2018, the government issued the *Guiding Opinions on Regulating the Asset Management Business of Financial Institutions*. The foregoing document adjusted the investment threshold of privately-offered funds from "any unit and individual whose amount invested in a single privately-offered fund is not below RMB1 million and complies with relevant standards; individual financial assets was not below RMB3 million or whose annual average income over recent 3 years is not below RMB500,000" to "any individual whose household financial assets are worth at least RMB5 million, or whose annual average income over recent 3 years is at least RMB400,000 and who has at least 2 years' investment experience; any corporate unit whose net assets by the end of most recent 1 year are not below RMB10 million". Such adjustment was actually tightening the requirements for investors. Second, the government restricts residents' purchase of overseas financial assets. Its major measures include: setting individual annual foreign exchange quota (US$50,000), setting overseas withdrawal limit (RMB100,000), and requiring investments in overseas capital markets to be conducted through approved qualified domestic institutions investors (QDII) to restrict "capital flight".

This robust and local-currency-based financial deepening process has promoted economic development. First, more investors get access to the financial market and are able to enjoy capital gains, and more enterprises and individuals may secure fund support from the financial market. Second, the expansion in the varieties and quantity of financial products absorbed large amounts of money, which enabled to the central bank to have greater leeway for its monetary policy while maintaining stable inflation and thus lessened the pressure on fiscal policy.

③ The government needs to proactively stay on top and mitigating financial risk

The Chinese government always attaches great importance to and proactively resolves financial risks, meanwhile underscores the importance of maintaining social stability. Despite occurrence of several financial risk events, the government actively intervened and finally resolved those problems effectively to avoid the occurrence of systematic financial crises and large-scale social unrest.

Firstly, the core decision-makers shall give priority to prevention and resolution of financial risks. After 1997, China held a National Financial Work Conference every 5 years to have in-depth discussions on such topics as prevention of systematic financial risks and perfection of financial supervision system. During 2008 financial crisis, the State Council set up an international financial crisis response group led by Wang Qishan. In the meantime, he also led the formation of the system of one regular meeting on financial work every 10 days to further strengthen the coordination and cooperation among "central bank and three regulatory commissions" and closely watch and forcefully respond to international financial crisis. In 2017, the State Council set up a "Financial Stability and Development Commission", which was chaired by deputy premier of the State Council and whose administrative level was higher than "central bank and three regulatory commission", and its main task was to coordinate matters concerning financial stability, reform and development.

Secondly, the government shall play an important role in preventing the occurrence of systematic crisis. Compared with other countries, China takes measures actively and resolutely, addressed 1997 Asian financial crisis and 2008 global financial crisis successfully and maintained basic stability of China's financial system. During the Asian financial crisis, China strengthened macroeconomic regulation over the money market. Meanwhile, PBOC made 2 RRR (required reserve ratio) cuts and 6 interest rate cuts and issued RMB150.0 billion of additional treasury bonds in 1998, thus maintaining macroeconomic stability with successful control. During the global financial crisis, PBOC made 4 RRR cuts and 5 interest rate cuts and implemented a large-scale package plan to further stimulate domestic market, increase domestic demand and invest in the fields important to people's livelihood, which promoted smooth economic transition.

Lastly, the government shall handle issues concerning social stability properly while resolving financial risks. Social stability is the foundation for sustained economic development, and the intensity of reform must be kept within the tolerance range of social stability in China as a developing nation with large population and social diversity. Chinese government's concrete practices are reflected in the following three aspects: Firstly, China will make a difference between fund security of domestic public investors and fund security of overseas institutional investors under the pressure of circumstances. For instance, in the handling of Southern Securities bankruptcy case in 2004, PBOC specially provided RMB8.7 billion re-loans to help

Southern Securities repay all margins of investors previously misappropriated. In contrast, institutional investors involved in the 1998 Guangdong International Trust bankruptcy case were not so lucky. Under the arrangement, more than RMB700 million of principal of deposits of domestic natural persons[1] was to be fully repaid by the Bank of China, and the remaining RMB38.8 billion of domestic and foreign debts (including RMB32.0 billion of debts attributable to overseas creditors) was treated equally with actual debt service ratio of less than 20%[2]. Secondly, different regulatory agencies have different grass-roots organization and staffing size. PBOC sinks to counties, CBRC sinks to cities, and CSRC sinks to province-level regions; the staffing size of the banking regulatory agency far exceeds that of the securities regulatory agency, which reflects the government's emphasis on protecting residents' deposit security and maintaining social stability. Thirdly, the government imposes different degrees of punishment on different types of illegal financial acts. For example, a crime of fraud in financing carries a maximum death penalty, but the intensity of punishment against illegal acts in securities market is relatively weak. The difference lies in that those two illegal acts impact differently on social stability.

[1] It included RMB132 million of investors' margins misappropriated by 9 securities sales departments, with data coming from the *Actual Record of Court Trial of the Bankruptcy Case of Former Guangdong International Trust & Investment Co., Ltd.* http://www.chinanews.com/n/2003-03-01/26/277482.html

[2] The figure is the amount of declared claims, with data coming from the Gazette of the Supreme People's Court of the People's Republic of China http://gongbao.court.gov.cn/details/bba0bd0d46cb19999c24e15b160713.html

4. Learning Through Opening up

In the past 40 years of reform and opening up, China has made efforts to enhance the opening up of China's economy through continuous deepening of reforms and has embarked on a smooth, orderly and managed road to opening up. In the 40 years of practice in opening up, Chinese enterprises, laborers and governments have successfully responded to the tremendous impact caused by the opening up to the Chinese economy and achieved structural upgrading of industries in the opening up, established and improved the market economy system, and achieved the strategic objective of integration of its economy into the wider world. As the world's largest developing country and the largest transitional economy, China promotes reform through opening up, promotes opening up through reform and, relying on borrowing, absorption and innovation, achieves synergy of its low labor cost, scale advantage, land and other resources in combination of international capital and technology, which has rapidly formed huge production capacity and promoted economic growth.

The rapidly growing Chinese economy in the opening up has also made important contributions to the development of the world economy. After 40 years of reform and opening up, China has become the world's largest consumer market. Foreign businessmen have obtained a large number of business opportunities in China, such as cross-border investment and entering the Chinese market. Enterprises from all countries have fully shared the great opportunities associated with China's economic development in their economic exchanges with China. China's opening up to the outside world has played an important role in stimulating global economic growth and promoting economic structural upgrading. At the same time, with the deepening of economic globalization and the prevalence of international production, the scale advantage of China's manufacturing industry has gradually become prominent, showing strong supporting capacity for parts processing, production and assembly, which also drives down the costs of global manufacturing. The continuous reduction of costs has promoted competition within industries and improved the economic welfare of consumers around the world.

(1) The Chinese economy has been integrated into the world and has achieved industrial upgrading in the process of opening up

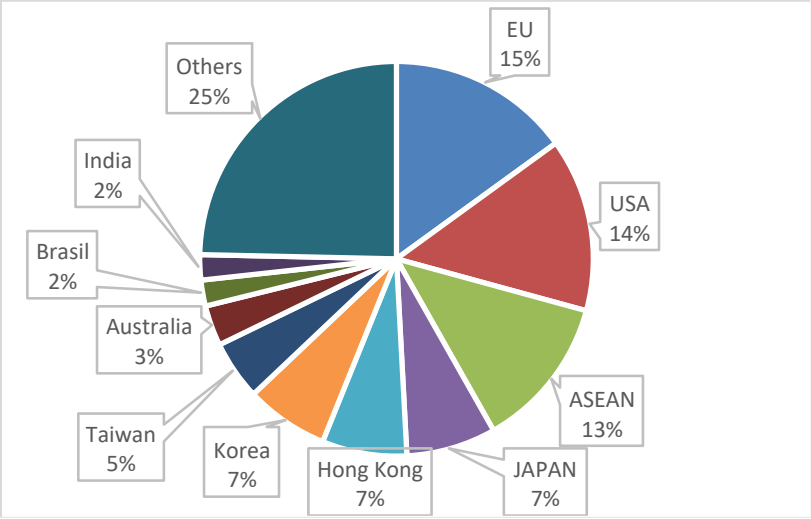
In the great historical process of China's reform and opening up, foreign trade and foreign direct investment (FDI) have always played an important role. Over the past 40 years, China has worked hard to promote the reform of the foreign trade system, to actively integrate into the global economy, to achieve the historical growth of the scale of international trade and FDI, and become the world's largest country in terms of goods

trade and the second largest destination for foreign direct investment, creating a miracle in the history of world economic development.

The total volume of trade has soared. In the 40 years of reform and opening up, the total import and export volume of China's goods has increased from US$20.64 billion in 1978 to US$4.1 trillion in 2017, an increase of 197 times. The average annual growth rate has reached 14.5%, nearly doubling every five years. China has therefore become the world's largest trading nation. In 1978, China's exports of goods accounted for less than 1% of the world market. By 2017, this share had grown staggeringly to 12.8%, making it the world's largest exporter. As regards imports, China's imports accounted for 10.2% of the world market share in 2017, second only to the United States.[1]

The market covers the whole world. Based on the data of 2017, after 40 years of reform and opening up, China's trading partners have grown from 45 in the late 1970s to 231[2]; from the perspective of market distribution, the EU, the US, ASEAN, Japan and BRIC countries are currently China's main trading partners, of which imports and exports to the EU and the United States account for 29.3%[3] of China's total import and export volume. From the perspective of the development trend of various markets, China and emerging market countries in recent years, along the "Belt and Road" countries Trade continued to grow rapidly. For example, ASEAN's share of China's export market increased from 7.0% in 2000 to 12.5% in 2017, and the share of Africa had increased from 2.0% in 2000 to 4.1%[4] in 2017.

Exhibit 71 China's share of imports and exports to major trading partners in 2017



Source: CEIC database, ACCEPT calculation

[1] The above import and export data are from the World Trade Organization (WTO). China's exports of goods exceeded Germany for the first time in 2009, making China the world's largest exporter.

[2] The data source is IMF Direction of Trade Statistics.

[3] General Administration of Customs data of 2017.

[4] The source of data is the National Bureau of Statistics.

The largest developing country attracting foreign capital. The top four countries or regions in terms of global FDI inflows in 2017 were the United States, China, Hong Kong SAR, and Brazil. Against the background of a 23% decline in global FDI in 2017, China's inbound foreign investment continued to grow nonetheless, accounting for 9.53% of the global FDI inflow, ranking second again in the world's largest foreign direct investment destinations, surpassing the third-ranked Hong Kong SAR by US$32 billion (1.3 times of Hong Kong SAR, China), and surpassing the fourth-ranked Brazil by US$76.3 billion (2.2 times of Brazil)[1]. As of 2017, the cumulative global FDI was US$31.52 trillion, and the cumulative FDI flowing into China was US$1.49 trillion, accounting for 4.73% of the global cumulative FDI, ranking fourth in the world. Comparing the cumulative FDI with the top four countries and regions, China's cumulative inbound FDI is equivalent to 19.1%, 75.8% and 95.4%[2] of those of the United States, Hong Kong SAR, China, and the United Kingdom respectively.

The "hub" of manufacturing and service exports in global value chains. After 40 years of reform and opening up, China's manufacturing and service industries' participation in the global value chain has deepened, and it has steadily climbed upward the global value chain, relying on supporting capabilities, market and technological innovation capabilities to serve the global economic subjects. From the development trend of the past two decades, the international competitive advantage of China's labor-intensive industries has begun to gradually decline, while the international competitiveness of capital and technology-intensive manufacturing has increased significantly. China has become the world's largest supplier of intermediate goods, playing a key role of "hub"[3] in the global value chain.

Chinese multinational companies have stood out in global competition. By the end of 2016, a total of 24,000 Chinese-invested enterprises had established 37,000 foreign direct investment enterprises abroad. At the end of the year, the total number of employees employed by these overseas enterprises was 2.865 million, of which 1.343 million were foreigners. The total amount of taxes paid by the Chinese companies

[1] United Nations Organization for Trade and Development (UNCATD), 2018: *World Investment Report 2018,* https://unctad.org/en/PublicationsLibrary/wir2018_overview_ch.pdf [2018-11-15]; Ministry of Commerce, National Statistics of the People's Republic of China Bureau, State Administration of Foreign Exchange, 2017: *2016 China Foreign Direct Investment Statistics Bulletin*, http://www.mofcom.gov.cn/article/tongjiziliao/dgzz/201803/20180302722851.shtml [2018-11-15] Ministry of Commerce, National Bureau of Statistics, State Administration of Foreign Exchange, 2018: *2017 China Foreign Direct Investment Statistics Bulletin*, http://www.mofcom.gov.cn/article/tongjiziliao/dgzz/201809/20180902791492 .shtml [2018-11-15];

[2] United Nations Organization for Trade and Development (UNCATD), 2018: *World Investment Report 2018,* https://unctad.org/en/PublicationsLibrary/wir2018_overview_ch.pdf [2018-11-15]; the People's Republic of China

[3] Zhang Huiqing and Zhai Xiaoqiang, 2018: Characteristics and Insights of China's Participation in Global Value Chains, Quantitative Economics and Technology Economics, No. 1, 2018, pp. 3-22.

invested in domestic and overseas countries (regions) was nearly US$30 billion[1]. In terms of industry distribution, the manufacturing and wholesale and retail industries are the most developed industries for foreign direct investment in China, accounting for about 60% of the total investment enterprises. From the perspective of traffic, state-owned enterprises directly under the central government are no longer the main force for foreign direct investment, accounting for only 0.7% of the total number; geographically, enterprises established in Asia account for 55.8% of the total number of foreign-invested enterprises, followed by those established in North America and Europe, accounting for 15.2% and 11.3% respectively.

From the literature on FDI spillover effects, the technology brought by foreign companies may bring about negative extrusion effects[2], as well as positive upgrade effects. For China, its per capita GDP in 2017 was only 27%[3] of the US. In the past 40 years, especially during the early stage of reform and opening up, there was a huge technological gap between China and the developed countries such as the United States. In the process of trade and cooperative management with developed countries, there was a significant spillover effect of technology.

In just four decades, the structures of the Chinese economy have undergone profound changes. In the 1980s, the structure of China's export goods underwent the transformation from primary products to industrial manufactured products. In the 1990s, it underwent the transformation from light textile products to mechanical and electrical products. **Since the beginning of the 21st century, the percentage of high-tech products represented by electronics and information technology has continued to grow. From 1985 to 2017, China's exports of mechanical and electrical products had increased from US$1.68 billion to US$1.32 trillion, an increase of 785 times or an average annual growth rate of 23.2%, and the share of the global market increased from negligible to more than 17%.** Exports accounted for 58.4% of the country's total exports. In the same period, the proportion of high-tech products in China's exports increased from 2% to 28.8%[4].

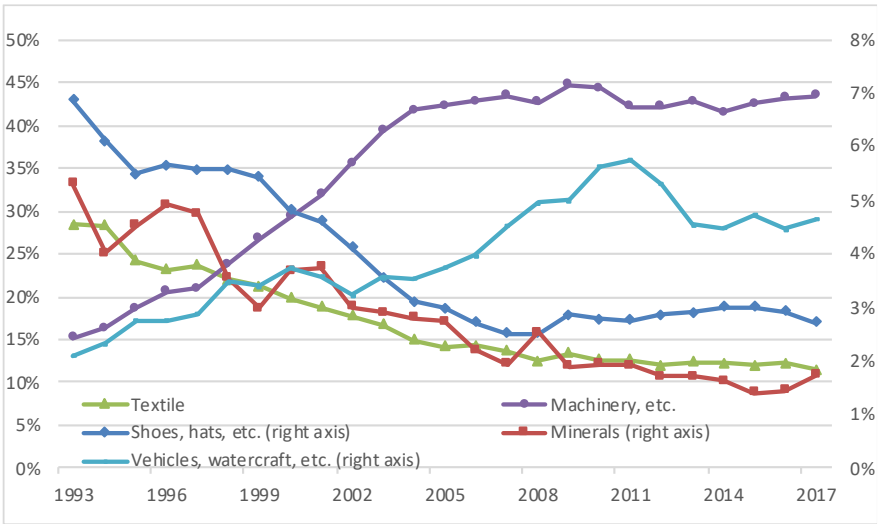
[1] Ministry of Commerce of the People's Republic of China, 2017: *China Foreign Investment Cooperation Development Report 2017*, http://fec.mofcom.gov.cn/article/tzhzcj/tzhz/upload/zgdwtzhzfzbg2017.pdf [2018-11-15]

[2] Javorcik, BS., Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages. American economic review 94, no. 3 (2004): 605-627.

[3] Calculated according to purchasing power parity.

[4] The data source is the CEIC database.

Exhibit 72 Major products' shares of China's exports



Source: CEIC database, ACCEPT calculation

The reform and opening up since 1978 has opened China's closed door. The first Sino-foreign joint venture was set up in 1980[1]. Currently there are 505,000 foreign-invested enterprises[2]. They have not only created value and provided employment in China through their own production activities but also acted as a role model in demonstrating technological innovation, market management and institutional innovation to their Chinese counterparts. **Foreign-invested enterprises usually bring new technologies and novel organizational forms, which encourages potential domestic entrepreneurs to learn from and to promote entrepreneurship. At the same time, this demonstrative role also helps domestic entrepreneurs to improve existing products and increase market competition, promoting industrial upgrading**[3]. In fact, Liu et al. (2014) used the micro-data from corporate surveys to find that startups with management experience in foreign-invested enterprises have better design of governance in terms of employee incentives and legal arbitration, and consider it to be an important channel for FDI spillovers[4].

[1] On May 3, 1980, Beijing Aviation Food Co., Ltd. was established. This is the first joint venture in China. The registration number of the State Administration for Industry and Commerce is "001", and people aptly called it "Tianzi No.1". For details, please refer to: Li Jie, 2018: *Beijing Air Food: "No. 001" Joint Venture, Unforgettable "Fresh Air"*, Xinhuanet reprinted from *People's Daily Overseas Edition*, http://www.xinhuanet.com/ Fortune/2018-08/14/c_1123264464.htm [2018-11-15].

[2] Data are from the National Bureau of Statistics data for "number of foreign-invested enterprises (households)" as of the end of 2016.

[3] Li Yan and Liu Shichang, 2018: Opening up and Industrial Upgrading in the Context of Global Value Chains – An Empirical Study Based on Quasi-Nature Experiments, China Soft Science, No. 8, 2018, pp. 165-174.

[4] Liu, Q., Lu, Ru., Zhang, C., 2017, Entrepreneurship and spillovers from multinationals: Evidence from Chinese private firms, China Economic Review, Volume 29, PP 95-106.

For example, Chinese construction machinery is an industry that has grown up in the opening up and has achieved production upgrades. After years of study, borrowing, absorption and indigenous innovation, China's construction machinery has achieved a dominant position, its self-sufficiency rate of construction machinery products has greatly improved, and the quality of global service has been greatly improved. By 2016, China's construction machinery industry exported goods worth US$17 billion. Ten engineering machinery enterprises have made their way to the list of world top 50 strongest in engineering machinery, and their technological innovation capabilities have been continuously improved[1].

In addition to the demonstrative role, foreign-invested enterprises in China have also driven China's related supporting enterprises to go out through supply chain expansion, and promoted enterprise development and industrial upgrading in the process of joining the global industrial chain and integrating into the global market. For example, Fuyao Glass, Yanfeng Decoration, and Shanghai Changhui have all invested and built factories in the United States under the leadership of GM and Volkswagen, and provided R&D and production of supporting components for their own vehicle customers in the United States[2]. China's parts and components companies have followed the investment of foreign-invested manufacturers in mature markets, providing favorable conditions for further in-depth participation in vehicle design and development, strengthening supply efficiency and market service capabilities. Chinese component companies have also improved themselves in this process. The competitiveness of Chinese enterprises has gradually improved – they built brand influence and achieved industrial upgrading.

In the process of opening up, Chinese enterprises have entered high value-added industries and improved their international competitiveness through acquisitions of high-quality assets in developed countries and learning of their advanced management models. In this process, Chinese investment also injected a strong impetus into the economic development of the host country and created a large number of jobs. For example, Northern Heavy Industries successfully acquired Germany's Wirth Holding / France's NFM, which enabled Northern Heavy Industries to gain huge technological advantages in TBM manufacturing and help China's TBM industry achieve industrial

[1] From 2001 to 2016, China's construction machinery industry won one first prize of National Science and Technology Progress Award, four second prizes; two second prizes of National Technology Invention Award; one top prize for industrial science and technology, 25 first prizes, 101 second prizes, and 174 third prizes. For details, please refer to the Ministry of Commerce of the People's Republic of China, 2017: *China Foreign Investment Cooperation Development Report 2017*, http://fec.mofcom.gov.cn/article/tzhzcj/tzhz/upload/zgdwtzhzfzbg2017.pdf [2018-11-15] .

[2] ? ? ? After the integration of the interior business of Yanfeng's and Johnson Controls' interior business, it became the world's largest supplier of interior parts, with plants in Kansas and Tennessee, USA, providing interior products for some models of GM and Volkswagen.

upgrading[1]; the acquisition of Australian architectural firm John Holland by China Communications Construction Co., Ltd. significantly improved the latter's competitiveness in infrastructure upstream design[2]; COFCO acquired the equity of international food trading giant Nidera to enhance its position in the international food trade value chain[3].

At the same time, in the past four decades, Chinese government officials, entrepreneurs, students, and workers have continued to study and absorb nutrients around the world. Beginning with the four high-level delegations of the Central Committee of the Communist Party of China in 1978, a batch of delegations and students went abroad, bringing back the advanced concepts of economic and social development in the world with sensitiveness, eagerness, and urgency. In combination with China's actual national conditions, it is put into practice in economic development and social reform. **Since the reform and opening up to the end of 2017, a total of 5,194,900 persons have gone abroad to study, of which 3,740,800 have completed their studies, and 3,132,000 have opted to return to China after completing their studies, accounting for 83.73%**[4] of those who have obtained degrees. In this process of learning, borrowing, absorbing, and innovating, the Chinese people have devoted themselves to the tide of economic globalization and have continuously taken a solid step in the times.

(2) China's process of opening up has also benefited the world economy

Since the reform and opening up, China's low-cost and scale-based production factors have been combined with international capital and technology to rapidly form a strong production capacity, deeply integrated into the global industrial and value chains, and promote world economic growth. China has been an important contributor to the world's economic development. The opened up Chinese market has not only become the world's largest consumer market, but also the second largest FDI destination country in the world after the United States. The companies which have invested in China have shared huge growth dividends in the past when China's economy grew rapidly. **According to statistics, in the 16 years after China's accession to the WTO alone, the total cumulative profits of foreign-invested enterprises and enterprises invested by businessmen from Hong Kong, Macao and Taiwanese exceeded**

[1] Jiang Min, 2007: *North Heavy Industry acquired German Wirth Holding Company / French NFM Company*, http://finance.people.com.cn/GB/6181939.html [2018-11-15].

[2] Jamie Smith, Mi Qiang, 2014: *China Communications Group Acquires Australian Builders for A$1.15 Billion*, Financial Times Chinese Website, http://www.ftchinese.com/story/001059633?full=y&archive [2018 -11-15]

[3] China Securities Network, 2016: *COFCO acquires the entire equity of Nidera*, http://news.cnstock.com/news,bwkx-201608-3881870.htm [2018-11-15].

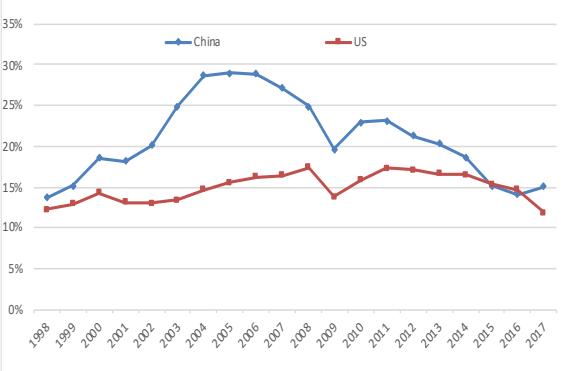
[4] Zhang Shuo, 2018: Number of Chinese students studying abroad last year broke 600,000, People's Daily Overseas Edition, 02th edition, March 31, 2018.

RMB15.57 trillion (close to the GDP of the UK in 2017 denominated in RMB)[1]. At the same time, with the deepening of economic globalization and value chain internationalization, **the scale advantage of China's basic manufacturing industries has gradually become prominent, showing strong supporting capabilities and competitiveness in parts processing, production and assembly. These have consistently driven down the production costs of the world's manufacturing industries, promoted competition in the industries, and improved the economic welfare of consumers around the world.**

① Direct contribution of economic and trade cooperation

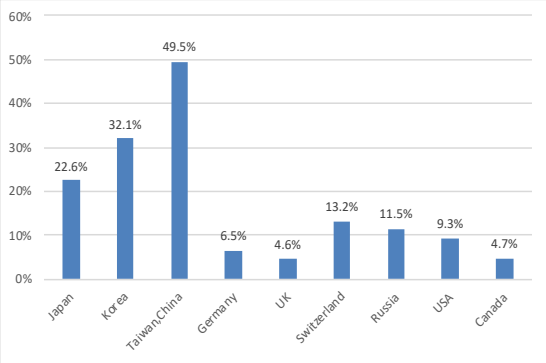
From the perspective of trade, the developing Chinese economy has become the world's largest sales market of goods. In 2017, China's total import and export of goods reached US$4.1 trillion, ranked first in the world; the total import and export of service trade reached US$695.68 billion, ranked second in the world[2]. In the 40 years of reform and opening up, China imported a total of RMB21.78 trillion worth of goods from abroad[3]. It has become the largest trading partner of more than 120 countries and regions in the world. During the 20 years since accession to WTO, China has continuously widened its opening up to the outside world and actively integrated itself into the economic globalization, and has become an important engine for world economic growth.

Exhibit 73 Value of Percentages of Sino-US imports as a percentage ofin their GDP, China and the US



Source: CEIC database, authors' calculation

Exhibit 74 Percentages of exports to China in their total exports



Source: CEIC database, authors' calculation

[1] Referring to the 16 years from 2001 to 2016, and the total profit data come from the National Bureau of Statistics of China.

[2] Data from the World Trade Organization (WTO).

[3] Data from the National Bureau of Statistics of China.

The opening of the Chinese market has created the largest single market for the world. In recent years, with the adjustment of China's economic structure and industrial upgrading, the demand of the Chinese economy by the world market has gradually migrated upstream. As regards the categories of China's imported products, the proportion of mechanical and electrical products and high-tech products imported from China has steadily increased, which has brought growth momentum in particular to developed countries in the high-end industrial chain complementary to China's industries. As regards the regional distribution of China's imported products, Asia has the highest proportion, followed by the European Union and North America.

In the 40 years of reform and opening up, the developing Chinese economy has driven the export market of trading partners and shared the benefits of China's economic growth in the process of trade. Taking the data of 2016 as an example, the products sold to China accounted for 22.59% of Japan's total exports in the year. The percentages of Korea, Taiwan, Switzerland, Russia, the United States, Germany, Canada, and the United Kingdom were 32.09%, 49.53%, 12.15 %, 11.45%, 9.27%, 6.45%, 4.7%, and 4.57% respectively. **According to estimates, the United States, which actively provoked trade frictions, boosted its GDP by 0.8 percentage point in 2015; US exports to China and China-US two-way investment contributed** US$216 billion to US gross domestic product, increasing the economic growth rate in the US by 1.2 percentage points[1]; even in terms of agricultural products alone, China is a top five trade partners of the 46 federal states in the United States, and on average an American farmer exports more than US$10,000 of agricultural products to China annually; in 2016, China is a top five service trading partners of all 50 states in the United States[2];

② Chinese profits of multinational corporations

In the 40 years of reform and opening up, the opened up Chinese market has further shared the economic growth benefits with the world through transnational investment. **Investors from abroad, Hong Kong SAR, Macao SAR and Taiwan have obtained a huge market and reaped rich profits from the "growth miracle" of China's economy.** Since the reform and opening up 40 years ago, foreign direct investment (FDI) in China has continued to expand. Especially after joining the WTO, the scale of FDI has increased from US$46.88 billion in 2001 to US$136.32 billion in 2017, with an average annual growth rate of 6.9%, ranked second globally and first among developing countries[3]; the number of foreign-invested and Hong Kong SAR, Macao

[1] Press Office of the People's Republic of China, 2018: *Facts and China's Position on China-US Economic and Trade Friction*, http://www.xinhuanet.com/politics/2018-09/24/c_1123475272.htm [2018-11-14]

[2] US China Business Council, 2018, US-China Business Council State Export Report, https://www.uschina.org/sites/default/files/final_uscbc_state_report_2018_1.pdf [2018-11-15]

[3] Data from the Ministry of Commerce of China.

SAR and Taiwan-invested industrial enterprises increased from 28,400 before joining the WTO to 59,600 in 2016; the paid-in capital increased from US$0.91 trillion to US$5.23 trillion in 2016. **In the period of 2001-2016, the cumulative profits of foreign-invested and Hong Kong SAR, Macao SAR and Taiwan-invested industrial enterprises exceeded US$15.57 trillion[1].** In the context of economic globalization, China has made tremendous contributions to global economic growth through open markets and mutual benefit.

Taking the automobile manufacturing industry as an example, since the establishment of Sino-German joint venture Shanghai Volkswagen Automotive Co., Ltd. in 1984, nearly 3,000 foreign-invested enterprises and Hong Kong SAR, Macao SAR and Taiwan-invested enterprises have been set up by automobile manufacturers, including GM, BMW, Mercedes-Benz and Toyota. **In terms of the sales revenues in 2015, foreign-invested enterprises and enterprises invested by Hong Kong SAR, Macao SAR and Taiwan investors accounted for 47.50% of the whole industry, nearly half of the total[2]. In terms of sales volume, the sales of joint-venture vehicles accounted for more than 60% of the market share** (in 2017, more than 24 million vehicles were sold in China, of which the sales of German, Japanese, American, Korean and French brands were 5.4 million, 4.55 million, 3.06 million, 1.2 million and 485,000 respectively). The top three automakers in the United States have a total profit of US$7.44 billion in joint ventures in China in 2015[3]. General Motors alone has ten joint ventures in China, and its production in China accounted for 40% of its global production in 2017; in 2017, BMW sold 594,400 vehicles in China, accounting for 24.13% of its global sales; BMW Brilliance, a joint venture set up by BMW in China, sold 366,500 vehicles in 2017 and realized profits of RMB10.475 billion in the year. Since its establishment 15 years ago, BMW Brilliance has an aggregate sale of more than 1, 956,800 vehicles in China[4]. In contrast, although some people in the United States believe that vehicles of foreign brands strongly impact the domestic market, the

[1] Referring to the16 years from 2001 to 2016, and the total profit data come from the National Bureau of Statistics of China.

[2] According to the data of China Association of Automobile Manufacturers in 2015, there were 13,431 enterprises in China's automobile manufacturing industry, including 131 Chinese enterprises, 78 collective enterprises, 53 contractual stock enterprises, 334 joint-stock enterprises, 6,790 private enterprises, 2,888 enterprises invested by foreign businessmen and businessmen from Hong Kong, Macao, and Taiwan.

[3] Press Office of the People's Republic of China, 2018: *Facts and China's Position on Sino-US Trade Friction*, http://www.xinhuanet.com/politics/2018-09/24/c_1123475272.htm [2018-11-14].

[4] The above includes sales data for BMW, MINI and Rolls Royce. The data come from the BMW Group and Brilliance Group Annual Report. BMW Brilliance set up production in Shenyang, Liaoning, China in 2003. Currently, it has two factories in Tiexi and Dadong in Shenyang. BMW Brilliance has 50% investment in each of the Brilliance Group and BMW (China).

market share of GM, Chrysler and Ford in the domestic market reached 68% in 2000 and stood at 45% even in 2014[1].

In recent years, with the upgrading of China's automobile consumer market and the steady improvement of the domestic business environment, multinational automakers who have made favorable profits from the development of China's auto market have increased their investment in China. Taking BMW (China) as an example, in May 2018, it announced that it would enter cooperation with Great Wall Motor and would invest RMB5.1 billion to build a pure electric MINI car in Jiangsu. In October, it announced that it would continue to cooperate with Brilliance Auto and invest RMB30 billion in Shenyang Tiexi to build the Phase III Project of the Tiexi Plant.

In the 40 years of reform and opening up, China in development has become an important market and profit growth point for high-tech enterprises and service firms in developed countries. On this issue, the Ministry of Commerce issued *The Facts and China's Position on China-US Trade Friction*[2], wherein there is a detailed explanation: "Qualcomm's income from chip sales and patent royalties in China accounted for 57% of its total revenue. Intel's revenues in China (including the Hong Kong region) accounted for 23.6% of its total revenue. In the FY 2017, revenues from Greater China accounted for 19.5% of the Apple Inc. total; by January 2017, 13 American banks had subsidiaries or branches and ten American insurance companies had insurance firms in China. Goldman Sachs, American Express, Bank of America, MetLife and other American financial institutions have reaped handsome returns from their strategic investment in Chinese financial institutions; according to China Securities Regulatory Commission, American investment banks were lead underwriters or co-lead underwriters for 70% of the funds raised by Chinese companies in their overseas IPOs and refinancing. US law firms have set up about 120 offices in China; trade and economic cooperation has created a large number of jobs in the US. According to a US-China Business Council estimate, in 2015, US exports to China and US-China two-way investment supported 2.6 million jobs in America. Specifically, Chinese investment covered 46 states of the US, generating for the US more than 140,000 jobs, most of which are in manufacturing."

③ Reduce manufacturing costs and promote market competition

In the process of opening up to the outside world and integrating into the world economy, the Chinese economy has unleashed tremendous competitiveness. Part of the competitiveness of the Chinese economy comes from the cost advantage of production factors such as labor and land, and more importantly from the scale effect of Chinese

[1] Kim P., 2014, *The Big Three aren't so big anymore*, CBSNews Website cites data from IHS, https://www.cbsnews.com/news/the-big-three-arent-so-big-anymore/ [2018-11-18].

[2] Press Office of the People's Republic of China, 2018: *Facts and China's Position on China-US Economic and Trade Friction*, http://www.xinhuanet.com/politics/2018-09/24/c_1123475272.htm [2018-11-14].

manufacturing. Taking smart phones parts as an example, a smart phone need more than 30 micro-screws (nuts). The manufacturers of these precision parts are mainly concentrated in the Pearl River Delta and the Yangtze River Delta. The industry is mainly comprised of 3-4 larger Tier 1 supplier and more than 100 smaller Tier 2 suppliers. Take Shanghai Dedao Heshou Precision Machinery Manufacturing Co., Ltd. as an example. As a secondary supplier of collaborative production, its production costs cannot be sufficiently reduced to achieve profitability, unless the daily output reaches the scale of 2 million micro-screws (nuts), on the premise of assured production accuracy and non-magnetic specifications. For another example, the production costs of disposable lighters[1] and perfume bottle nozzles have been reduced precisely because Chinese companies, relying on economies of scale, have joined the world market. Suzhou producers supply the world with 90% of all stable and low-priced perfumes bottle nozzles. Perfume bottle nozzles for Dior, Chanel, and other famous brands are purchased in Suzhou. In the field of basic manufacturing, the scale effect advantage of the Chinese economy has greatly enhanced the manufacturing capacity of parts and components, thereby significantly reducing the production costs of the manufacturing industry, promoting market competition, and further entrenching the advantage of China's manufacturing industry.

In economic and trade cooperation with China, multinationals from developed countries have enhanced their international competitiveness by integrating the advantages of both countries. Apple designs and develops mobile phones in the United States, has them assembled and manufactured in China, and sells them in the global market. Although some mercantilist leaders, represented by President Trump, want manufacturing to return to the United States, it is estimated that if all the assembled production is done in the United States, the production cost of Apple's mobile phones will increase by 37%[2]. As the theory of international trade has it, as a whole, developed countries have suffered no loss in the division of labor with China. China relies on strong supporting capabilities to undertake production links in the global industrial chain, enabling developed countries (especially the United States) to focus on design, market research and other fields, and continuously upgrade in high value-added fields such as manufacturing and service industries to further improve their national strength.

China's opening up has promoted global competition and promoted industrial upgrading in developed countries. Since 2001, after earnestly fulfilling its commitment to join the World Trade Organization, China has also taken the initiative to expand market opening and promote market competition through unilateral tax reduction. Upon joining the World Trade Organization, the Chinese government has made great efforts to promote full integration into the international economic system. Since 2001, the Chinese central government has cleared more than 2,300 laws, regulations and

[1] A disposable lighter sold at RMB 1 consists of 6-7 parts.

[2] Goldman Sachs Equity Research, 2017, *Made in the USA ... or China?*, March 26, 2017.

ministerial regulations, and local governments have cleared more than 190,000 local policies and regulations; the overall tariff level dropped from 15.3% in 2001 to 9.8% in 2015, when the trade-weighted average tariff rate fell to 4.4%, significantly lower than emerging economies and developing countries such as South Korea, India, and Indonesia and close to the US (2.4%) and the European Union (3%); among the 160 service sub-sectors defined by the WTO, China has promised to open 100 of them, falling slightly short of 108, the average number of opened sub-sectors by the developed countries members. Today, China has improved its business environment and improved its services through 12 free trade zones, which can still be regarded as its efforts to draw upon foreign experiences[1].

④ Contributing to the Increase of global consumers' welfare

China's opening up has brought tangible benefits to consumers around the world. International trade enriches consumer choices, reduces the cost of living, and enhances the actual purchasing power of people around the world, especially low- and middle-income groups. The US-China Business Council and the Oxford Research Institute have jointly found that, if there had been no trade with China, the average annual household expenditure of American families would have increased by US$850, or 1.5% of the average annual household income[2].

China's opening up has not only promoted global economic growth and improved consumer welfare, but also reduced global inflation. As it is cited in *The Facts and China's Position on China-US Trade Friction*[3], the estimates from the joint study of the US-China Trade National Committee and the Oxford Research Institute show that "Value-for-money products from China drove down prices for American consumers, and in 2015 for example, reduced the consumer price index by 1 to 1.5 percentage points. A low inflation environment has created much room for expansionary macroeconomic policies in the US."

⑤ Protectionism in the process of industrialization in the United Kingdom, the United States, and Germany: A comparison

In recent times, there have been some doubts even accusations voiced against China in the international arena. Some people from major developed countries such as the United

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1 Based on the Press Office of the People's Republic of China, 2018: *White Paper on China and the World Trade Organization*, http://www.mofcom.gov.cn/article/i/jyjl/l/201808/20180802773208.shtml [2018-11- 14]; Press Office of the People's Republic of China, 2018: *Facts and China's Position on China-US Economic and Trade Friction*, http://www.xinhuanet.com/politics/2018-09/24/c_1123475272.htm [2018-11- 14].

2 Oxford Economics and US-China Business Council, 2017, *Understanding the US-China Trade Relationship*, https://www.uschina.org/reports/understanding-us-china-trade-relationship [2018-11-15].

3 Press Office of the People's Republic of China, 2018: *Facts and China's Position on China-US Economic and Trade Friction*, http://www.xinhuanet.com/politics/2018-09/24/c_1123475272.htm [2018-11-14].

States believe that China's open process is slow and has taken "advantage" of the world, especially developed countries. **However, if we look at the world and surveying the development history of these major powers, it seems that we will find that this accusation is unfair, because the United Kingdom, the United States, Germany and other big countries have all experienced long periods of "protection" during their industrialization.** This point is explained in detail by Li Daokui et al. (2018)[1].

The United Kingdom strictly protected its own industry before the 1850s. Until repealing the Corn Laws in 1846, and the import tariffs on agricultural products had been very high. Until putting the Navigation Acts to an end in 1849, and the shipping of colonial goods had been restricted to ships owned and made by the United Kingdom or its colonies; trade and tariff restrictions had not been abolished until around 1860. Even Adam Smith agreed to high tariffs regarding industries such as ship building and national defense in *The Wealth of Nations*.[2]; Moreover, Britain's foreign trade also included a significant amount of colonial trade, and its plundering of the colonies is all too well known[3].

The United States was a more closed market before World War II. In the first 20 years of the 20th century, exports accounted for only 6%-7% of the total national income of the United States, far lower than the level of 20%-30% in Europe during the same period; in 1861, the average tariff rate on imported goods was increased to 47%, which remained above 40% till World War I[4]. In 1930, the Smoot-Hawley Tariff Act went through, which provoked a trade war between the United States and Europe. Both sides suffered losses from the law. The US import and export volume plummeted by more than 50%, aggravating the economic disaster of the Great Depression.

Germany also had a strong protectionist tendency before World War I. In June 1879, Germany introduced a new tariff law, which imposed import duties on leather, paper and other products. The German government adjusted tariffs twice in 1885 and 1887 and the tariff rate of agricultural products in 1887 was five times that of 1879[5].

As a big country with a population of 1.3 billion, China has become a locomotive of the world economy from a poor country in 40 years. Through its deepening reforms,

[1] Li Daokui, Li Yusha, Zhang Chi, 2018: How does the great practice of China's economy make important economic contributions? - Analysis and reflection based on the history of economic history and economic thought, Journal of Economics, 2018 Issue No.5, PP.1-16.

[2] For details, see Chapter 2 of Book 4 of The Wealth of Nations, "Of Restraints upon the Importation from Foreign Countries of such Goods as can be Produced at Home".

[3] According to Maddison (2007), the total population of the British Empire was 412 million, ten times the population of the British islands. Maddison, A., 2007. The world economy volume 1: A millennial perspective, Academic Foundation, PP.95, 96, 97, 100.

[4] Hughes J, Cain L P, 2011, American Economic History, Pearson.

[5] Guo Xinshuang, Guo Hongyu, 2014: Characteristics and Insights of "The German Road in 1914" - Historical Experience of Germany in Dealing with the "Government-Industry" Relationship, People's Forum, Pre-Academic

China has continuously promoted the process of opening up to the outside world. While integrating into the world economy, it also shares with the world its historical opportunity of economic development to stimulate global growth and improve global consumer welfare. China has never exported the economic crisis to the world. The sharp contrast between China's "sharing" and "win-win" opening up to the outside world and the "beggar-thy-neighbourneighbor" approach adopted by traditional powers in their developmental history is highly thought-provoking.

(3) The Chinese government mitigated the shocks of globalization by helping "Chinese Detroits" to revive

Since the regional and industrial distributions of benefits and costs of opening up are often extremely uneven, damaged industries and regions often suffer enormous pain. As such, the government should coordinate various policy tools to help the relevant economic subject tide over the difficulties. **In the process of opening up, many regions and industries in China have also been greatly affected. Fortunately, the Chinese government has played an important role in helping related industries, regional enterprises and workers transform themselves, and helping microeconomic subjects to cope with the negative effects of opening up.**

The development history of Shenyang, the Chinese Detroit, since the 1990s is a good case in point. After the establishment of the People' Republic in 1945, Shenyang became the vanguard of China's industrial economy with the industrial base built during the Japanese occupation, followed by Soviet aid. **In 1981, the total output value of heavy industry in Liaoning Province ranked first in the country, accounting for 11.5%; the total industrial output value ranked third in the country, only after Shanghai and Jiangsu[1]. Statistics indicates that 37 large enterprises in Tiexi District of Shenyang had created 350 "firsts of the country"**, including the first transformer, the first air compressor, the first automatic electrical switch, the first metal cutting lathe, the first cable steel core aluminum stranded wire, the first industrial valves, the first aircraft tire, etc[2]. The three major machine tool factories in Shenyang (the First Machine Tool, the Third Machine Tool, and the Sino-Czech Friendship) were selected into the "18 Arhats" in the machine tool industry, and won the National Quality Gold Award three times in the 1980s[3]. According to an old leader of Shenyang, Shenyang boasted a complete industrial system, having 146 industries out of 165 in the country. Together with Beijing, Tianjin and Shanghai, Shenyang was a barometer of

[1] China Bureau of Statistics, 1982: *China Statistical Yearbook 1981*, China Statistics Press.

[2] Shenyang Tourism Commission, 2018: Fuyun Shenyang | The birth of the eldest son of the republic, a place where there are the most "firsts" of new China's industry, http://www.sohu.com/a/223124363_349299 [2018-11-14].

[3] Shenyang Machine Tool (Group) Co., Ltd., *Our History*, http://www.symg.cn/channels/33.html [2018-11-14].

China's economy. They were collectively dubbed as "Beijing-Tianjin-Shanghai-Shenyang". In the context of unified purchase and marketing, Shenyang's large-scale enterprise products were sold well in China. According to one employee, "unable to buy [the products], certain enterprises were anxious to find people with more power to in order to buy through the backdoor. Sometimes we would squeeze one out from the production line."[1]

In the 1990s, with the opening up, the import tariffs for machine tools in 1994 fell to 9.7%, ahead of schedule, and the tariffs on CNC systems fell to 5%[2]. **With the gradual reduction of tariff barriers in the field of equipment manufacturing, imported equipment has begun to increase in quantity substantially. In 1996, the value of imported metal processing machine tools, valves, motors and generators were 1.57, 1.58 and 2.08 times of those in 1993 respectively**[3]. The imported products brought by the opening have strongly impacted the industrial enterprises in Shenyang. An old employee of Shenyang Machine Tool Plant said in the survey that domestic large enterprises began to use imported machine tools in large quantities, and the market was severely squeezed. At the same time, with the deepening of the reform of "loan in lieu of grant", the financial cost of those enterprises surged. **Under the combined effect of these factors, Shenyang industrial enterprises began to lose money extensively.** The Sino-Czech Friendship Factory, formerly known as one of the national 18 machine Arhats, with only RMB5,000 available for disposal in 1997, were unable to pay wages for half a year[4]. Wang Tiefeng, former Chairman of Shenyang Heavy Machinery Group, said that at that time, corporate debt was heavy, the sum of financial debts, operating debts and corporate bonds reached RMB1.5 billion, and wages and debts of employees exceeded RMB100 million. In 1997-2001, it was basically impossible to pay full wages to employees. During the most difficult years, actually paid wage was as low as RMB200 per month[5].

[1] Wang Bo, 2016: The sometime Golden Rice Bowl now in the quagmire, Shenyang Machine Tool is bailing itself out, Chinese Entrepreneur https://www.sohu.com/a/71893454_355067 [2018-11-14].

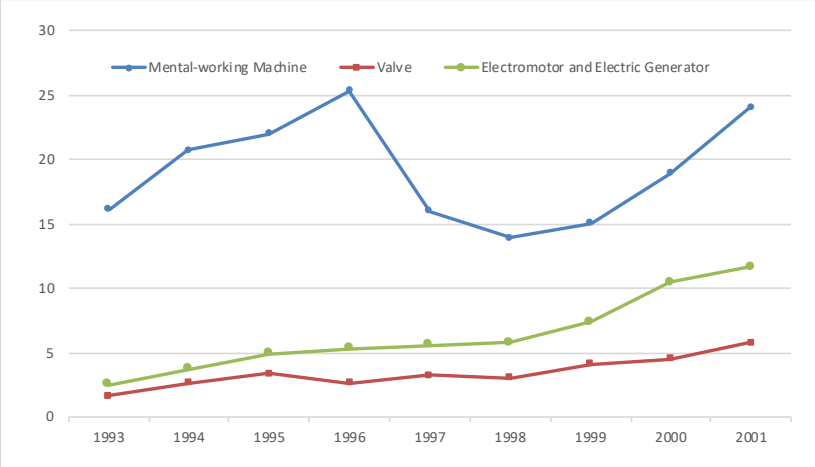
[2] Customs Tariff Commission of the State Council of the People's Republic of China, 1994: *China's Import Tariff Rate Adjustment Table (Part 1)*, International Trade, No. 02, 1994, PP. 47-62; State Council Tariff Commission of the State Council, 1994: *China's Import Tariff Rate Adjustment Table (Part 2)*, International Trade, No. 02, 1994, 51-62.

[3] Data are from the CEIC China Economic Database, ACCEPT calculation.

[4] Wang Bo, 2016: The sometime Golden Rice Bowl now in the quagmire, Shenyang Machine Tool is bailing itself out, Chinese Entrepreneur https://www.sohu.com/a/71893454_355067 [2018-11-14].

[5] Yan Kai, 2016: Northeast in Crisis: Why did the cradle of industry become the hometown of the past? Chinese Entrepreneur http://business.sohu.com/20160422/n445482813.shtml [2018-11-14].

Exhibit 75 Imports in the equipment manufacturing industry (US$100 million)



Source: CEIC Database

While opening up to the outside world has brought difficulties to business operations, it has also brought about a series of social problems. At the end of 1996, 2.06 million people were employed by the state-owned and collective enterprises in Shenyang. By 2000, this figure had fallen to 1.46 million, with nearly 600,000worked laid off.[1] The Tiexi District, an area of 700,000 residents with industrial enterprises most concentrated, became a "vacation resort". As mentioned above, under the traditional system, employees of state-owned enterprises earned lower wages and had less savings, with pensions, medical care, and housing covered by the employing enterprises. There was then no mature social insurance system like those in Western countries, and the employees were not well prepared to withstand risks. According to an government official then in charge of social securities in the Municipal Bureau of Finance , many senior workers were bought out of office at a rate of RMB800 per person per year of employment; laid-off workers blocked the government almost every day, and sometimes even blocked the city's railways.

In order to effectively alleviate the enormous impact brought by the opening up to the economy and society, local governments have broken through many difficulties and made every effort to help achieve a soft landing of the economy and provide relief to the people. On the one hand, the government allocated funds from the already-strapped finances to cover the basic security of laid-off workers. In 1990, the city's insurance welfare costs were RMB 709 million. It had increased to RMB 1.87 billion by 1996 and RMB 4.47 billion by 2000, while the city's budgetary income for the year 2000 was merely RMB 6.11 billion[2]. At the same time, the government was working hard to solve the problem of re-employment, such as hiring laid-off workers in the government's

[1] Shenyang Municipal Bureau of Statistics, 2000: *Shenyang Statistical Yearbook (2000)*.

[2] Shenyang Municipal Bureau of Statistics, 2000: *Shenyang Statistical Yearbook (2000)*.

public welfare departments and providing VAT discounts for laid-off workers to set up individual enterprises[1]. On the other hand, the government launched the "Moving East Construction West" Program in Tiexi District, organizing large-scale enterprises to collectively move to the suburbs to vacate the land in the core area of the city for the development of the service industry. It both created employment and enabled the enterprises to use the gains in land appreciation for technological transformation and upgrading. We learned in our survey that the income from land swap alone reached RMB 26 billion. Today, Tiexi District of Shenyang is clean and tidy, bustling with high-rise buildings and bright nights.

We are familiar with the rise and fall of Detroit, an industrial city of the United States. It is no exaggeration to say that the impact of opening up on the old industrial areas like Shenyang is no less severe than that on Detroit. According to the US Bureau of Labor Statistics (BLS), the highest number of unemployed people in the Detroit metropolitan area during the financial crisis (2009) was 323,000, and the increase in the number of unemployed in the four-year period 2005-2009 was 174,000. One-fourth of the increase in the number of unemployed people in Shenyang in 1996-2000. However, Shenyang did not decline into a "ghost town", in which the government played an important role, which is explained in more detail in the first part of this report.

The Chinese film industry is another example which had come under the pressure of foreign products. At the beginning of opening up to the outside world, China's film industry had a relatively good foundation. There were seven film factories, including Xiamen Fuda, Shantou Gongyuan, Wuxi Aermei, Shanghai Ganguang, Tianjin Ganguang, Liaoyuan Film and Baoding Lucky, in addition to Kodak and Fujifilm production lines introduced at huge expenses. However, when Chinese companies were busy with technological transformation, Kodak and Fujifilm had already taken the lead in the market. **Fujifilm's price in China was about 50% of its price in Japan, and Kodak's price in China was 30% of its price in the US. The market share of Fujifilm in China was up to 48% at its highest, while that of the domestic film leader, Lucky, was only 20%.** Eventually, the Chinese government approved Kodak's acquisition of the entire Chinese film industry. According to the agreement, the seven companies in China's film industry would all establish joint ventures with Kodak, which is known as the "98 Agreement"[2].

[1] According to the document *Shen-Guo-Shui-Fa [2003] No. 63*: the starting point for sales of goods is raised from 800 yuan for non-preferential to 5,000 yuan; the starting point for sales of taxable services is raised from 200 yuan for non-preferential to 3,000 yuan; The threshold for paying taxes on a per-time basis is raised from 50 yuan per non-preferential (day) sales to 200 yuan.

[2] Wang Jiandong, 1998: Foreign Films Competing for the Chinese Market, Contemporary Economy, No. 5, 1998, PP. 45-46; Fu Qiang, Yuan Weidong, 2008: 1998: Kodak's Billion-Dollar "Gambling" for China, Sina.com reprinting First Financial Daily, https://finance.sina.com.cn/roll/20081215/02105634054.shtml [2018-11-14].

Apart from direct impact of imported goods, the impact of trade friction was also enormous. In the 1980s, the textile industry developed rapidly and the export quantity rose rapidly as well. For a time, various places have invested in the construction of textile factories. **However, in the mid-1990s, European and American countries introduced protection policies to restrict Chinese textile imports.** In his negotiations with the United States. Premier Zhu Rongji said that "in the past few years, due to the discriminatory attitude of the United States, such a large textile exporting country as China has fallen behind Mexico and Canada, and could hardly hold the third place in the world. We destroyed 10 million spindles and 1.2 million people lost their jobs, which caused us great difficulties. Now the most difficult thing for state-owned enterprises is the textile enterprises... Now that the spindles are destroyed, the factories are closed, and we have managed to resettle 1.2 million laid-off workers. But the government has spent a great deal of money on it**.[1]"**

The following data can corroborate Zhu Rongji's speech. **The United States imposed sanctions on the textile industry three times in 1994-1996.** In 1996, the United States applied the "triple penalties" clause for the first time and cut the quota by US$19 million[2]. **It was during this year that the rapid growth of China's textile exports began to slow down markedly, with the growth rate falling from 35% in 1994 to -17% in 1996.** In 1995, the number of loss-making enterprises in the textile industry reached 8,728, an increase of 37% over 1994; the total profits changed from RMB3.4 billion in 1994 to RMB-7.1 billion in 1996[3]. Despite the existence of many objective disadvantages such as aging equipment and low production efficiency, trade restrictions were undoubtedly an important factor that had caused the textile industry to collapse further.

Facing such adversities, the central government was determined to dispose of a number of inefficient enterprises and carry out the "destruction of spindles" operation. The number of enterprises had decreased from 25,700 in 1995 to 11,300 in 1998. The number of employees in the textile industry had decreased from 9.14 million in 1994 to 5.11 million in 1999[4]. The local governments have racked their brains in order to help the laid-off textile workers be re-employed. The relevant departments of Shanghai negotiated with the city's airlines to recruit aircraft attendants from the textile factories. The "textile air hostess" has since made a good story[5]. Subsequently, the

[1] Zhu Rongji, 2011: Talks with the US Trade Representative Barshefsky, The Record of Zhu Rongji's Speech (Volume III), People's Publishing House, PP.352-374.

[2] Anonymous, 1996: The Causes and Impacts of US Sanctions on Textiles, Shandong Foreign Trade and Economics, No. 11, 1996, PP.33.

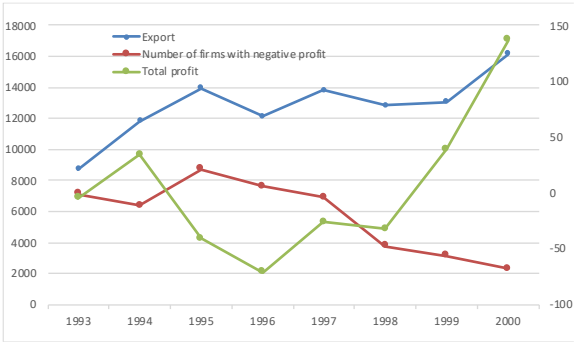
[3] Data are from the CEIC database.

[4] Data are from the CEIC database.

[5] Shanghai Local Records Office, 2018: Open Space and Shanghai Local History Website reprinting *Shanghai Zhi Industry Division Textile Industry Volume*, http://www.shtong.gov.cn/Newsite/node2/n189654/n189918/index.html [2018-11-14].

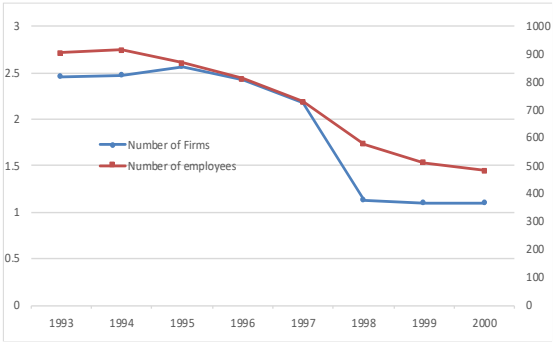
government set about restructuring the remaining companies and revitalizing the stock assets. In 2004, the deputy director of the State-owned Assets Supervision and Administration Commission was appointed Chairman and Party Secretary of Shanghai Textile Group, who issued *The Overall Plan for Adjustment, Reform and Development of Shanghai Textile Holdings (Group) Company*. Its operating income in 2016 reached RMB51.4 billion[1].

Exhibit 76 Textile industry exports (million US dollars), loss-making enterprises (number), total profit (RMB 100 million, right axis)



Data Source: CEIC, calculated by authors.

Exhibit 77 Number of enterprises in the textile industry (thousands), number of employees (10,000 people, right axis)



Data Source: CEIC, calculated by authors.

(4) Since 2008, the opening-up process in several industries has slowed down due to various factors

As is described in details in the next section, the Chinese economy undergone substantial adjustment after joining the WTO, and most of the commitments were delivered before 2007 (China announced officially that all commitments were delivered by 2010). **However, in the Global Financial Crisis China faced large external shocks regarding exports and capital outflow, resulting in risk on growth deceleration. This, combined with vested interests of diversified economic participants, caused the slowing down of China's process of opening up.** In the automobile industry, both tariffs and the share ceiling for foreign investors in joint-ventures had not been lowered until April 2018. Similar conclusions can be drawn for the financial service industry. The share of foreign banks as in newly issued loans exhibits a downward sloping trend from 2010to 2016. Restrictions for foreign invested financial institution, including banks, insurance companies and securities companies, were not substantially modified.

[1] Global Textile Network, 2009: *Textile in 60 Years: Shanghai Textile Industry Old Branch Blooms*, https://www.tnc.com.cn/info/c-001001-d-131048.html [2018-11 -14];; Shanghai Textile Group, 2018: *Group Profile ·Enterprise Achievements*, http://www.shangtex.biz/default.shtml [2018-11-14].

However, following the 19th National Congress of the Chinese Communist Party, the pace of opening up once again accelerated. Top leadership of China, including President Xi Jinping, numerously emphasized the importance of continuously opening up. As is listed in the next section, the trade and investment barriers in many industries, including the automobile industry and financial service industry, have been reduced substantially. Many measures implemented in the 12 Free Trade Zones to utilize the environment for doing business were adopted nation-wide.

(5) Economics Analysis

Based on the stylized facts and the history of Chinese opening up process, we proposed the following two refined conclusions from the perspective of economics.

Firstly, learning from the advanced economies by entrepreneurs, labor, and the government is essential for the economy to upgrade. Opening up accelerates this learning process by pushing economic subjects in China to learn about the most advanced knowledge, institutions, and ideas around the world, and put them into practice in light of China's reality. In the process of opening up, Chinese local enterprises, laborers and governments interact with international advanced enterprises and markets in import and export trade and joint ventures, go abroad to study and practice, actively learn, know and understand market economy. In this process China has gradually established the atmosphere and system of market economy and promoted the continuous upgrading.

We attempt to argue that comparative advantage is not as essential as learning. Comparative advantage did contribute to China's development, but is benefit is limited. Many of China's successful industrial upgrade violates the principles of comparative advantage, but learning was achieved in these projects. Learning does not depend on trade, which is true for many cases of industrializations in history besides China, such as the ones for the US and Germany in late 19^{th} century. It is also true that opening up to the outside world has brought in technology and funds, created employment, and generated taxes, but, from a macro perspective, the impact of learning is more far-reaching.

Secondly, to achieve effective and sustainable learning, the process of opening up needs to be carefully managed and paced. An "in-one-fell-swoop" opening up will not bring long-term growth and prosperity to an economy. The Chinese government's management of opening up is mainly reflected in three aspects. **First,** the government has always focused on cultivating the endogenous growth capacity of the economy and focusing on the "hematopoietic capacity" of the economy itself. The Chinese government (especially the central government) focuses on guiding the transformation and upgrading of the real economy, while fully recognizing the far-reaching impact of learning in the opening up. As a result, the central government has

issued a series of policies to encourage investment, with profound political courage and determination to continuously promote opening up, and maintain a dynamic balance between moderate protection of domestic enterprises and the introduction of external competition. **Second,** the government needs to work hard to absorb the shocks of opening up. **Third,** borrowing in foreign exchange and capital flows need to be subtly guided and constrained. Since the initial influx of foreign capital, the Chinese government has attached great importance to the repayment of foreign debts. The foreign exchange has been carefully allocated as a strategic resource, and the exchange rate policy has been carefully formulated to avoid any balance of payment crisis.

① Learning is the most fundamental benefit of opening up

Opening-up pushes domestic economic agents to learn about the most advanced knowledge, institutions, and ideas around the world, which is the most fundamental benefit. In the process of opening up, entrepreneurs, employees, and government are all learning. This continuous path of learning helped China to discard previous mindsets of planned economy, to promulgate the recognition and belief of market economy, and to accelerate the upgrade of the economy.

It is no exaggeration to say that in the process of reform and opening up, China's economic subjects have seized opportunities in the spirit of "there must be a teacher of mine among three people". **They tried to learn not only during overseas inspections, training at famous universities, but also in the process of importing equipment, engaging in export trade and the running of joint ventures.** The economic subjects referred to here not only include entrepreneurs and laborers, but also include the government as an important participant in economic activities. In fact, the government not only strives to learn and change its role in opening-up, but also mobilizes its resources to promote the transformation of entrepreneurs and workers. **In the process of learning, Chinese entrepreneurs, laborers, and governments have stepped out of the inertia of the planned economy, understood, recognized, and adapted themselves to the roles and tasks under the conditions of the market economy, and jointly promoted the market economy system and mode of thinking to take root in China, which have since grown stronger in China, jointly promoting China's economic transformation and upgrading.**

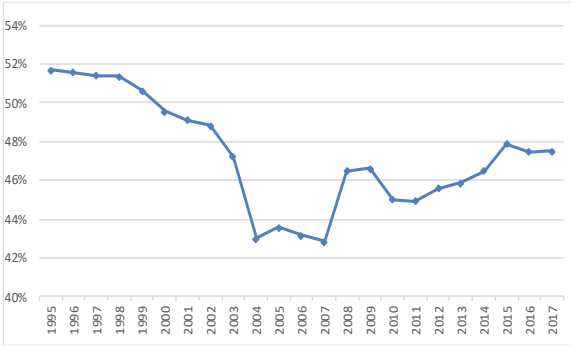
A Discussion on Learning and comparative advantage

Before discussing this learning process in details, we first attempt to argue that comparative advantage is not as essential as learning. Although comparative advantage did contribute to China's development, its benefit is limited. Many of China's successful industrial upgrading, such as the automobile industry and the electronics industry, violates the principles of comparative advantage. Industrial distributions in China also violates comparative advantage. More importantly, many cases of

industrialization in the world history did not support comparative advantage as a strategy.

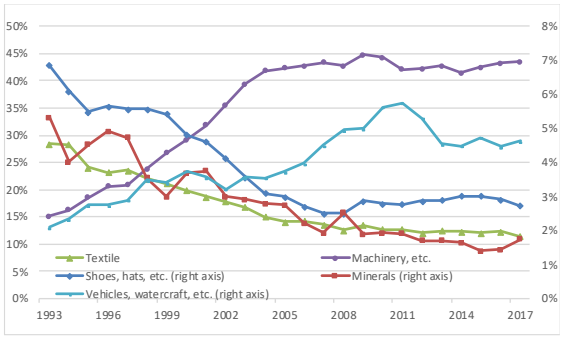
First, the decline in the proportion of exports of textiles, shoes and hats, etc. in the early 1990s was inconsistent with the theory of comparative advantage. Calculation of the proportion of China's labor income to GDP (i.e., the share of labor income) shows that the share of labor income was declining from 1995 to 2007, indicating a large amount of low-cost labor in the Chinese economy and the "Lewis turning point" remained to be reached. According to the analysis of comparative advantage theory, China should focus on the exporting labor-intensive goods. However, the proportion of exports of labor-intensive products such as textiles, shoes and hats to China's total exports has steadily declined at this stage, and the share of exported machinery, vehicles and ships that require more capital and technology has steadily increased. We believe that the quota sanctions on textiles cannot explain the downward trend, because the absolute amount of textile exports has grown steadily since China's accession to the WTO, and China's share of global textile exports has also steadily increased; even at the time when the global textile integration agreement came into effect in 2002 and 2005, the export share did not increase significantly due to the reduction of trade barriers[1]**.**

Exhibit 78 China's labor income share



Source: CEIC database, ACCEPT calculation

Exhibit 79 Percentages of China's major exports



Source: CEIC database, ACCEPT calculation

Second, many of China's successful industrial upgrade violates the principles of comparative advantage. According to the theory of comparative advantage, China should focus on the price advantage of labor and land at the beginning of reform and opening up, and should not rush to engage in complex and technically demanding industries. However, China planned many capital and technology-intensive industries

[1] Ministry of Commerce of the People's Republic of China, 2005: *Special Topic 1, Textile Trade Integration and China's Textile Exports,* http://zhs.mofcom.gov.cn/aarticle/Nocategory/200504/20050400081560.html [2018-11- 20]

in advance, with the automobile industry as an example. In 1979 when China just made the policy of opening to the outside world, central government officials and representatives of Beijing automobile manufacturing plants started to contact American Automobile Corporation (AMC) to discuss the establishment of joint ventures; in 1983, the two sides officially signed a contract to start cooperation[1]. According to World Bank WDI data, China's per capita GDP was only US$225.4 at this time, ranked 181 globally, or 1.45% of the United States, 2.59% of the United Kingdom, 2.16% of Japan, 2.26% of France, and 2.29% of Germany. Even under such conditions, Rao Bin, then Minister of First Machinery Ministry, still stressed that "it should be no more than three years for the joint venture to launch its second-generation vehicles. The yardstick of performance of the joint venture is not the number of cars made or amount of money earned, but the time when new cars can be launched." Today, not only the BAIC Group has been rejuvenated, China's automobile industry has also thrived. There are six Fortune 500 companies in the industry, which has produced excellent private enterprises such as Geely and BYD.[2]

Electronics is also an industry which China has attached great importance to for development. Comrade Jiang Zemin proposed in 1984 that "the electronics industry should be developed.[3]" From 1984 to 1990, various local governments, state-owned enterprises and universities in China imported a total of 33 wafer production lines from abroad, which was estimated to cost US$150 million. Subsequently, the state formulated special projects such as "Project 908" and "Project 909"; In June 2000, in its *Several Policies to Encourage the Development of Software Industry and Integrated Circuit Industry*, the State Council proposed strong support to the electronic and information industries[4]. After 40 years of development, although many companies have experienced failures and eliminations, there are still outstanding companies that have grown stronger in international competition. Huawei, ZTE, Lenovo, Xiaomi and other companies not only have a firm foothold in the domestic market, but also have outstanding performance in overseas markets such as Africa and India, and are gradually moving towards the forefront of indigenous innovation. In 2016, Polar code, which was mainly developed by Huawei, was selected for the 5G short-code signaling standard for the first time. This is the first time that a Chinese company has entered the

[1] Liu Yang, 2013: *The Inside Story of China's First Automobile Joint Venture*, China Economic Weekly, No. 37, 2013, http://paper.people.com.cn/zgjjzk/html/2013-09/23/ Content_1303907.htm [2018-11-20]

[2] China Economic Net, 2018: *2018 World Top 500" list: 6 Chinese auto companies are on the list again*, Xinhuanet reprinted, http://www.xinhuanet.com/2018-07/21/c_1123157964.htm [2018-11-20]

[3] Jiang Zemin, 2006: Revitalizing the Electronic Industry, Promoting the Construction of the Four Modernizations, *Selected Works of Jiang Zemin (Volume I)*, People's Publishing House, http://cpc.people.com.cn/GB/64184/64185/180137/ 10818670.html [2018-11-14].

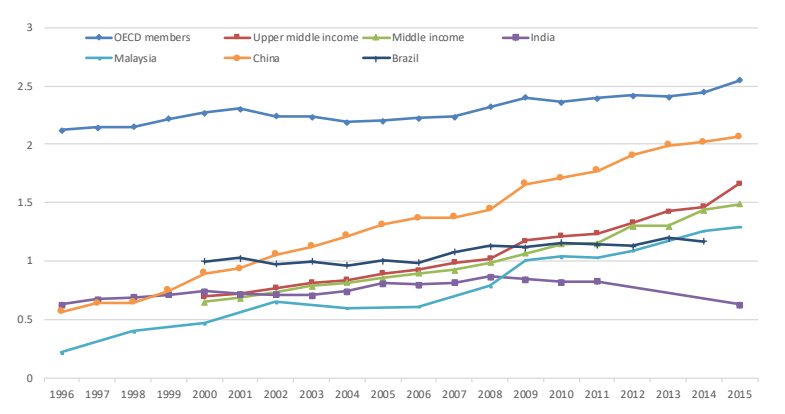
[4] Fa Chai, 2018: *China's Semiconductor Industry in the Historical Process*, Ge Long Hui reprints the article "Fa Chai Business Matters", https://m.gelonghui.com/p/178262 [2018-11-15]

international basic communication framework agreement, and the innovation capability of China's electronics industry has been internationally recognized.

Third, China attaches great importance to R&D investment and has made remarkable achievements in the fields of scientific research and innovation. According to the traditional theory of comparative advantage, developing high technology is not the best choice for a latecomer country. However, the Chinese government has always focused on R&D investment in high-tech projects. In March 1986, four famous Chinese scientists wrote to the national leaders and proposed to formulate a high-tech development plan. In November of that year, China formulated and implemented the National High-Tech Research and Development Plan (863 Program) and approved RMB10 billion (which was 50 times the amount recommended by the four scientists, well reflecting the highest level of attention to high-end industries and technologies)[1].

The proportion of China's R&D investment in GDP exceeded that of India in 1999, surpassed Brazil in 2002, and exceeded the UK in 2010. It is consistently higher than the average of middle-income countries and the average of middle- and high-income countries. In 2015, the figure (2.07%) was only 0.5 percentage points lower than the average of OECD countries[2]. Such investments have generated significant results. According to data from the World Intellectual Property Organization (WIPO), in 2017, the number of international patent applications from China was 48,900, ranking second in the world, only after the United States (56,600), an increase of 13.4%. In terms of applicants, there are three Chinese companies among the top ten international patent applicants. Among them Huawei ranked first in the world with 4,024 applications, surpassing established technology companies such as Intel, Qualcomm, etc[3].

Exhibit 80 National R&D investment as a percentage of GDP (%)



Source: World Bank WDI Database.

[1] Ma Yude, Hu Xueqin, 2009: *The "863 Program": 200 million applied for and 10 billion approved*, China Economic Weekly, 2009, No. 02, PP. 61-62.

[2] Data from the World Bank WDI database.

[3] World Intellectual Property Organization, 2017, *Patent Cooperation Treaty Yearly Review 2018*, http://www.wipo.int/edocs/pubdocs/en/wipo_pub_901_2018.pdf [2018-11-20]

In addition, comparative advantage theory can hardly explain the development of some micro-enterprises. We will detail the developmental history of two manufacturing companies in the following paragraphs – Jiangnan Mould & Plastic Technology Co., LTD (JNMPT) and Chengxing Group. JNMPT generated almost no profit when producing low-end products such as plastic toys and Christmas candles in the 1980s. Instead, it succeeded in making automobile bumpers with higher production technology and stricter capital requirements. The production of Chengxing Group food-grade phosphoric acid products requires a lot of research and development investment, but they succeeded eventually. Obviously, the narrow sense of comparative advantage theory cannot fully explain the rapid upgrading and development of China's economy. By comprehensively learning from advanced enterprises, Chinese enterprises can break through the limitations of narrow comparative advantage and realize their own leap-forward development. China's current achievements in high-tech fields such as electric vehicles, high-speed rail and chips provide a cogent proof of our views.

If we look back at China in the 1980s, given the macro-traits of cheap labor, land and other factors, the comparative advantage of primary manufacturing in the Northeast would seem to be more straightforward. Shenyang had a complete industrial system, a large number of skilled workers, complete supporting enterprises; Liaoning had ports such as Yingkou and Dalian, and the road and rail transportation was also very convenient (Shenyang-Dalian Expressway was the first expressway built in New China); Dalian set up its economic and technological development zone in 1984, enjoying the same preferential policies as the Shenzhen Special Economic Zone. However, in our field interviews, we learned that a large number of entrepreneurs and workers in Liaoning went south to Shenzhen, where they established their own new businesses. After the reform and opening up, a large number of outstanding industrial enterprises also appeared in Guangdong, Jiangsu and Zhejiang, rather than the Northeast. This shows that simple discussion of comparative advantage cannot fully summarize the significance of opening up to China.

More importantly, many cases of industrialization in the world history did not support comparative advantage as a strategy. As mentioned in the first section, Germany and the US adopted protection policies in late 19th century and early 20th century when they were catching the Great Britain. Without free international trade, it is impossible to rely on the comparative advantages to develop. However, before World War I, both countries acquired the most advanced machines and business institutions, perfected them, and surpassed Britain in terms of industrial output.

In 1791, Alexander Hamilton, the finance minister and one of the founding fathers of the United States, and Cox, who supported increased tariffs and trade protection, jointly submitted *Report on Manufactures* to Congress to openly encourage the introduction and plagiarism of technology. However, t**heir path of learning was not smooth. In**

fact, Britain set strict rules protecting what it invented. For instance, textile workers were banned from entering the United States. It was Samuel Slater, an apprentice in a British textile factory, the Father of the US Industrial Revolution in the eyes of President Andrew Jackson, and the Traitor in the eyes of many British citizens who brought all the machine design in his mind to the new continent. [1]

The UK also adopted similar methods when developing its tea industry. In 1851, Robert Fortune, head of the Chelsea Royal Botanic Gardens in London, stole 17,000 teas and 23,892 tea trees from China. He even took away an experienced team of tea planting and complete tea making process. In 1858, he was hired by the US Patent Office to come to China to "learn" tea planting, at an annual salary of 500 pounds[2].

This was a classic model of learning in the old times. Learning, the most fundamental role of opening up, does not necessarily require international trade.In this regard, China is indeed a polite student. Through joint-ventures and gradually opening up domestic market, China shared its fruit of learning with the world. Although as a less developed country China did enjoy comparative advantages on the low cost of land and labor while opening up, many successful practices in the Chinese economy are hard to be explained by the theory of comparative advantage.

Enterprises gradually upgrades in their learning from abroad

Enterprises are the source of the vitality of the market economy. However, under the planned economic system, state-owned enterprises receive instructions from their superiors, conduct administrative management of their subordinates, and produce according to state plans. The raw materials and products of the enterprise are allocated and distributed by the state, and the profits and losses are also borne by the government. Looking at China at that time, there was almost no enterprise with a modern governance structure.

We believe that joining the supporting system of international advanced enterprises is the first important channel for Chinese enterprises and entrepreneurs to learn from and understand the commercial thinking and management experience of the market

[1] Summarized from BBC News, Samuel Slater: American hero or British traitor? https://www.bbc.com/news/uk-england-derbyshire-15002318 [2018-12-01]

[2] Boss Dai, 2018: *A pre-publicized "curve overtaking"*, the rice barrel financial. The article also gives many similar cases, including references to *For All the Tea in China*, Sarah Rose, 2015; *Green Gold: Tea Empire*, McFarlane, 2016; *Letters with Jefferson and others*, National Archives , 1788; *Trade Secrets: Intellectual piracy and the origins of American industrial power*, Doron S. Ben-Atar, 2004; *Smuggler Nation: How Illicit Trade Made America*, Peter Andreas, 2014; *Industry and Empire: From 1750 to the Present Day* , Eric Hobsbawm, 2016.

economy and gradually achieve transformation and upgrading. Two township enterprises in Jiangyin City, Jiangsu Province, can serve as good examples.

Chengxing Group. Chengxing Group is a chemical enterprise producing fine phosphorus chemicals. Its products are sold in more than 70 countries and regions around the world. In 2017, its operating income reached RMB72.3 billion. It has more than 50 wholly-owned and controlled subsidiaries and more than 10,000 employees, among the top 300 Chinese companies of China Top 500 for many years. At the same time, Chengxing Group is also a township enterprise founded in 1984 (village-run enterprise in Chengnan Village, Yaosai Town, Jiangyin City). The initial capital was only RMB38,000 and its initial main product was phosphorus pentoxide. In the first year, it only made a profit of RMB80,000.

Mr. Li Xing, founder and Chairman of Chengxing Group, said in the survey that the secret of Chengxing's success is "to be closely tied to the train of major international companies and to become a part of their industrial chain". The turning point of the company from "small workshop" to "big business" was the supply of phosphoric acid additives to the joint ventures of Coca-Cola and Colgate in China in the mid-1990s. However, making way into the industry chains of major companies is very difficult and orders cannot be obtained simply by low cost. Colgate's product quality requirements were a list of 21 specifications, while domestic lists were not longer than 10. To this end, the company spent more than RMB1 million to purchase patents, invested RMB1.6 million to improve technical equipment, and it took four years before they reached the standard requirements. Technological improvements to meet Coca-Cola's supply requirements also took them three years. In 1998, Colgate awarded Chengxing Group the title of "Excellent Supplier", and most of the hydrogen peroxide products for toothpaste required by 36 Colgate subsidiaries around the world were purchased from Chengxing[1].

It should be pointed out that interaction with international advanced enterprises not only brings "hard" knowledge of equipment and technology to Chinese enterprises, but also brings about changes in thinking and management methods. Colgate has strict requirements on product quality, and has detailed regulations on business processes such as production, order taking, billing, and transportation. Suppliers and employees must receive training and assessment from Colgate[2]. Chengxing Group attached great importance to this. Mr. Li Xing personally supervised the implementation and finally passed the certification. The company management also

[1] Relevant information compiled from Wan Fu, Zhu Jianhua, 2008: *The vicissitudes of the life - the legend of the rise of Li Xing and Cheng Xing*, People's Daily (overseas version), October 28, 2008, 08th edition; Yang Yi, 2014: *Running Ten Thousand Mountains - Talking about the Things of Li Xing*, Jiangsu People's Publishing House, pp. 110-111, p. 123.

[2] Yang Yi, 2014: Running Ten Thousand Mountains - Talking about the Things of Li Xing, Jiangsu People's Publishing House, p. 115.

experienced a qualitative leap. During the survey, Mr. Li Xing shared with us another interesting anecdote. The Chengxing Group's production workshop had set up access control and the swiping of an access card was normally required for one to enter. When he was receiving foreign business partners, he opened the door in advance according to Chinese customs to show respect. However, the foreign visitors believed that this was not in compliance with the management regulations and not worth practicing. It can be seen that the changes in thinking and ideas brought about by foreign enterprises are profound and meticulous.

Jiangnan Mould & Plastic Technology Co., LTD (JNMPT). JNMPT is an excellent equipment manufacturing enterprise. It is the largest automobile bumper manufacturer in China, a supplier of BMW and Jaguar Land Rover. In 2015, its operating income was RMB3.1 billion and its net profit was RMB295 million. It has set up factories in the United States and Mexico. The predecessor of JNMPT was a small town owned and operated firm founded by Mr. Cao Mingfang in Zhouzhuang Town, Jiangyin City in 1984. For the first five years since its formation, it produced export products such as toys and Christmas candles.

In 1988, Volkswagen's Santana car project was launched in Shanghai and it was necessary for them to purchase car bumpers in the Yangtze River Delta region to meet the required localization rate. After learning about it, Mr. Cao Mingfang managed to contact Shanghai Volkswagen and, with the support and guarantee of the Jiangyin Municipal Government, he borrowed US$2.53 million from bank to import German equipment and hire German experts to guide the production and produced bumpers meeting VW's technical requirements within one year. They successfully won orders for Santana sedans. Since then, the bumper has become the business card of this township enterprise. The company has subsequently supplied supporting goods to well-known enterprises such as BMW, GM and Mercedes-Benz and was listed in 1997. By the year 2000, the company's net assets reached RMB260. With the support of the Jiangyin Municipal Government, the company was privatized and renamed JNMPT[1].

From a small firm that could merely produce plastic toys to a high-value-added manufacturing enterprise doing business around the world, JNMPT has undergone profound changes by learning advanced management and commercial concepts through participating in the supporting system of foreign enterprises. Every time JNMPT expanded its factory or set up new factories elsewhere, they would engage German companies as general contractors for proper quality control. JNMPT has recently tried to build its own factory, but they still chose to work together with German companies for the overall design. Following the foreign enterprises, JNMPT has in the meantime sold its products globally. In fact, the overseas factories of JNMPT

[1] Based on survey.

were built to complement BMW's project in Mexico. The factory is situated opposite the BMW Mexico factory, thereby making their way to the North American market.

Through joining the supporting system of advanced international enterprises, many Chinese "small workshops" have been transformed into "big enterprises". While bringing in profits, technology and equipment, advanced international enterprises have also brought advanced management methods, business ideas and brand awareness. We believe that the impact of opening up in this regard is profound and extensive, and the two companies mentioned above are no exceptions. In fact, Liu et al. (2014)[1], relying on the micro-data from corporate surveys, found that startups with management experience in foreign enterprises have better mechanism design in terms of employee incentives and legal arbitration. They believe that this is an important channel of FDI spillover.

While interacting with advanced international enterprises, a large number of entrepreneurs began to go abroad and learn through government training, inspection projects, and self-funded training programs. In 1985, the Foreign Experts Bureau launched the Business Foreign Language Test (BFT) to determine the English level of those from governments, businesses, and finance sectors who are going to receive overseas training. According to statistics, as of 2011, the total number of candidates for the exam had exceeded 200,000[2]. Mr. Li Xing attended the training at the University of California Business School in 1992, when he first learned about the "shareholding system" and was taught of the argument that "(shareholding system) is an effective form of economic organization to divide social wealth equitably, resolves labor-management disputes, and promotes social progress". He was so persuaded by the argument that he has since been determined to have the company listed in order to build a modern corporate structure and raise funds for development. To this end, he tried to list the company on the NASDAQ in the mid-1990s and made a roadshow in New York. But the 1997-1998 financial crisis intervened and he had to change his mind and had the company listed domestically[3].

A large number of state-owned enterprise laborers form market economy thinking through foreign enterprises

Along with the entry of foreign-invested enterprises, a large number of state-owned enterprise employees in China have begun to break through the barriers of planning and begun to understand and accept the way of thinking of the market economy. In the era of planned economy, most of China's urban laborers work in state-owned enterprises.

[1] Liu, Q., Lu, Ru., Zhang, C., 2017, Entrepreneurship and spillovers from multinationals: Evidence from Chinese private firms, China Economic Review, Volume 29, PP 95-106.

[2] Sina Education, 2011: *National Training Program for Foreigners in Foreign Countries*, http://edu.sina.com.cn/yyks/2011-09-21/1657313513.shtml [2018-11-13]

[3] Based on Wan Fu, Zhu Jianhua, 2008: *The Vicissitudes of Life - The Legend of the Century of Li Xing and Cheng Xing*, People's Daily (Overseas Version), October 28, 2008, 08th Edition.

Take Shenyang as an example. In 1990, Shenyang had a total of 2.3 million employees, of which 1.46 million worked in state-owned enterprises and 750,000 worked in collective enterprises[1].

Before the reforms at the end of the 20th century, the state-owned enterprises were not only the institutions that provided jobs, but also assume a lot of social responsibilities for the employees. Although the wages paid by the state-owned enterprises were low, **the employees' housing (rental housing provided by the units), medical treatment (hospitals affiliated to state-owned enterprise), children education (schools and kindergartens affiliated to state-owned enterprises), welfare (giving out of fruits, fish, meat, etc.), and pensions (paid upon retirement) were all from enterprises**. It can be said that the state-owned enterprises at that time were "units" in the literal sense, that is to say, the units upon which people were dependent, not the enterprises in the modern sense. **Therefore, many employees of state-owned enterprises were afraid of being "laid off"**, and there was even a case wherein a state-owned enterprise employee publicly killed the manager who had fired him[2].

It is the entry of foreign-invested enterprises that allows many employees of state-owned enterprises to realize that they can still live decently and respectably after leaving the state-owned enterprises and government systems. Foreign-invested companies have provided new choices for workers with their generous pay and benefit. According to an old leader, the joint venture of BMW Brilliance not only paid well, but also provided attractive benefits. Many workers wanted to seek employment by the joint venture, and people were proud if their children could enter BMW Brilliance[3]. This is not an isolated case. As a matter of fact, even by 2013, when private enterprises were flourishing and state-owned enterprise reforms were progressing, the average salary of foreign-invested enterprises (RMB62,000) was still significantly higher than that of joint-stock companies (RMB52,000) and state-owned enterprises (RMB56,000)[4].

With the changing idea of employment, employees began to obey the management, pay attention to efficiency, and the official-centered thinking began to crumble. There was no strict efficiency incentive during the era of large state-owned enterprises. Many employees "passed a day with a newspaper and a cup of tea." Mr. Wei Haijun, Chairman of Northeastern Pharmaceutical Co., Ltd, another state-owned enterprise in Shenyang, shared a vivid case with us. When he first came to the Northeastern Pharmaceuticals, which was on the verge of bankruptcy, and proposed the slogan of "No room for bad work, even if slightly bad!" However, several employees reported him to the municipal party committee and the municipal government, alleging that such a request was "idealism" because it was not possible to achieve100% accurate in the

[1] Shenyang Municipal Bureau of Statistics, 2000: *Shenyang Statistical Yearbook (2000).*

[2] Based on survey.

[3] Based on survey.

[4] Data from the annual database of the National Bureau of Statistics.

work. Although the report was dismissed, it can still demonstrate that some of the employees' ideas were incompatible with the market economy[1]. However, the generous salary of foreign-invested enterprises has gradually altered people's ideas. BMW Brilliance provided no "iron rice bowls", and employees were not unless they passed the test. Even the mayor could not directly intervene with it. An employee would be fired if the performance was unsatisfactory[2]. These facts made people realize that "acquaintances, relations, or officials" were not a panacea. It is necessary to rely on one's own ability to earn bread and better pay requires more work.

The government transforms its role by interacting with foreign-invested companies

Under the planned economy system, the government plays a central role as the overall coordinator in economic activities, and controls the entire national economy through the formulation of production plans, the allocation of raw materials, and the distribution of manufactured goods. What role should the government play in a market economy? In the face of this extremely complex issue, **the initial approach of government officials was relatively simple.** After the central government proposed the strategy of "holding the big and letting go the small" in 1995[3], Shenyang, a major industrial city in Northeast China, altered the ownership of a large number of enterprises, devolved the management of municipal enterprises to the district government, and then privatized them. According to statistics, there were 789 local state-owned industrial enterprises in Shenyang in 1995. By 2000, the number of state-owned enterprises decreased to 391. In the same period, the number of collective enterprises decreased from 6,453 to 2,787, while that of private enterprises increased from 11 to 1,127. The number of municipal state-owned enterprise were decreased from 522 in 1995 to 27 in 2017[4]. In our research, we learned that many of these privatized "small" enterprises were in fact profitable, which included more than 460 "invisible champions" in niche fields. However, the majority of them have ceased to exist because suspended bank loans or exit of management.

Obviously, simply "letting it go" is no solution. Practice results in real knowledge and the interaction between the government and advanced foreign enterprises has become an important way for the government to learn market economy thinking and institutions. We believe that through interaction with foreign-invested companies, the Chinese

[1] Based on survey.

[2] Based on survey.

[3] National People's Congress, 1996: Proposal of the Central Committee of the Communist Party of China on Formulating the Ninth Five-Year Plan for National Economic and Social Development and the Vision of 2010 Vision, http://www.npc.gov.cn/wxzl/gongbao/2001- 01/02/content_5003506.htm [2018-11-13].

[4] Shenyang Municipal Bureau of Statistics, 2000: *Shenyang Statistical Yearbook (2000).*

government (especially local governments) has undergone changes in understanding in the following aspects at the very least.

First, the government should not interfere with the day-to-day operations of the company and should provide good public services. In this regard, joint ventures have given a vivid lesson to Chinese government officials. Gu Mu. then Vice Premier of the State Council, stressed the improvement of the operating environment for foreign-invested enterprises. He pointed out that "foreign investors are mostly put off by the way of managing foreign-invested enterprises in the same way of managing state-owned enterprises and the imposition of arbitrary administrative interventions, for example, the replacement of a Chinese senior officer of a joint venture without deliberation on the board meeting[1]".

The Shenyang government's transformation also provided a case in point. In 2003, Shenyang invited BMW and a local automobile company, Brilliance, to establish a joint venture to produce complete vehicles. In our research, we learned that BMW was very strict with corporate management, the company's supporting procurement was controlled by BMW, and employees were hired via standardized tests. An old leader told us that "even a note from the mayor won't help you get a job in BMW!" At the same time, BMW put forward detailed and strict requirements for the construction of the land. The Shenyang government has made a great deal of efforts to level the hills, replace the original soil with new soil that meets the standards, build roads and install traffic light as required[2]. It would be unthinkable during the era of planned economy that the government would provide such a nuanced service to a non-state-owned factory.

Secondly, the success of joint ventures strengthens the government's determination to further reform. For the reform of state-owned enterprises, Shenyang has made many efforts and attempts, including contracting, tax for profits, and shareholding system. Even China's first bankruptcy case of state-owned enterprise took place here (Shenyang Anti-Explosion Equipment Factory went bankrupt in 1984). But these measures could not fundamentally change the face of state-owned enterprises. In our survey, we learned that important state-owned enterprises such as Shenyang Machine Tool and Northeast Pharmaceutical also had the opportunity to carry out joint ventures during that period, but it could not materialize for various reasons. **In contrast, the success of BMW Brilliance made the government realize that the introduction of advanced business partners is the right direction for state-owned enterprise reform.** Recently, Shenyang government has promoted 27 state-owned enterprises to carry out mixed ownership reforms. Among them, the reform of Northeast Pharmaceuticals has been completed and companies such as Northern Heavy Industries were actively inviting strategic investors.

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[1] Gu Mu, 2009: *Gu Mu Memoirs*, Central Literature Publishing House, Chapter 6, PP377.

[2] Based on survey.

Thirdly, the government should respect entrepreneurship. As the economy develops, government officials are increasingly aware of the important role of entrepreneurs in business development. **Zhu Rongji once pointed out that "it is easy to buy equipment, and it is also possible to introduce technology, so long as there is money, but it is not so easy to train real corporate executives.[1]"** When talking about trying to open up the international market, he also stressed that "**as long as we have real entrepreneurs, we can break into their markets to make big money.[2]**" In 2018, the United Front Work Department of the CPC Central Committee and the National Federation of Industry and Commerce jointly issued a list of "100 Outstanding Private Entrepreneurs in the 40 Years of Reform and Opening up", "as a showcase of the development of China's private economy and the major achievements of the entrepreneurial as builders of socialism with Chinese characteristics [3] ". The government's reliance on entrepreneurs has reached new heights.

Local government follows suit of the central government. The change of the old Shenyang leadership's view of Yang Rong, then head of Brilliance, is another example. Yang Rong was the founder and head of Brilliance, who introduced Japanese technology to produce Jinbei Auto. He then strongly initiated the cooperation with BMW. Around 2002, however, he found himself in conflict arising from equity rights with a provincial leader and had to move to Hong Kong. **Over time, many people praised Yang Rong's strategic vision and thought that if he had continued to take charge of Brilliance, the company would have developed better.**

Fourthly, it is recognized that development of national economic cannot rely solely on state-owned enterprises. Since the mid-1990s, Chinese leaders have begun to think about reducing excessive dependence on exports to Europe and the United States and opening up new markets. In this regard, non-public enterprises have taken the lead. **Zhu Rongji repeatedly commended Huawei, Haier and other enterprises for successfully entering the Russian market: "There is something wrong with our existing enterprise system. We cannot solely rely on state-owned enterprises. This also shows that there is no future for state-owned enterprises without reform...** More and more problems are exposed with our state-owned enterprise system... I heard that Huawei has entered the telecom market here, with sales of US$100 million last year. This is a private enterprise. Haier is also developing in Russia. Sichuan

[1] Zhu Rongji, 2011: Strengthening Economic and Trade Cooperation with Developing Countries, *Records of Zhu Rongji's Speeches* (Volume 2), People's Publishing House, PP.194-201.

[2] Zhu Rongji, 2011: Several Issues Needing Attention in the Development of Shanghai, *Records of Zhu Rongji's Speeches* (Volume II)", People's Publishing House, PP.271-276.

[3] Xinhuanet, 2018: *List of Outstanding Private Entrepreneurs in the 40 Years of Reform and Opening up*, http://www.xinhuanet.com//finance/2018-10/24/c_129978412.htm [2018-11-14] .

Changhong also wants to enter the Russian market, prepared to invest US$30 million to build a factory with an annual output of 1 million TV sets. I think they have a vision.[1]"

While learning from foreign-invested enterprises, Chinese government officials also attach great importance to studying the system and experience of market economy from foreign governments, international organizations and scholars. At the early stage of reform and opening up, the government sent a large number of delegations. In fact, the delegation led by Gu Mu, Vice Premier of the State Council, to visit five European countries in 1978 was the prelude to reform and opening up. After returning, Gu Mu gave a report of nearly ten hours to the Politburo, which played an important role in the Chinese leaders' determination to carry out reform and opening up[2]. Into the 1990s, the Chinese government began to cooperate with famous foreign universities and sent officials from all levels to receive training. According to statistics, between 1992 and 2005, there were 42 bilateral training programs signed by the National School of Administration alone, including 8 in collaboration with the United States, the largest number; in 2010, about 70,000 people from the national party and government and enterprises and institutions were sent abroad to receive training[3].

The reputable Kennedy School of Government of Harvard University and the Chinese government have three high-level projects, among which the "New World Harvard Senior Civil Servants Training Program" was the first launched. Interviews in English were conducted by the senior leadership of Kennedy School and the admission rate was of less than 50%. Li Yuanchao (The former member of the Political Bureau of the CPC Central Committee, the former Vice-President of the State, then secretary of the Nanjing Municipal Party Committee) and Ma Jiantang (the party secretary of the Development Research Center of the State Council, the former director of the National Bureau of Statistics, and the then deputy governor of Qinghai Province) both attended the program[4].

In the process of advancing reforms, the Chinese government has also paid great attention to understanding and drawing on the experience of advanced countries. In 1991, Vice Premier of the State Council Zhu Rongji spoke at a meeting with Alan Greenspan, then Chairman of the Federal Reserve, "China pays attention to the US experience and practices in banking reform. We have changed the pattern of the central bank's original provincial branch and established nine major branches, with a view to

[1] Zhu Rongji, 2011: Enterprises Should Enter Russia, *Records of Zhu Rongji's Speeches (Volume IV)*", People's Publishing House, PP. 230-236

[2] Gu Mu, 2009: *Gu Mu Memoirs*, Central Literature Publishing House, Chapter 6, PP. 305.

[3] Wang Dongya, Yu Yan, 2011: *Full Record of Overseas Training for Mainland Officials*, Phoenix Weekly magazine, http://news.ifeng.com/shendu/fhzk/detail_2011_09/08/9041977_0.shtml [2018-11-13]

[4] Wang Dongya, Yu Yan, 2011: *Full Record of Overseas Training for Mainland Officials*, Phoenix Weekly magazine, http://news.ifeng.com/shendu/fhzk/detail_2011_09/08/9041977_0.shtml [2018-11-13]

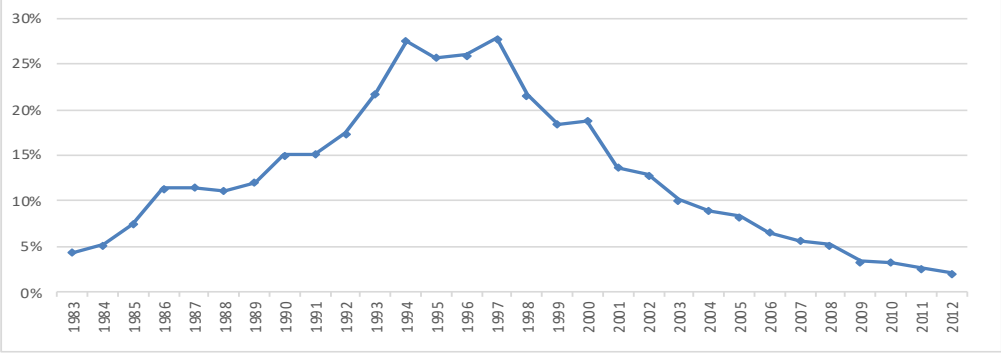
strengthening the supervision of the central bank and eliminating the improper administrative interference from local governments.[1]" When he met with U.S. Treasury Secretary Lloyd Bentsen in 1994, he also said: "(in order to unify exchange rate, China has) adopted proposals of The International Monetary Fund and, for now, the situation is good and there is no problem...[2]" China has more fully drawn on the experience of other countries in the process of establishing stock markets and reforming the banking system, as detailed above. In fact, the pace of such learning has not stopped until today. When we were conducting the survey in the Shenyang Area of the Liaoning Free Trade Zone, we learned that the relevant leaders repeatedly mentioned the World Bank's *Business Environment Report* in their speeches, striving to align with the world's advanced benchmark, simplifying the business registration process, and achieving the effect of "business license being issued on the same day, the official seal being delivered within four hours, and the tax registration being completed on the same day."

Discussions on capital, technology, tax creation, employment, etc.

It is admittedly true that the opening up has also brought more funds, technology and equipment to China, created taxation and employment, and enabled China to integrate itself into the international economic system by applying its comparative advantages. However, we believe that the depth of its impact is far less significant than the learning of advanced knowledge, institutions and ideas.

As a country with a high savings rate, China does not lack funds in the general sense. From 1983 to 1986, the proportion of China's actual use of foreign capital in fixed assets investment was consistently less than 10%. Even in the 1990s, when the inflow of foreign capital was at its greatest, the highest proportion was only 28% (1994, 1997), followed by yearly decline. Overall, the scale of investment generated by foreign investment is limited.

Exhibit 81 Actual use of foreign capital as a percentage of fixed asset investment



Source: National Bureau of Statistics, CEIC database, ACCEPT calculation

[1] Zhu Rongji, 2011: Talks with Chairman of the Federal Reserve Board Alan Greenspan, *Records of Zhu Rongji's Speeches* (Volume II), People's Publishing House, pp. 34-41.

[2] Zhu Rongji, 2011: Talks with U.S. Treasury Secretary Bentson, *Records of Zhu Rongji's Speeches (Volume II)*, People's Publishing House, PP. 464-471.

The introduction of technical equipment is an important purpose of China's reform and opening up. Chinese enterprises have indeed introduced and learned many advanced technologies through foreign-invested enterprises, which has promoted China's productivity and improved China's welfare. Holmes et al. (2013) gave a detailed explanation of this issue[1] (however, we disagree with the view that China gain at a loss to other countries, as thoroughly explained in the first part of this chapter). However, we believe that the impact of narrow technical equipment is limited.

First of all, China imports technical equipment not simply to use it for production, but to learn through the technical equipment. In the survey, an old leader of the State Planning Commission mentioned that before 1980 the tolerance standards of the Chinese manufacturing machinery industry were designed according to the Soviet Union standards, until the reform and opening up. Through the import of a large number of Western parts, we realized that they should be updated. The current system of tolerance of form and position standards was therefore established. This shows that even imported parts can bring huge learning effects.

Secondly, the improvements made by purchased equipment alone are limited and should not be overstated. As mentioned above, as early as1970s, Zhou Enlai presided over the introduction of Western fertilizer, chemical fiber, large rolling mills and other equipment, known as the "Four Three Program", but this did not fundamentally change the face of relevant industries. Another similar example is that as a joint venture partner of BMW, Brilliance Auto's own brand "04 Chinese Car" and BMW "3 Series" and "5 Series" were produced on the same line before and after 2004. Despite the strong promotion, the Chinese car still has not been recognized by the market[2]. **Huang Yasheng (2003)** did an in-depth study on the issue of foreign investment in China. He explored the case of clothing and other industries as the case, and believed that the knowledge transfer caused by export-oriented FDI is very limited. At the same time, he also stressed the benefits that FDI brings to the Chinese economy at the institutional level. He believes that foreign investment can help Chinese companies break through the old institutional obstacles and promote China's economic development while bringing technology[3].

Thirdly, in order to introduce these technical equipment, Chinese companies have also paid a huge cost. As mentioned earlier, JNMPT imported equipment from

[1] Holmes T J, Mcgrattan E R, Prescott E C. *Quid Pro Quo: Technology Capital Transfers for Market Access in China**[J]. Staff Report, 2013, 82(3): p ágs. 1154-1193.

[2] Su Qingju, 2003: *China and domestic BMW co-production to lay the foundation for quality*, Sohu Auto reprinting Beijing Morning News http://auto.sohu.com/2003/12/16/01/article216960166.shtml [2018 -11-13].

[3] Huang Y, Huang, P Y, Kirby W., 2009, *Selling China: Foreign Direct Investment During the Reform Era*. Cambridge University Press, Introduction and Chapter 9.

Germany costing US$2.53 million, which is undoubtedly a huge amount for a township enterprise with a registered capital of only US$320,000 and a few years ago[1]. Huang Yasheng (2003) also pointed out that most state-owned enterprises acquired by foreign-invested enterprises have accumulated a large number of excellent assets in the early stage, despite their poor profitability[2].

Finally, core advanced technologies are also difficult to obtain through joint ventures or purchases. In 2005, Shenyang Machine Tool Group acquired the famous German machine tool company Heath Group, which was on the verge of bankruptcy, and obtained the complete set of technology for its 17 products. However, due to the restrictions of the German Federal Economic and Export Administration, the relevant documents could not be shipped to China for domestic use.[3]

From a macro perspective, the tax contribution of foreign-invested enterprises to the government is also limited. In the first 30 years of reform and opening up, in order to attract foreign investment, the Chinese government introduced a series of tax incentives. According to Zhu Lin (2007)[4], the income tax of foreign-invested enterprises enjoys the policy of "exempt for 2 years and reduced for 3 years", that is to say, the first two years of profit is exempted from tax, and the tax for the next three years is halved; equipment and necessary materials imported by a joint venture according to the contract are exempt from customs duties and uniform import business tax; non-restricted export goods are exempt from customs duties and uniform business tax; foreign-invested enterprises enjoy the most preferential tax policies in the four special economic zones, fourteen coastal urban economic and technological development zones, and the Yangtze River Delta, Pearl River Delta, and Xiamen-Zhangzhou-Quanzhou Triangle Area, e.g. corporate income tax levied at 15% (33% for domestic companies). In fact, the "super national treatment" of foreign capital in the taxation was not ended until the "Enterprise Income Tax Law" was officially implemented in 2008. According to the data in the *China Foreign Investment Report*, the tax contribution rate of foreign-invested enterprises in 2002-2007 was consistently around 20%[5]. In 2016, foreign-invested enterprises contributed one-fifth of the tax

[1] Xu Dongqing, 2017: Cao Mingfang: Blowing up the Yellow Sands for Gold, Jiangyin Industrialists, Shanghai People's Publishing House, PP. 289-302.

[2] Huang Y, Huang, P Y, Kirby W., 2009, *Selling China: Foreign Direct Investment During the Reform Era*, Cambridge University Press, Chapter 9.

[3] Based on survey, cf He Yong, 2007: *Shenyang Machine Tool Buying a Ship to the Sea*, People's Daily, 06th Edition, June 27, 2007, http://media.163.com/05/0526/11/1KM5FS4P00141E37 .html [2018-10-26]

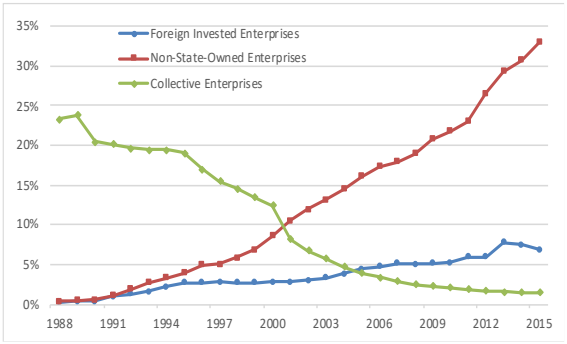
[4] Zhu Lin, 2008: Historical Investigation and Theoretical Analysis of Tax Policies for Foreign-funded Enterprises in China, Southwestern University of Finance and Economics.

[5] Xing Houyuan, 2017: *China Foreign Investment Report* (2017), PP18, http://images.mofcom.gov.cn/wzs/201804/20180416161221341.pdf [2018-11-13]

revenue, while non-financial state-owned enterprises contributed 30% of the tax[1]. Therefore, from the perspective of taxation, foreign-invested enterprises are very important, but their importance should not be overrated.

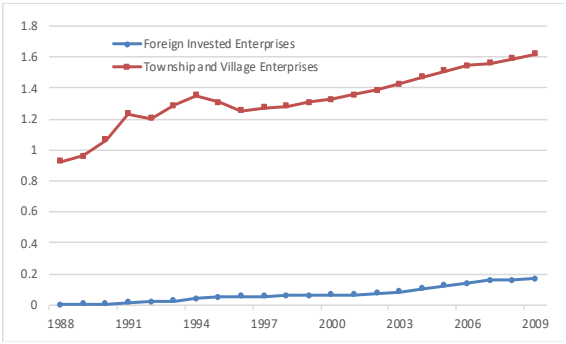
From the perspective of employment, the macro-impact of foreign-invested enterprises is still more limited. According to the employment data from 1998 to 2015, even before the rapid development of China's non-public ownership economy in 1992, **the number of urban foreign-invested enterprises (the sum of Hong Kong, Macao and Taiwanese investment enterprises and foreign-invested enterprises) was consistently smaller than that of urban private enterprises. Compared with the employment of rural township enterprises, it is even more insignificant.**

Exhibit 82 The proportion of foreign, private and collective employment in urban employment



Source: National Bureau of Statistics, CEIC database, ACCEPT calculation

Exhibit 83 Employment of foreign and township enterprises (100 million)



Source: National Bureau of Statistics, CEIC database, ACCEPT calculation

② Opening up requires proactive management of the government

Opening up is a complex process involving all aspects of a country's economic activities. In order to make the economy develop healthily, the government (especially the central government) should actively manage and guide the process of opening up to the outside world, and must not "release it." Surveying the development of the past four decades, we believe that a sound and sustainable process of opening up requires the government to carefully manage at least the following three aspects: **first, the government should focus on cultivating the endogenous growth capacity of the**

[1] Chen Deming, 2018: Reform and Open Witness China's 40 Years of Intensification and Deep Impact on Global Value Chains, International Trade Issues, 2018, 01, PP13-16.
Bai Tianliang, 2017: *These five years, the state-owned enterprises are starting to take off (see changes in the new normal)*, People's Daily, 10th edition, July 28, 2017, http://paper.people.com.cn/Rmrb/html/2017-07/28/nw.D110000renmrb_20170728_1-10.htm [2018-11-13]

economy; secondly, the government should help the microeconomic subjects alleviate the negative impact brought about by opening up; thirdly, the government should manage and constrain irrational short-term behaviors of microeconomic subjects and strictly manage capital flows and external debt.

the government should focus on cultivating the endogenous growth capacity of the economy

Since the beginning of the opening up, Chinese leaders have focused on cultivating and activating the vitality of the economy through opening up. Comrade Deng Xiaoping repeatedly emphasized that opening up is to "develop productive forces" and "lead domestic enterprises.[1]" Carefully combing the course of China's opening up to the outside world, it is not difficult to find that many policies are to serve the "hematopoietic function" of the economy itself. Four aspects are selected below for elaboration.

First, the central government attaches great importance to industrial transformation and upgrading in the opening up. As mentioned above, in the early 1980s, many foreign businessmen and some experts believed that "the conditions for industrial development in Shenzhen were poor, and that the products were mainly exported were contrary to the purpose of investors (the products entered the mainland market), and propose to build Shenzhen into a center of finance, commerce, foreign trade, and tourism.[2]" **However, the central government was not satisfied with the development of tertiary industries such as tourism and finance. Instead, it attached great importance to the development of manufacturing industries and firmly adhered to the industry-based strategy. It required Shenzhen to develop into a comprehensive export-oriented special zone based on industry[3].** To this end, the central government had introduced a series of measures to optimize the foreign business environment and realize the advantages of "low taxation, low labor costs, and low land use costs". **At the same time, the government has always attached importance to the planning of high-tech industries.** For example, Comrade Jiang Zemin proposed in 1984 that "the electronics industry should be developed[4]"; in March 1986, four famous Chinese scientists wrote to the national leaders to propose a high-tech development plan. In November of that year, China formulated and implemented the "National High-Tech Research and Development Program (863 Program)", with a total funding of RMB10 billion (**which was 50 times the amount recommended by**

[1] Deng Xiaoping, 1994: Implementation of Open Policy, Learning the World's Advanced Science and Technology, *Selected Works of Deng Xiaoping (Volume II)*, PP. 132-133; Deng Xiaoping, 1994: Opinions on Economic Work, *Selected Works of Deng Xiaoping (Vol. II)*, pp. 194-202.

[2] Gu Mu, 2009: *Gu Mu Memoirs*, Central Literature Publishing House, Chapter 6, PP. 359-371.

[3] Gu Mu, 2009: *Gu Mu Memoirs*, Central Literature Publishing House, Chapter 6, PP. 359-371.

[4] Jiang Zemin, 2006: Revitalizing the Electronic Industry, Promoting the Construction of the Four Modernizations, *Selected Works of Jiang Zemin (Volume I)*, People's Publishing House, http://cpc.people.com.cn/GB/64184/64185/180137/ 10818670.html [2018-11-14].

the four scientists, well reflecting the highest level of attention to high-end industries and technologies)[1]. Zhu Rongji emphasized in 1996 the upgrading of the processing trade industry represented by "three-plus-one trading-mix". He fully acknowledged the role of processing trade and believed that "it is necessary to develop to high-tech and increase new advantages. It is not possible to rely on the past 'three-plus-one trading-mix' ", encouraging enterprises to build their own factories on the basis of introducing technology and equipment.[2]

Second, the government (especially the central government) attaches great importance to the learning effect brought about by opening up. In his 1978 speech, Deng Xiaoping clearly stated that it is necessary to learn through opening up[3]. He believes that "we must inherit and learn the science and technology developed and all kinds of useful knowledge and experience accumulated by the people of all countries under the capitalist system"[4]. As mentioned above, leaders such as Jiang Zemin and Zhu Rongji have placed more emphasis on the role of learning. Jiang Zemin emphasized in his speech that "can continue to learn all the advanced things in the world, whether it can keep up with the trend of world development is a big problem that affects the success or failure of a country or a nation.[5]" Zhu Rongji also stressed the importance of learning. He once said that "without competition, there will be no progress. without opening up, how can advanced management experience, business methods, and technical means come in? AIG has introduced the practice of insurance agent in Shanghai, and it has developed very rapidly. PICC Shanghai Branch immediately adopted this method... But however smart the Shanghainese are, if the AIG does not come in, there is no model, and it will not lead to the practice of insurance agent.[6]"

In view of the above, it is not difficult to appreciate why China's top leaders have continued to open up to the outside world with great political courage and determination. As mentioned above, on the issue of joining the World Trade Organization, there were many different opinions at home and abroad, questioning and even dismissing China's decision to join the WTO. Since joining the World Trade Organization, the Chinese government has made great efforts to promote China's full integration into the

[1] Ma Yude, Hu Xueqin, 2009: *The "863 Program":200 million applied for and 10 billion approved*, China Economic Weekly, 2009, No. 02, PP. 61-62.

[2] Zhu Rongji, 2001: To adjust and improve the processing trade policy, *Selected Works of Zhu Rongji (Volume II)*, People's Publishing House, PP. 265-270.

[3] Deng Xiaoping, 1994: Implementation of an Open Policy, Learning the World's Advanced Science and Technology, *Selected Works of Deng Xiaoping (Volume II)*, pp. 132-133.

[4] Deng Xiaoping, 1994: Implementation of Open Policy, Learning the World's Advanced Science and Technology, *Selected Works of Deng Xiaoping (Volume II)*, pp. 168.

[5] Jiang Zemin, 2006: Continuing to push forward the construction of socialism with Chinese characteristics in the new century, *Selected Works of Jiang Zemin (Volume III)*, People's Publishing House, http://cpc.people.com.cn/GB/ 64184/64185/180139/10818611.html [2018-11-14]

[6] Zhu Rongji, 2001: Doing a Good Job in the Opening of the Financial Insurance Market, *Selected Works of Zhu Rongji (Volume II)*, People's Publishing House, pp. 298-302.

international economic system. Since 2001, the Chinese central government has cleared more than 2,300 laws, regulations and ministerial regulations, and local governments have cleared more than 190,000 local policies and regulations; the overall tariff rate dropped from 15.3% in 2001 to 9.8% in 2015 and the trade-weighted average tariff rate fell to 4.4%, significantly lower than emerging economies such as South Korea, India, and Indonesia, and developing countries, but close to the United States (2.4%) and the EU (3%); among the 160 service sub-sectors defined by the WTO, China has promised to open 100 of them, close to the average of the developed countries members (108). Today, China has improved its business environment and service quality through 12 free trade zones. These efforts can still be regarded as upgrading and developing itself in learning from abroad[1].

Third, Chinese leaders attach great importance to attracting foreign investment just because of the recognition that interaction with advanced foreign economies can bring about tremendous learning effects. From 1986 to 1987, then Vice Premier of the State Council Gu Mu personally coordinated the introduction of documents to optimize the foreign business environment. In order to prevent the policy from being out of shape during the implementation, he also presided over the formulation of 22 implementation rules. From October to December 1986, he personally hosted 12 related meetings[2]. In his speech, Zhu Rongji emphasized the importance of attracting foreign investment several times. When talking about the development of Shanghai, he once said that "the land in Pudong should not be too expensive to attract foreign investment and speed up", "(in order to attract major foreign investment projects) it is necessary to strengthen the confidence of investors and things must be done quickly or time will run out[3]". At the same time, the central government made attracting foreign investment as an important indicator for assessing local officials and guided local governments to do their utmost to provide services for foreign-invested enterprises. As mentioned above, Shenyang government had "levelled the hills and replaced the soil" in order to win the BMW project. In the survey, Jiangyin City's deputy mayor in charge of industry told us that in the 1990s, every time he went to Beijing or Shanghai for business trips, he organized companies to translate materials such as recent catalogues into English and Japanese. He would bring these materials and speak in person with the representatives of foreign enterprises.

Fourth, the Chinese government pays attention to coordinating the pace of opening up of different fields, giving domestic firms opportunities to develop while

[1] Based on the Press Office of the People's Republic of China, 2018: *White Paper on China and the World Trade Organization,* http://www.mofcom.gov.cn/article/i/jyjl/l/201808/20180802773208.shtml [2018-11- 14]; Press Office of the People's Republic of China, 2018: *Facts and China's Position on China-US Economic and Trade Friction*, http://www.xinhuanet.com/politics/2018-09/24/c_1123475272.htm [2018-11- 14].

[2] Gu Mu Memoirs, Chapter VI

[3] March 25, 1992

continuously opening up to introduce competition and promoting learning. For the purpose of improving the endogenous growth capacity of the domestic economy, the accommodation of imported goods was not achieved overnight. Otherwise, the domestic market would be flooded with foreign products in a short period of time, and it would be difficult for domestic enterprises to survive. However, if the protection is excessive, enterprises will not learn the experience of foreign advanced enterprises, they do not have to face the pressure of competition, and they are not likely to become bigger and stronger. As the Chinese ancient sayings says, "a country is doomed to perish if there is neither capable officials within nor enemy threats without".

When Zhu Rongji talked about the opening up of the financial industry in 1994, he stressed that "China's banks are far from the standards of commercial banks. If a large number of foreign banks are approved to do renminbi business at this time, the Chinese banks are actually forced to compete with them on an unequal footing[1]". However, this kind of protection by the Chinese government is not "spoil". Instead, pressures are applied to domestic enterprises by means of measured opening up to promote their growth. Zhu Rongji said on the same occasion that "we must adopt a gradual approach. The protection of the Chinese government is not unconditional and permanent.[2]" In fact, since 1994, China's financial services industry has gradually opened up, and tariffs in the automotive sector have begun to decline gradually. In 2018, against the background of the rise of trade protectionism, China further relaxed or even removed the restrictions on the shareholding ratio of joint ventures in the financial and automobile sectors on the basis of the WTO commitments, and drastically reduced automobile import tariffs. These facts once again show that the protection of the Chinese government is temporary and conditional.

The governments has worked hard to absorb the shocks of opening up

As mentioned above, although the learning effect brought by opening up can greatly promote economic transformation and development, it will still have a major impact on some industries, regions and economic subjects. Imported machine tools and other mechanical equipment hit enterprises in Shenyang, causing nearly one million people to be laid off; China's local film industry was also swept by foreign companies such as Fujifilm and Kodak and eventually acquired as a whole; the export restrictions on Chinese textile products in Europe and the United States were further aggravated, causing the industry to further decline. In the face of these shocks, the central government and local governments shoulder their own responsibilities. On the one hand, they guarantee the basic welfare of laid-off workers through fiscal expenditures, and support the re-employment of laid-off workers through taxation and

[1] Zhu Rongji, 2011: Talks with U.S. Treasury Secretary Bentsen, *Records of Zhu Rongji's Speeches (Volume II)*, People's Publishing House, PP. 464-471.

[2] Zhu Rongji, 2011: Talks with U.S. Treasury Secretary Bentsen, *Records of Zhu Rongji's Speeches (Volume I)*, People's Publishing House, PP. 464-471.

employment guidance ("textile air hostess" is the epitome of it). On the other hand, the government has made efforts to help the industry to make profound adjustments. For example, Shenyang government organizes "Moving East Construction West" and the State Council promotes "Destroying Textile Spindles" to achieve liquidation as soon as possible and let the industry return to the right track.

Guiding and constraining debts in foreign exchange and capital flows

In the process of opening up, the government should carefully manages capital flows and strictly limits the tendency of companies to over-borrow foreign debt to prevent any balance of payments crisis.

The Chinese government fully draws on the development experience of Latin America and other regions and dialectically understands the advantages and disadvantages of borrowing foreign debt. When China began to borrow foreign debts in 1979, Deng Xiaoping emphasized the issue of "solvency"[1]. In 1986, he further emphasized that "external debt should be moderate and should not be borrowed excessively. Pay attention to the experience of these two aspects. The borrowing of foreign debt is not worrying, but it should mainly be used for developing production and it is not good if it is used to solve the fiscal deficit.[2] In 1997, Zhu Rongji also concluded that "our inflow of foreign capital is foreign investment in the form equipment investment and borrowings are basically medium- and long-term foreign debts, ..., so we can basically avoid the financial crisis throughout Asian countries.[3]" At the same time, the Chinese government regards foreign exchange reserves as a strategic resource and carefully allocates its use in the early stages of development. For example, Zhu Rongji repeatedly stressed that "the precious foreign exchange cannot be used for importing consumer goods, including cars. The limited foreign exchange should be mainly used for the introduction of advanced technology, transforming weak sectors of the national economy and accelerating industrial restructuring.[4]

In fact, even in the field of direct investment, the government pays great attention to the issue of foreign exchange payments. An old leader of the State Planning Commission spoke to us about the background of the "foreign exchange balance" policy in the early stage of reform and opening up. The fundamental purpose of "foreign exchange balance" was to ensure that, in the context of foreign exchange shortages, there would be sufficient foreign exchange to ensure remittance of profits required by

[1] Deng Xiaoping, 1994: Several Opinions on Economic Work, *Selected Works of Deng Xiaoping (Volume II)*, pp. 194-202.

[2] Deng Xiaoping, 1994: On Enterprise and Financial Reform, *Selected Works of Deng Xiaoping (Volume III)*, PP. 192-193.

[3] Zhu Rongji, 2011: Learn the lessons of the Asian financial crisis seriously, *Records of Zhu Rongji's Speeches (Volume II)*, People's Publishing House, PP. 505-511.

[4] Zhu Rongji, 2011: Opinions on the Current Economic Situation and Macroeconomic Regulation, *Records of Zhu Rongji's Speeches (Volume I)*, People's Publishing House, PP. 228-240.

foreign investors. To this end, the State requires that the joint venture must have the ability to provide the foreign exchange required for the foreign investor's profit remittance, otherwise the project would not be approved. **A typical case is that the Daya Bay nuclear power plant project was once shelved because the foreign exchange balance problem could not be solved. Thereafter, Jieke Lin, the general manager of the US International Nuclear Energy Corporation, proposed to sell part of the electricity to Hong Kong to earn foreign exchange to solve the foreign exchange balance problem, and the joint venture project was finally implemented[1].** Although foreign exchange restrictions have limited consumer demand to a certain extent, it has helped the Chinese economy to achieve steady and sustainable development.

At the same time, the Chinese government has carefully formulated exchange rate policies, taking into account factors such as inflation, exports, and confidence to ensure a stable currency. In practice, the exchange rate is linked to the real economy and financial markets, and the equilibrium exchange rate in the academic sense cannot be calculated. Therefore, we must consider the price signals of the foreign exchange market transactions, but also consider the affordability of the real economy, and seize the key points to implement reforms. Zhu Rongji once stressed that "(a sharp change in exchange rate) not only brings greater risks and uncertainties to import and export enterprises, but also increases the pressure of domestic inflation and affects the confidence of overseas investors. Some people say that the value of the depreciated renminbi is beneficial to the future export, which I disagree. The experience of various countries proves that excessive depreciation of the domestic currency does not promote exports. Whether export is increased is not entirely determined by the exchange rate, but mainly by the variety, quality and service of the products. It is not necessarily a useful tool to restrict import. Even if US$1 is equivalent to RMB15, as expected by some people, certain areas or departments will still import 'Mercedes-Benz' cars.[2]"

Economic practice is the fountainhead of economic theory. Summarizing China's opening up process, we believe that learning is the most fundamental role of opening up; a stable and sustainable process of economic opening up requires careful management by the government. We believe that these two conclusions can be used for reference by other countries and are a useful complement to mainstream open economics and international trade theory.

[1] Wen Xuan, 2018: Daya Bay Nuclear Power Plant: The birth of China's largest Sino-foreign joint venture in the early days of reform, http://www.sohu.com/a/232147417_468637 [2018-11-14].

[2] Zhu Rongji, 2011: Strengthening Foreign Exchange Management, *Records of Zhu Rongji's Speeches (Volume I)*, People's Publishing House, PP. 346-351.

5. Proactive Macroeconomic Management

(1) Stable High-Speed Economic Growth for 40 Years

China's economy has achieved steady and high-speed growth since 1978. From 1978 to 2017, China's GDP grew from US$294.3 billion to US$10.2 trillion (constant 2010 US$), with an average annual real growth rate of over 9.5%. And during the same period, the per capita GNP grew from US$307 to US$7,329, with an average annual growth rate of 8.5%.

Meanwhile, China's real GDP growth volatility is significantly lower than other economies. Whether compared with other countries over the same period or other high-growth economies in history, the stability of China's economic growth over the past 40 years is very rare and can be called a miracle in human economic history.

The volatility of real economic growth rate can be divided into two parts: one is the change of potential economic growth rate; the other is the change of cyclical factors. We divide the economic growth rate of various countries from 1961 to 2017 into two parts - the trend and the residual - via Hodrick-Prescott filter. The trend can be used as an estimate of the potential economic growth rate, and the residual corresponds to the periodic economic fluctuations. We use the standard deviation of the cyclical fluctuation from 1961 to 2017 to the mean of the potential growth rate to represent the fluctuation of the real economic growth and find out that the fluctuation of China's economy is significantly less than that of developed countries and other developing countries.

If we compare China's high-speed growth period (1978 - 2017) with that of Japan and South Korea (1961 - 1990) via the same approach, we find out that the volatility of China's real GDP growth is also relatively low, especially considering that China experienced the Asian financial crisis and the 2008 global financial crisis during this period, it is even harder for China to achieve such a performance.

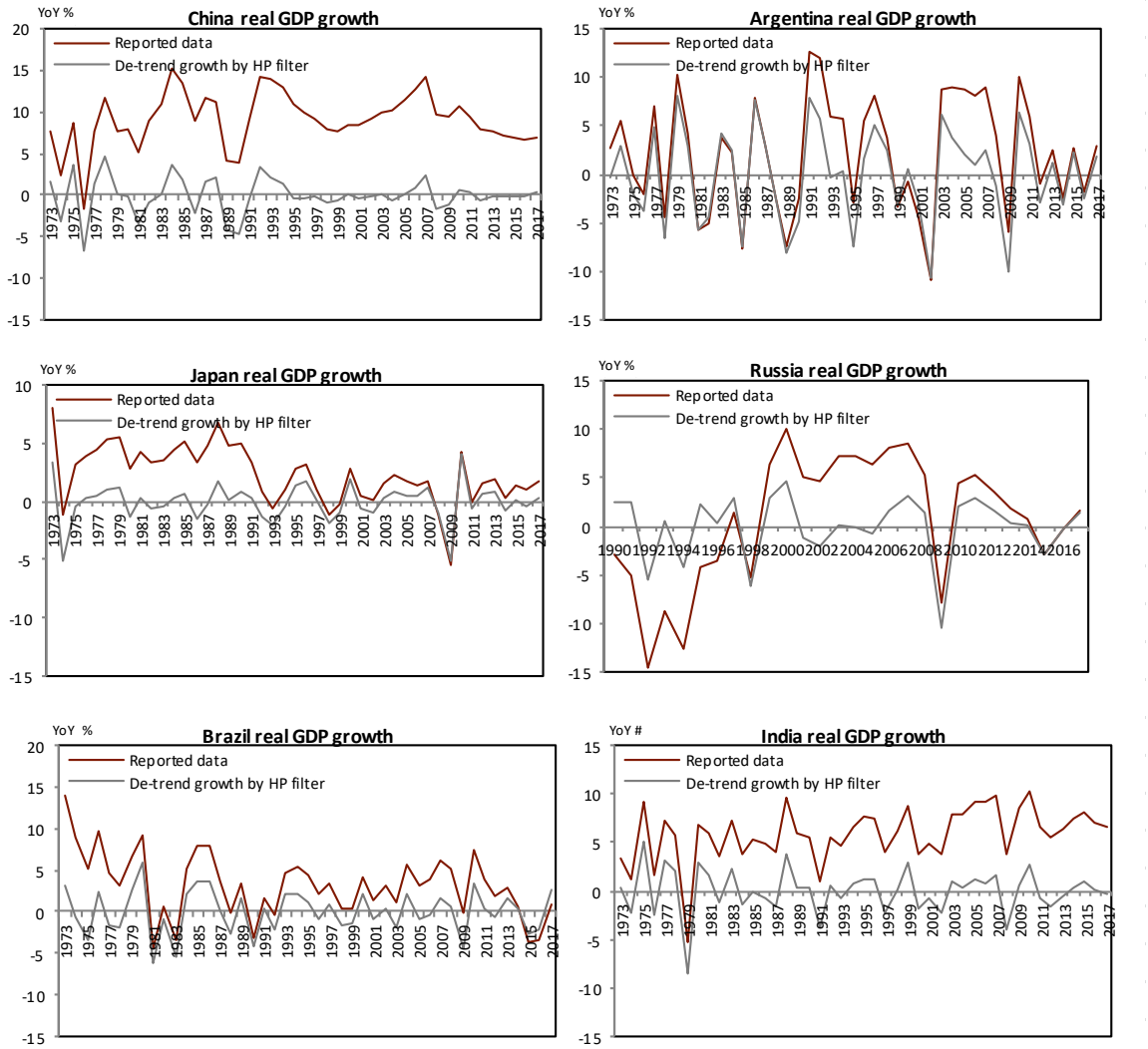
We can also take a longer view and compare China's economic growth since 1978 with that of Britain during the industrial revolution, Germany at the end of the 19th century, the United States from 1890 to 1920, and the Soviet Union from its foundation to its disintegration. It can be seen that, compared with these typical high growth periods in human history, China's economic performance since 1978 is extremely outstanding both in growth rate level and stability of growth.

Exhibit 84: Real GDP growth fluctuations of typical economies (1961-2017)

Country	Real GDP fluctuations
China	0.19
Middle-income countries	0.25
World	0.34
India	0.36
OECD countries	0.43
Korea	0.44
Europe	0.60
Britain	0.61
Japan	0.67
USA	0.68
Brazil	1.00
Argentina	2.21
Russia [3]	4.54

Note: (1) Source: WDI database of the World Bank, ACCEPT calculation. (2) The numerator of the real GDP fluctuation is the standard deviation of the residual of the real GDP y-on-y growth rate minus the HP filter trend ($\lambda = 6.25$) , and the denominator is the average of the trend of the real GDP y-on-y growth rate by HP filter trend ($\lambda = 6.25$). (3) Russia only includes the data of 1991 - 2017.

Exhibit 85 Real GDP growth fluctuations of typical economies



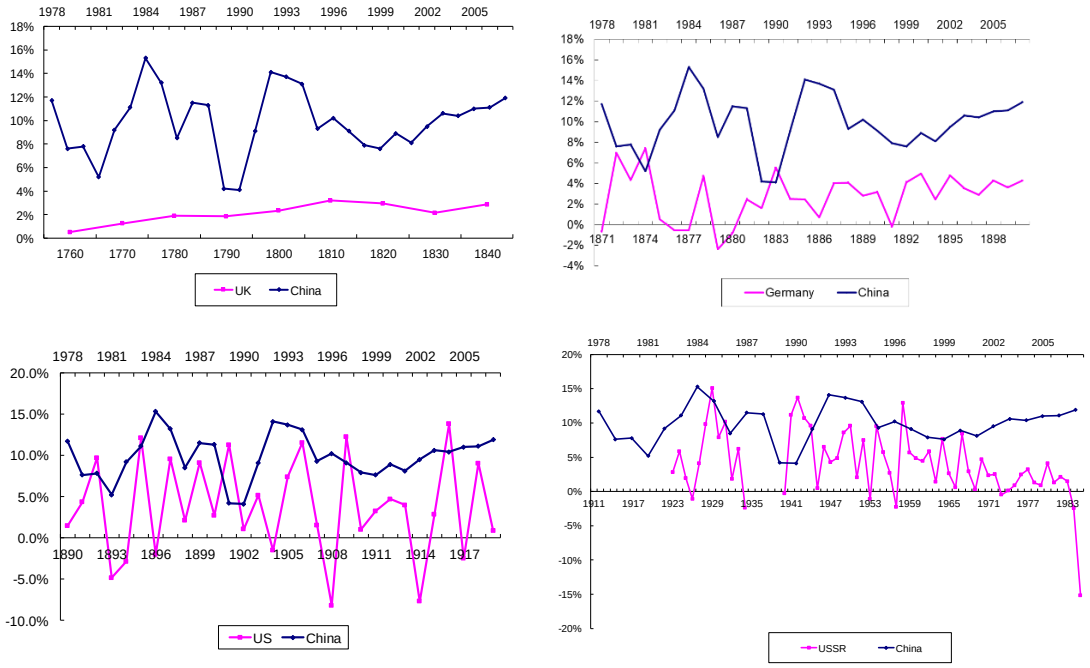
Source: WDI database of the World Bank, ACCEPT calculation.

Exhibit 86: Real GDP growth fluctuations of China, Japan and Korea during their high-speed growth periods

Country	Real GDP fluctuations
China 1978-2017	0.19
Korea 1961-1990	0.27
Japan 1961-1990	0.37

Note: (1) Source: WDI database of the World Bank, ACCEPT calculation. (2) The numerator of the real GDP fluctuation is the standard deviation of the residual of the real GDP y-on-y growth rate minus the HP filter trend (λ = 6.25) , the denominator is the average of the trend of the real GDP y-on-y growth rate by HP filter trend (λ = 6.25).

Exhibit 87 Comparison of Economic Growth Rate of Major Economies during their High Growth Periods in History: Britain, Germany, USA and Soviet Union



Source: World Economy: a Bicentennial Perspective, Angus Maddison,1996[1]

(2) Successfully Suppressed High Inflation

Generally speaking, high growth is often accompanied by high inflation. In the period of rapid economic growth, investment growth rate is high, resulting in high demand for raw materials, which, to a certain extent, results in higher inflation pressure. Once inflation is too high, it often means that the real economy growth rate is higher than the potential growth rate, the production factors are used excessively, and then a recession of economic growth will follow. As a result, high inflation is often associated with fluctuations in economic growth, and from this perspective, stable economic growth often also means stable inflation.

But for China, high inflation pressure does not only come from the economic growth itself, but also from the more unique and complicated economic system during the transition period. Based on the experience, the planned economies usually have a supply shortage, the government is making the allocations, and the economy as a whole does not have a price or the price is artificially lowered. When transforming from the planned economy to a market economy, the prices depressed by the policies tend to rise

[1] Angus Maddison, World Economy: a Bicentennial Perspective [M], translated by Li Dewei and Gai Jianling, Reform Press, 1997.

rapidly, which often can result in higher inflation. High inflation leads to the currency instability and is not conducive to economic growth. The excessive changes in relative prices likely cause the distortion of the social wealth allocation, or even serious social problems.

Compared to the other countries which are also making the transition, China did a better job in controlling its inflation. According to the data, China's average annual CPI growth during 1978-2016 was 5.3%, lower than that of India and Brazil over the same period, and lower than the inflation rates of Japan and South Korea during their respective high growth periods. If we compare China with the economies that have experienced price reform, such as Russia and Poland, we can see that China's economy grew at a much faster pace than these economies, while its inflation was significantly lower. Specifically, China's post price reform CPI y-on-y growth during 1989-1993 were only 18%, 3.1%, 3.4%, 6.4% and 14.7%[1], while that of Russia over the 4 years post their price reform was over 100%[2], and that of Poland was also over 30%[3].

Exhibit 88：Average Annual CPI Growth of Typical Countries

	Average annual CPI growth (geometric average)	Average annual CPI growth (arithmetic average)
USA（1986-2016）	2.60%	2.70%
China（1978-2017）	4.90%	4.90%
China（1986-2017）	5.00%	5.30%
Japan（1960-1980）	7.30%	7.20%
India（1986-2016）	7.50%	7.70%
Korea（1967-1990）	11.40%	11.60%
Russia（1986-2016）	38.00%	73.00%
Poland（1988-2000）	58.50%	87.90%
Brazil（1986-2016）	99.40%	361.20%

Note: China's data is from the National Bureau of Statistics, while the data of other countries are from the WDI database of the World Bank.

(3) China's Contribution to World Economic Growth Continues to Increase

Over its 40 years of reform and opening up, China has not experienced a real economic crisis and has responded to the external shocks successfully, which is a great contribution to the world economic stability. China's real GDP grew by 3.9% in 1990,

[1] Source: Haver database.

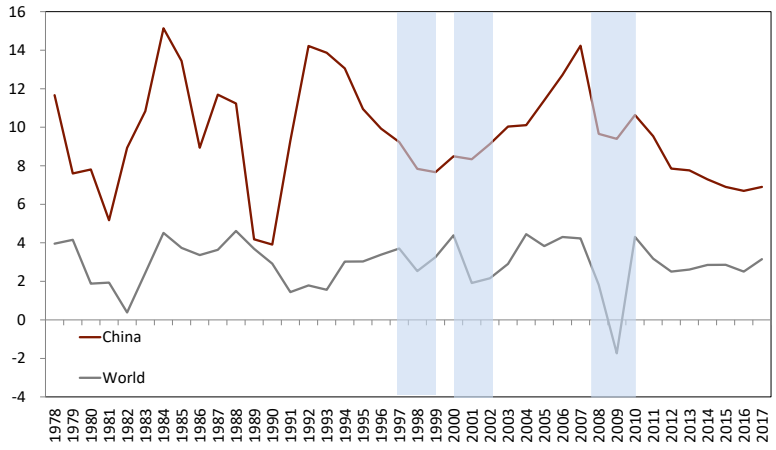
[2] Source: Haver database.

[3] Source: Haver database.

the lowest since the reform and opening up, but China has never experienced the total economy contraction. On the other hand, Japan, Korea, Russia, Brazil and almost all other main countries all experienced negative economic growth after the War. The real GDPs of Korea and Japan also experienced negative y-on-y growth even during their high-speed growth periods over 1960 – 1980.

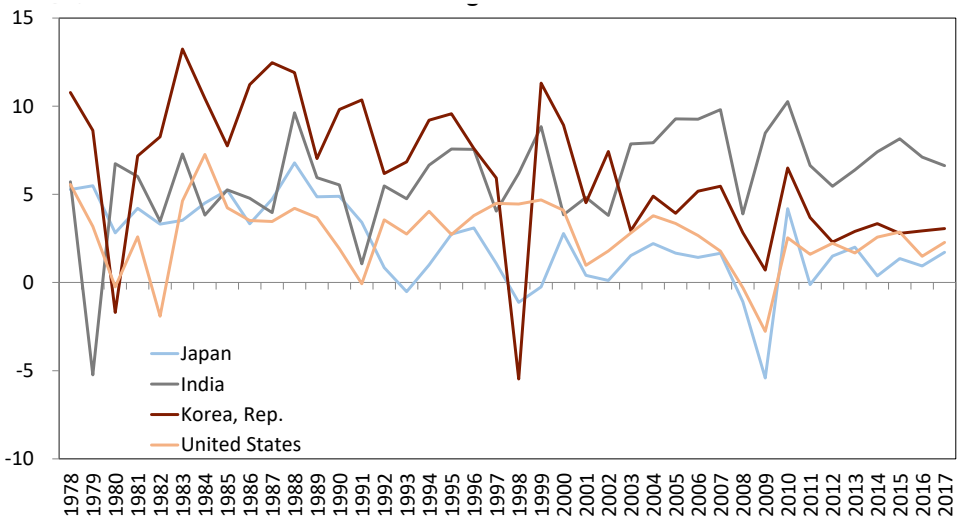
In addition to stabilize the domestic economy, China has also made its contribution to the world economic stability. China's contribution to the world economic growth has steadily increased since its reform and opening up, from 5.11 % in 1980 - 1989, to 12.33 % in 1990 - 1999, 24.83 % in 2000 - 2009 and 28.75 % in 2010 - 2017. When looking at 1978-2017 as a single period, China's contribution was 18.35 %. During the Asian financial crisis and global financial crises, China's role as a "*stabilizer*" for the global economic growth was particularly prominent. During the Asian financial crisis in 1998, China guided the recovery of total domestic demand through active fiscal policy and sound monetary policy, while the RMB did not depreciate together with other currencies and made contributions to the stability of the Asian monetary system. In 2008, global economy was hit by the US subprime mortgage crisis. Major economies like the US, eurozone and Japan all experienced negative growth. Against this background, China's recovery in 2009 made an important contribution in stabilizing the global economy.

Exhibit 89 Real GDP growth of China and the World (%)



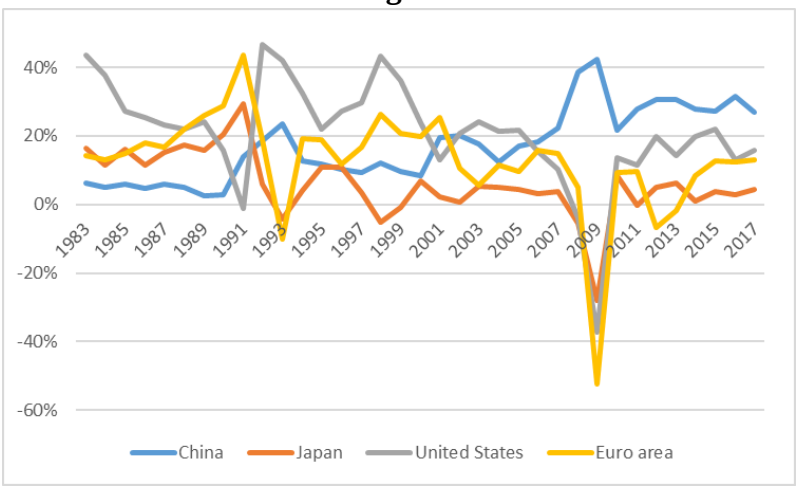
Source: WDI database of the World Bank.

Exhibit 90 Real GDP growth of the US, Japan, India and South Korea (1978-2017, %)



Source: WDI database of the World Bank.

Exhibit 91 Contributions of US, Europe, China and Japan to the world economic growth



Source: WDI database of the World Bank.

Exhibit 92 Contributions of US, Europe, China and Japan to the world economic growth

	United States	Euro area	China	Japan
1978-2017	20.38%	13.07%	18.35%	6.27%
1980-1989	26.43%	17.94%	5.11%	16.37%
1990-1999	31.50%	18.24%	12.33%	5.01%
2000-2009	14.26%	8.82%	24.83%	0.92%
2010-2017	16.58%	7.42%	28.75%	3.23%

Source: WDI database of the World Bank

(4) Problems: Causing Disproportionate Harm to Private Enterprises During Macroeconomic Management

During the proactive macroeconomic management via "*the visible hand*", the government often treats private companies unfairly, which is mainly reflected in the following two aspects:

First, more burdens of reducing redundant investment and "*removing excess capacity*" have been assumed by the private companies. The typical case has been seen in the steel industry: in 2016, 140 steel companies assumed the task of removing excess capacity, 88.6% of them were private companies. According the statistics, among the total removed excess capacity, private companies accounted for 65%, while SOEs accounted for only 35%.[1] Take Hebei Province, an important base for the steel industry, for example. 97% of the 16 million tons of excess capacity removal in 2016 was assumed by the private companies.[2] The task of removing excess capacity in the coal industry also falls more on the shoulders of the private coal mines, while the situation is more complicated than that of the steel sector - compared with SOE coal mines, private coal mines are mostly small and medium-sized ones, prone to accidents, and lag behind in complying with environmental protection criteria. The key targets to remove excess coal capacity in 2016 were small and medium-sized coal mines with an annual output at or below 300,000 tons. "Such coal mines accounted for only about 15% of the country's coal production but more than 50% of the coal mine accidents", and private coal mines are mostly in small and medium size.[3]

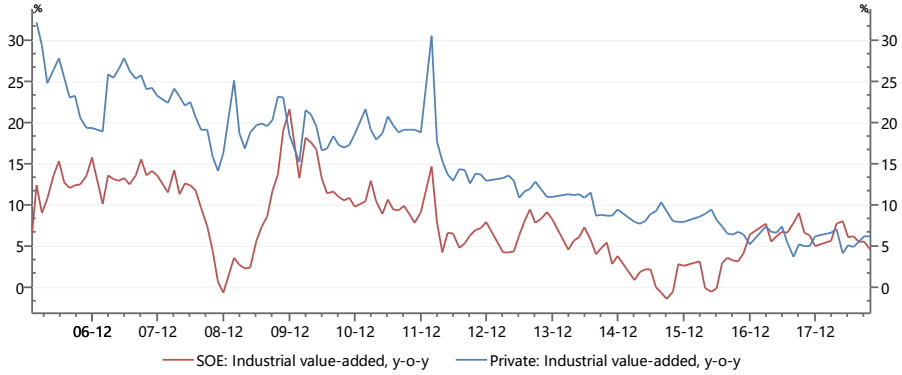
[1] Source: Beijing Steel Information Network, http://news.steelcn.cn/a/120/20160907/874650DCC8FC2C.html.

[2] Source: Caixin Media, http://hefan.blog.caixin.com/archives/157890.

[3] Source: State Coalchem Network, http://www.coalchem.org.cn/dujia/html/800214/177642.html.

Second, during the economic downturn, bank loans and other resources mainly flow into SOEs, and they enjoyed far more benefits than private companies. For example, when responding to the global financial crisis in 2009, SOEs received much support from the so-called "*RMB4 trillion*" stimulation package and got recovered very quickly, while the private companies were less benefited and got recovered more slowly. A similar situation occurred during the proactive macroeconomic management in 2015.

Exhibit 93 SOEs recovered faster than private companies during recession as a result of macroeconomic management



Source: WIND database.

(5) Economics Analysis

Looking back to the proactive macroeconomic management conducted by the Chinese government since the reform and opening-up in 1978, we may find it a unique opportunity for us to understand and rethink the macroeconomic theories. As analyzed above, we are convinced that the existing mainstream economic textbooks and studies have a deficient understanding of economic cycle and proactive macroeconomic management, but the proactive macroeconomic management experience of the Chinese government since the reform and opening-up may serve as a beneficial supplement to such deficient understanding. In our opinion, the fundamental economic theories reflected in the Chinese government's proactive macroeconomic management efforts in the past forty years may be concisely summarized to the following two aspects:

① The equilibrium of games played among enterprises leads to and exacerbates macro-cycle fluctuations.

The contest between decision makers of the enterprises from the microscopic perspective may trigger and intensify the macroeconomic cycle, amplify the economic

fluctuation and bring loss of benefits. To be specific, the "Rush to the Top" during the market access and the "War of Attrition" during the exit of the enterprises, both being an microscopic act, triggered and intensified the economic cyclical fluctuation, and then caused the macroeconomics to repeatedly swing between "over-cold" and "over-hot".

(1) When the economy is on the up (the "expansion" period), at the microscopic level, enterprises actively rush to the market, increase their investment and enlarge their capacity, hoping to grab the opportunity in the market competition. Though such act and decision is rational judging from any certain single enterprise, yet at the macroscopic level an ill balance is formed, **which is called "Rush to the Top" herein**. On the one hand, the "Rush to the Top" may easily lead to the economic "overheat" in the short term and put the macro-economy under the pressure of inflation; on the other hand, it may also rapidly accumulate the capacity and sow the seeds of excessive competition, excessive capacity and deflation in the subsequent economic downstream cycle.

(2) When the economy is on the downward (the "recession" period), at the microscopic level, enterprises pursue the strategy of attrition, whereby they are not ready to exit the market despite the impending losses, but rather believe that the competitors will become bankrupt and they will laugh last as long as they keep going. Though such act and decision is rational judging from any certain single enterprise, yet at the macroscopic level an ill balance is also formed, **which is called "War of Attrition" herein**. The "War of Attrition" will lead to super excessive market capacity, aggravated vicious competition, profitability drop, loss spreading, which will put the macro-economy under the pressure of deflation. The microscopic theories once touched on the "War of Attrition" (Fudenberg & Tirole, 1986; Bulow & Klemperer, 1999)[1], which, however, failed to draw the attention of the macroeconomists unfortunately.

The performance of the Chinese economy after 1998 Asian financial crisis, 2008 U.S. subprime crisis and between 2014 and 2015 provided a typical case for on-the-downward economic cycle, while the performance in the periods of 1985-1986, 1988-1989, 1993-1994 and 2003-2007 provided a typical case for on-the-up economic cycle. Generally speaking, the developing countries may experience more intense cold/heat fluctuation compared with mature developed countries, and China, being a developing

[1] Bulow J. I., Klemperer Paul. (1999). The generalized war of attrition. American Economic Review, 89(1), 175-189;

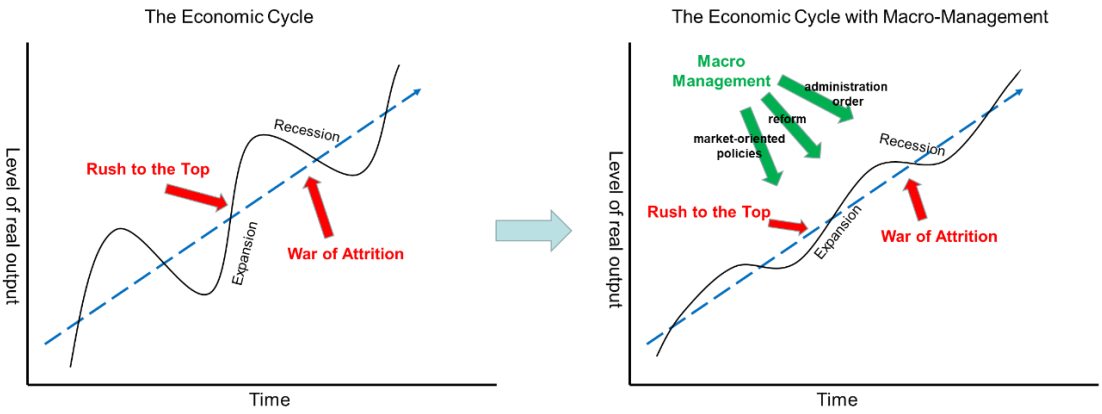
Fudenberg, D. , & Tirole, J. . (1986). A theory of exit in duopoly. Econometrica, 54(4), 943-960.

country in the transition from planned economy to market economy, may encounter even more intense macroeconomic cyclical fluctuation due to its regime. First, as state-owned economy has to be subject to "soft budget restraint" (Kornai, 1986, 1998), it tends to make excessive investment when the economy is on the up, which may intensify the "overheat," and on the other hand, it may be reluctant to exit the market voluntarily when the economy is on the downward and therefore faces excessive capacity and suffers loss, which may prolong the process of capacity clearing (Li & Liang, 1998; Qian & Roland, 1999)[1]. Second, contest between local governments and the "Promotion Championship" of the local officials are one of the striking characteristics of China's economic development (Zhou Li'an, 2004, 2007). Local officials and governments are inclined to increase investment and protect local outdated capacity in exchange for GDP and tax income. Such practices will also intensify the economic cyclical fluctuation.

However, it needs to be stressed that such regime-related reasons are by no means root causes that lead to the macroeconomic cyclical fluctuation. Instead, the root cause lies in the universal phenomenon existing in the market economy — the loss of benefits taken as a whole caused by "Rush to the Top" and "War of Attrition," which is deemed as rational when taken as an individual case. Such loss of benefits tilted the macro-economy into an ill balance. It is shown in the past experience of the Chinese economy that SOEs are not the only participants of "Rush to the Top" and "War of Attrition," so are a large number of private businesses, which are among the causes that gave rise to severely excessive capacity in such sectors as cement, steel, coal, sheet glass and photovoltaic in 2014 and 2015. In fact, even in those economies that are widely recognized as having a higher level of marketization, it is also common that "Rush to the Top" and "War of Attrition" caused economic cyclical fluctuation and loss of overall social welfare. The rise and fall of "Internet Bubble" between 1995 and 2001 may be taken as a typical case for "Rush to the Top," and the long-term excessive competition and resource consumption of the U.S. airline industry can serve as an example for both "Rush to the Top" and "War of Attrition" (see details in Feature 2).

Exhibit 94: Schematic diagram of economic cycle and Proactive Macroeconomic Management

[1] Li, D. D., & Liang, M. (1998). Causes of the Soft Budget Constraint: Evidence on Three Explanations. Journal of Comparative Economics, 26(1), 104-116;
Qian, Y., & Roland, G. (1999). Federalism and the Soft Budget Constraint. The American Economic Review, 88(5), 1143-1162.



Source: prepared by the author

② The government needs to utilize market, reform, and administrative means ("Three Arrows") to stabilize macro economy.

The "visible hand" of the government shall help the "invisible hand" of the market to stabilize the cyclical fluctuations via proactive macroeconomic management and improve the overall economic welfare, so as to avoid "loss of overall welfare due to individual rational behavior": when the economy is too "hot," the government shall leverage the proactive macroeconomic management to limit excessive investment and repetition of construction, control the size of infrastructure construction and put the lid on inflation; when the economy is too "cold," the government shall also leverage the proactive macroeconomic management to accelerate the exit of outdated capacity, drive the capacity clearing, and at the same time expand the infrastructure construction, stimulate the total demands and help the economy step out of deflation.

Looking back to the past forty years, one of the key reasons why the Chinese economy was able to realize a long-term steady and rapid economic growth and managed to turn itself from a low-income economy to a medium and high income economy is that the government has properly used the proactive macroeconomic management measures to successfully resolve the challenge of economic "over-cold" and "overheat" and avoid great shocks in economy.

Chinese government fired "three arrows at the same time" in its proactive macroeconomic management — by applying the combination of market approaches, administrative orders and system reforms, cool the market when the macro-economy is too "hot," and warm the market when the economy is too "cold," so as to stabilize the economic development in the short run, and to promote the optimized allocation of

resources and improve the social welfare in the long run, which is briefly summarized as follows:

Market Approaches: (1) by utilizing such monetary policy tools as adjustment of deposit and lending benchmark rates and RRR, to indirectly influence the investment and financing behavior of the enterprises and saving and consumption decision making of households; (2) by utilizing tax rate adjustment (enterprise income tax rate, export rebate rate, VAT rate, tax incentive for car purchase), fiscal expenditure subsidies for supporting consumption (subsidy for rural appliance purchases), fiscal expenditure subsidies for supporting enterprise equipment upgrading and such other fiscal expenditure tools, to expand or tighten the overall demand.

Administrative Orders: (1) to strictly control the approval of the newly added investment projects and prevent redundant construction in the overheating period; typical case: in 1990s, administrative orders were taken to strictly control the new projects to address the overheated admission to the industries of TV sets, washing machines and refrigerators[1]. (2) to force the outdated capacity out of market via administrative orders in the economic over-cold period; typical cases: "spindle reduction and capacity limitation" in the textile industry in the 1990s, and compulsory de-capacity by directly setting specific quantitative targets for the sectors of steel, cement, electrolytic aluminum, sheet glass, etc. after 2015[2]. For instance, the *Opinions on Dissolving Excess Capacity and Realizing Profitable Development of Steel Industry* distributed by the State Council in February, 2016 clearly set the targets to reduce the crude steel capacity by 100 to 150 million tons in the five years' period from 2016, and to demand compulsory exit of the enterprises that fail to reach the standard requirements in aspects of environmental protection, energy consumption, quality, safety and technology. Such targets were communicated from central government down the way to each province, city and county. (3) to expand infrastructure construction and directly and indirectly enlarge the overall demands in the economic over-cold period; typical case: in order to address the shock of Asian financial crisis, the central government additionally issued RMB100 billion national bonds in 1998, and put in place RMB100 billion loan solely for expanding the infrastructure construction, including rural power grid upgrading, irrigation project construction, highway construction, granary construction, urban infrastructure construction, interest subsidy for technical

[1] *Zhu Rongji On the Record* (Book II), Pages 374 and 498

[2] See details in the *Opinions on Dissolving Excess Capacity and Realizing Profitable Development of Steel Industry* (Guo Fa [2016] No. 6) distributed by the State Council on February 1, 2016

transformation, etc. (4) by reducing land approvals, tightening the credit granting and raising the threshold through administrative orders, to "restrict house purchase" on the real property market of key cities.

System reform: to set free economic vitality by pushing ahead economic system reforms and tactfully utilizing the turning point of over-cold or overheat in economy. The typical case of realizing proactive macroeconomic management purposes through reform measures after the outbreak of Asian financial crisis: (1) to drive housing system reform by seizing the appropriate opportunity after the Asian financial crisis, and to turn the original welfare-oriented public housing distribution system to house purchase from market, which not only achieved the effect of short-term proactive macroeconomic management, but also added new momentum to marketization reform and long-term economic growth; and (2) the "expansion of college enrolment" initiative started in 1999 expanded domestic demand and relieved short-term employment pressure on the one hand, and also built up rich talent reserve for long-term economic development. (3) to seize the opportunity to speed up WTO entry negotiations so that China successfully joined WTO in 2001 and the economy was further opened up. (4) the four asset management companies were established to spin off the bad assets of the four state-owned commercial banks, which marked the start of the joint-stock reform of state-owned commercial banks. In another example, the government seized the overheating opportunity between 1993 and 1994 to drive the "tax distribution system" reform, which as a result substantially transformed the basic framework of China's financial and fiscal systems. In conclusion, one of the rules of thumb for the Chinese government's proactive macroeconomic management is that: **to drive system reform by tactfully utilizing the opportunity of proactive macroeconomic management, so as to use reform as one of the means of proactive macroeconomic management to stabilize the economic fluctuation, and to use reform to release new vitality and add new momentum to the long-term economic development.**

Finally, we have to emphasize that **it is costly to digest the cyclical economic fluctuations purely by replying on the "invisible hand" of the market**. Some believe that the power of the "invisible hand" will finally clear the market, which, for sure, is correct by all means; however, in real practices, it often takes long time to clear the market purely by means of market power and may result in huge waste of social resources. Taking the U.S. airline industry as an example, the market clearing process has lasted as long as over 30 years from the 1980s to the 2010s. Such long waiting period and huge waste of resources are unaffordable for a developing country like China.

If we just sit and wait the "invisible hand" of the market to take effect, for a developed country, the abovementioned "Rush to the Top" and "War of Attrition" may only cause back and forth economic fluctuations or sporadic economic crisis, but for a developing country, they may mean interruption or even suspension of the economic development, social turbulence and "middle-income trap." All this has been proved by what many Latin-American and Sub-Saharan African countries have once experienced.

Exhibit 95 The Economic Principles of the Proactive Macroeconomic Management by the Chinese government

	Macro-Economic Performance	Micro-mechanism	Main Measures for Proactive Macroeconomic Management	Typical Period
Economic up cycle	Investors are optimistic and the production capacity is expanding rapidly; Redundant construction; High inflation; Rapid expansion of production capacity may accelerate the economy towards overcapacity.	Rush to the Top	Limit redundant construction, and control the blind expansion of production capacity ; Control the scale of infrastructure construction; Tightening monetary and fiscal policies; Curb inflation; Raise nominal interest rates, protect the interests of depositors, and ensure financial stability.	1984-1985 1988-1989 1993-1994 2003-2007
Economic down cycle	Overcapacity; Deflation; The profitability of enterprises declines; Backward production capacity unwilling to withdraw, which makes the market difficult to clear.	War of Attrition	Accelerate the exit of low quality production capacity and promote market clearing; Active fiscal policy, expansionary monetary policy; Expand infrastructure building, boost aggregate demand, and help the economy escape from deflation; Reform, release vitality, cultivate market and expand domestic demand.	1998-1999 2008-2009 2012-2016

Source: prepared by the author

Exhibit 96 De-capacity Rules of Administrative Orders in Steel Industry

Overall principles: to strictly abide by the laws, regulations and industrial policies relating to environmental protection, energy consumption, quality, safety and technology, and to force out the steel capacity that fails to reach the standard requirements.

Categorized Metrics	Measures
Environmental Protection	Those whose pollutant discharge rate fails to satisfy the requirements under the Emission Standard of Water Pollutants for Iron and Steel Industry, the Emission Standard of Air Pollutants for Sintering and Pelletizing of Iron and Steel Industry, the Emission Standard of Air Pollutants for Iron Smelt Industry, the Emission Standard of Air Pollutants for Steel Smelt Industry and the Emission Standard of Air Pollutants for Steel Rolling Industry shall receive continuous daily penalty and, in cases of grave violation, shall be ordered shutdown or closure after approved by the competent People's Government.
Energy Consumption	Those who fail to satisfy the statutory standard requirements under the *Norm of Energy Consumption Per Unit Product of Major Individual Process of Crude Steel Manufacturing Process* shall make the rectification within 6 months, and may file an application for no more than 3 months' extension if such extension is necessary. Failure to make the rectification within the time frame or failure to satisfy the requirements for such rectification will cause the capacity to be closed, shut down or to exit the market pursuant to relevant law.
Quality	Those whose steel products fail to satisfy the statutory quality requirements shall be penalized and ordered to stop production for rectification, and those who fail to make the rectification within the time frame or fail to satisfy the requirements for such rectification will be closed, shut down or to exit the market pursuant to law.
Safety	Those who fail to reach the third grade under enterprise manufacturing safety standard, or whose safety conditions fail to satisfy the standard requirements under the *Safety Regulations for Ironmaking*, the *Safety Regulations for Steelmaking*, the *Gas Safety Regulations for Industrial Enterprises*, shall immediately stop production for rectification, and shall be closed, shut down or exit the market pursuant to the law if they fail to make the rectification within 6 months or still fail to reach the standard after rectification.
Technology	To immediately close, shut down and demolish 400-cubic meter and below iron-making blast furnaces, 30-ton and below steelmaking converters and 30-ton and below steelmaking electric furnaces and such other outdated manufacturing equipment in accordance with the *Catalogue for Guiding Industry Restructuring (2011 Version) (Amendment)*. Those who manufacture substandard steel shall be immediately closed, shut down, demolished and penalized according to the law.

Source: Opinions on Dissolving Excess Capacity and Realizing Profitable Development of Steel Industry issued by the State Council, February, 2016.

"Dream of Empire" of Airline Companies and Excessive Competition in U.S. Civil Aviation Industry

In 1978, the U.S. Airline Deregul*ation Act* was enacted to loosen the U.S. government's grip of the air ticket price, air route and market access, and then the supervisory power of Civil Aeronautics Board also started to be withdrawn gradually. As a result, the airline companies began to be able to freely enter and exit the aviation industry and set their own air routes and ticket prices.

Initially deregulation did work as expected, as the average of ticket price actually paid by passengers dropped 30% after considering actual inflation rate between 1976 and 1990[1], and between 1979 and 1988 the number of domestic airports for which American Airlines provided services grew from 50 to 173, and the same number for United Airlines grew from 80 to 169.[2]

With the new players flocking into the market, the existing airline companies were not willing to give up their established position, and therefore tried every means to expand size and improve the capacity in pursuit of economy of scale, and at the same time restrict the development of competitors, hoping to win the "Rush to the Top" and realize the "Dream of Empire." Finally the balance of microscopic inter-company contest triggered and intensified the macro-economic fluctuations. The "Rush to the Top" in aviation prompted enterprises to blindly expand capacity and rapidly accumulate capacity, which as a result led to a vicious price war, illegal booking service and other acts of unfair competition.

Since the 1980s, in a fight for market share, the airline companies have step by step established a special network of hub-and-spoke routes, which, compared with the "fully connected" routes, may adjust the prices more flexibly. Research shows that when new entrants attempt to access the market that operate hub-and-spoke routes, the existing companies will have motives to engage in a price war (Hendricks, Piccione and Tan, 1997).[3]

Unfair competition also lied in many other areas. In the competitive environment of the then-current aviation industry, the companies that have many integrated services

[1] Alfred Kahn, "Airline Deregulation", see details at:
http://www.econlib.org/library/Enc1/AirlineDeregulation.html.

[2] Ibid.

[3] Hendricks, K., M. Piccione and G. Tan (1997), "Entry and Exit in Hub-Spoke Networks," RAND Journal of Economics 28: 291-303.

like booking and air transport may use technical tools to control the direction of cross-product externality, and thus adversely impact their competitor with no integration of services. For example, at the early stage of online booking system, the airline company owning this system intentionally placed its own flights ahead of those of the competitors. Given the cost of agency, the travel agencies had no incentive to compare and screen all the flights even if they knew the flights that ranked in the top were not necessarily the best flights. Fisher and Neels (1997) estimated that in 1984 only, such ranking priority translated into an impact of US$58 million.[1]

Faced with a fierce competition, airline companies adopted attrition strategy, and were unwilling to exit the market despite the losses suffered, but rather pin their hopes on the competitors exiting or going bankrupt ahead of them. The balance of inter-company "Rush to the Top" also intensified the economic fluctuations at the macroscopic level, resulted in excessive capacity and heavy loss of the industry as a whole. The aviation industry has suffered loss for as long as 14 years out of the 28 years between 1980 and 2008.[2] Under the intense competition pressure, many airline companies went bankrupt or were acquired, such as Pan American's acquisition of National Airline in 1980, People Express's acquisition of Frontier Airline in 1985, and Northwest Airlines' acquisition of Republic Airlines in 1986. The number of large airline companies dropped from 11 prior to the deregulation to 8 in 1996, and the domestic market share of the three major airline companies grew from 31% in 1981 to 55%[3]. On the other hand, most surviving companies suffered long-term severe loss or even bankruptcy. American Airlines filed for bankruptcy protection for twice in 2002 and 2004 respectively, United Airlines filed in 2002, and Delta Airlines and Northwest Airlines filed in 2005.

After American Airlines merged with Western Airlines in 2005, Delta Airlines acquired Northwest Airlines in 2008, United Airlines merged with Continental Airlines in 2010, Southwest Airlines acquired AirTran Airways in 2012, and American Airlines merged with U.S. Airways in 2013, forming the biggest airline company in the world. To that point, an oligopoly was finally formed in the U.S. aviation industry, which declared the end of as long as over thirty years'

[1] Fisher, F. and K. Neels (1997), "Estimating the Effects of Display Bias in Computer Reservations Systems," in Microeconomics: Essays in Theory and Applications edited by Maarten-Pieter Schinkel, Massachusetts: Cambridge University Press, 450-483.

[2] China Merchants Securities, Invisible Supply-Side Reform, 9-Year Secular Bull Ten-Baggar – Deep Probe into Mega Bull Market of U.S. Aviation Industry, March 12, 2018.

[3] Kenneth Button, *Transport Economics*, translated by Feng Zongxian, The Commercial Press, 2002.

excessive competition. As a result, compared with the net loss of US$51.8 billion suffered between 1979 and 2010, the U.S. aviation industry recorded aggregate earnings of US$59.4 billion between 2011 and 2016, which was nearly equal to the aggregate loss of the past thirty years.[1]

We can see from the development history of the U.S. aviation industry that it is really costly to purely rely on the power of market to address the economic cyclical fluctuation. It took the U.S. aviation industry more than thirty years from the deregulation at the end of the 1970s to the financial crisis in 2008 to live through the fluctuation. In this long process the overcapacity and excessive competition have caused long-term loss and unfair competition in the industry, which serves a valuable lesson for us to learn.

[1] Da Cheng International Asset Management Company Limited, Will the Aviation Industry have Opportunities for Investment in 2018?

Outlook for China's Economy over the Next 30 Years

After enjoying 70 years' development, China has another 30 years on hand from the centenary of the establishment of the People's Republic of China, a monumental historical juncture. Looking forward to the future 30 years, we believe that the socialist market economy with Chinese characteristics will gradually take shape with broad economic development prospects, and China will join the ranking of high-income countries, making it the world's largest economy and important scientific research center. In the meantime, China also faces real pressing challenges: in terms of the external environment, China must improve its ability to lead globalization and create a peaceful and healthy space in the context of a decline in global leadership of the United States; and domestically, China must pursue the transformation and upgrading of the industry and expand the scale of middle-income groups in order to achieve the high-quality development.

Outlook 1: The system of modern market economic institutions with Chinese characteristics will gradually take shape

Over the next 3 decades, the socialist market economy with Chinese characteristics will gradually take shape as the Reform and Opening-up is deepened. Through 40 years of the Reform and Opening-up, the current market economy with Chinese characteristics has three prominent features: supersized real economy and excessive savings, significant reversal of the relative costs of the key elements, and high-end and diversified demands of our people. In order to make full use of the enormous amount of the domestic savings, to effectively reduce excessive labor costs and to fully meet the demand of domestic consumers, especially the high-end demand, we need to establish and improve the socialist market economy with Chinese characteristics, to balance the relationship between the government and the market, to solve the problems and contradictions that may be encountered in the future growth of Chinese economy, and to accelerate the high-quality growth of Chinese economy through continuous reforms.

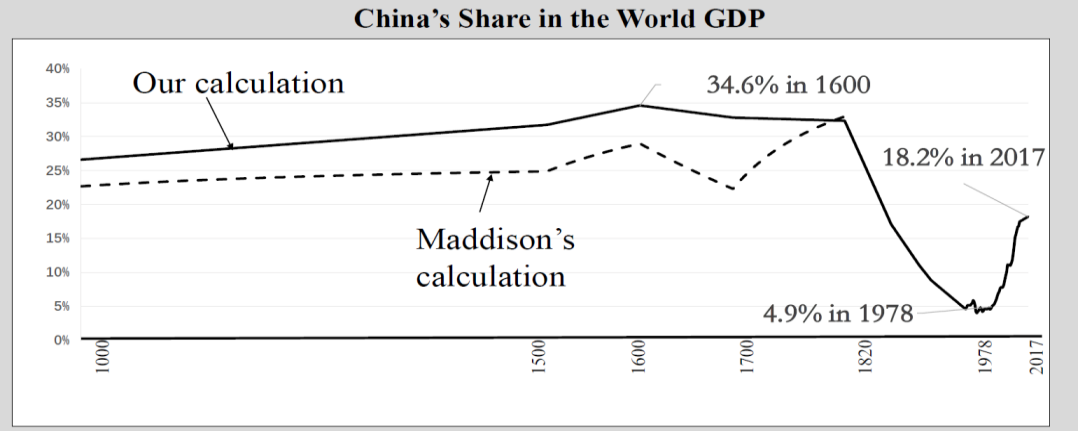
At this stage, new economic growth entails new thinking, especially those in combination with the economic theories formed by the valuable experience accumulated over more than 70 years since the founding of the People's Republic of China. We should elucidate the China story from a theoretical point of view and employ theories to guide the development of Chinese economy and establishment of the socialist market economy with Chinese characteristics. Achieving national rejuvenation will be no walk in the park. We must be mentally prepared to work even harder toward

this goal. Therefore, the China's economic field must have a sense of urgency, and transform our successful economic practices into internationally convincing economic theories with Chinese characteristics which are comparable to western doctrine of economic liberalism, and must do our part to contribute to the decision-making of the Chinese economy.

Outlook 2: China will become the world's largest economy and join the ranks of high-income countries

Over the past 40 years, China completed the largest economic growth in human history, with China' share in the global economy rising from 1.8% in 1978 to 15.8% in 2018. Based on our long-term research, this is the first time that China's share in the global economy has seen a rise in trend since 1600.

Exhibit 97 China's share in the world GDP



Date source: ACCEPT calculation

It is expected that China's share in the world GDP will continue to rise, whether calculated based on purchasing power parity or on USD. In fact, China became the world's largest economy under the purchasing power standards in 2014, and its share in GDP, calculated by the market value, will also rank first in the world in the first half of the next 30 years.

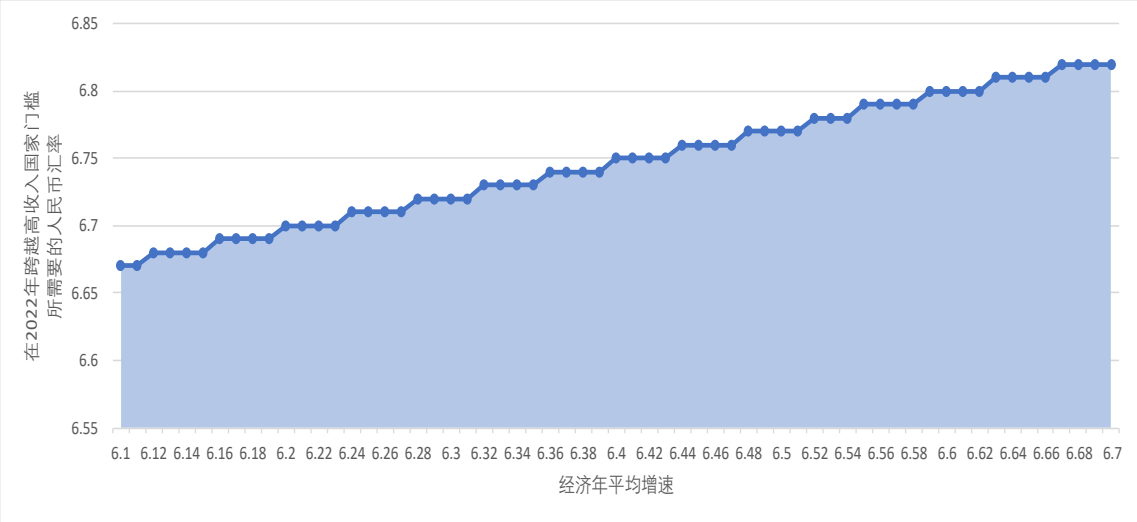
We analyze China's future longer-term economic growth from two perspectives: an East Asia path with higher growth speed that can stride across the middle income trap and a Latin American path with sharply downward growth speed which falls into the middle income trap (David Li and FU Lin, 2018). According to the population projections from the World Bank, the total size of China's economy is expected to reach 191% and 253% of that of the United States, a benchmark at that time, respectively by 2035 and 2050 under the East Asia path, while reaching 127% and 97% under the Latin

American path. Our empirical research shows that China has three basic conditions to follow the East Asia path, namely, a stable government, certain populations reaching the scheduled degree of education and health, and opening-up to developed economies, and therefore China's economic development will no doubt move toward the East Asian path for the future three decades, making China the world's largest economy whether based on purchasing power parity or market price.

In the meantime, China will overcome the middle-income trap and join the ranking of high-income countries. Based on the aforesaid long-term economic growth research, China's per capita income is expected to reach 49.7% and 73.4% of the United States as the reference standard at that time respectively by 2035 and 2050 under the East Asia path and to reach 33.0% and 28.1% under the Latin American path (David Li and FU Lin, 2018). In other words, China's per capita GDP is expected to reach half of the United States by 2035 if China can maintain its economic growth at a medium and high speed according to the East Asia path.

China's per capita gross national income was USD9,470 in 2018. China belongs to a middle-and high-income country according to the standards of the World Bank (namely, the per capita GDP ranges from USD3,996 to 12,375). China is expected to reach the level of high-income countries by around 2022 if its GDP grows by 6.3% per year, its population rises by 0.38%, RMB exchange rate is basically stable and SDR basket currency structure remains unchanged (David Li, David Zhang and CHEN Dapeng, 2018).

Exhibit 98 Combination of economic growth rate and exchange rate that are necessary for China to be classified as a high-income country in 2022 according to the standards of the World Bank



Data source: ACCEPT calculation

Outlook 3: China will become an important scientific research and development center in the world

With joint efforts of Chinese government, academia and business community in recent years, marked achievements have been made in scientific research and innovation and patent applications. 1,400,000 invention patents were registered in China throughout the year of 2017 while 607,000 and 318,000 were registered respectively in the United States and Japan. In terms of the science and technology, like a "sprinter" with strong explosive force, China has made significant progress in big data, artificial intelligence, Internet and other fields in recent years. These fields are characterized by short-term innovation chains, namely, the explosive growth can be attained through intensive capital and technology investments in the short term. In addition, these fields entail a large pool of programmers and centralized technology investments. For example, China ranked first in terms of the total of Chinese artificial intelligence papers and the number of highly cited papers in 2017; and China has the largest number of artificial intelligence patent portfolios in the world, followed by the United States and Japan. What's more, China's big data industry saw explosive growth. In 2017, China's digital economy market scale reached RMB27.2 trillion, accounting for 32.9% of GDP and in 2018, RMB31.3 trillion, with the percentage rising by 1.9% on year-on-year basis. This market scale is expected to reach RMB35 trillion in 2019 and RMB54.5 trillion in 2023, with up to 11.71% of compound annual growth rate between 2019 and 2023. The conditions above have laid a solid foundation for China to become the world's leading research and development center in the information technology and other fields for a period in the future.

At the same time, China still lags far behind other countries in terms of fields with long innovation chains and demanding long-term capital and technology accumulation, like semiconductor industry. The semiconductor industry is mainly divided into the upstream industrial software (EDA) and the downstream chip manufacturing. The former is mainly monopolized by three major US companies. At present, China's market share in the world EDA is very small, and China relies heavily on foreign imports to meet its domestic demand. To overcome this difficulty, the Chinese government should focus on researching, clearly identify and point out the core and key technologies (also known as technologies "clutching at China's throat"), and these technologies are what China needs desperately. Furthermore, the Chinese government should do more to support these technologies and increase the capital and technology

input in order to singly achieve breakthroughs in these technologies. However, achievements cannot be made at one go as the innovation of these technologies are linked with another. The Chinese government must be mentally prepared to provide constant encouragement and support.

Moreover, it should be noted that high-quality talents cultivated by Chinese universities have been increasing with decades of reform and development in Chinese education, creating human capital advantages for China. According to the data from *Educational Statistics Yearbook of China* (2016), graduates from vocational colleges, undergraduate and postgraduate institutions totaled about 7.6057 million in 2016, including 3.1578 million graduates from science and engineering discipline, representing 41.5%, among which the engineering graduates reached up to 2.85 million, representing 37.5%. By contrast, the total graduates from science and engineering discipline in the United States was 564,000 in 2016, only representing 14.9% of total graduates, far lower than China. China's large-scale graduates from science and engineering discipline will directly become a part of its scientific and technological labor force, provide a solid talent base for technological innovation, boost its technological progress and industrial upgrading and thus help China lead the world in some areas of science and technology.

Exhibit 99 Graduates from disciplines of national regular universities in 2016 (in ten thousands)

	Graduates from regular vocational colleges and undergraduate institutions (in ten thousands)	Graduates from postgraduate institutions (in ten thousands)	Total graduates from regular vocational colleges, undergraduate and postgraduate institutions (in ten thousands)	Percent
Science and Engineering	290.95	24.83	315.78	41.52%
Finance	94.07	2.70	96.77	12.72%
Literature and Art (Including Language, News)	91.10	4.89	95.98	12.62%

Management Discipline (Including Tourism and Service)	86.03	7.20	93.23	12.26%
Medicine	60.85	6.58	67.43	8.87%
Education and Sports	48.84	3.14	51.98	6.83%
Others (including Law, Agronomy, History, Philosophy and Military)	32.35	7.06	39.41	5.18%
Total	704.18	56.39	760.57	100.00%

Data source: National Bureau of Statistics

Challenge 1: To make the transition from fast growth to high quality growth

In order to make the transition from fast growth to high quality growth, China needs to give high priority to indigenous innovation and technological upgrading. In this respect, Shenzhen is at the forefront of China, not only becoming the most active and modern region across the country in terms of technological innovation and industrial upgrading, but also setting benchmarks for the relevant institutional mechanisms. For example, Shenzhen municipal government has established auxiliary mechanisms to help innovation funds operate better. This practice should be reviewed and applied elsewhere.

In addition to industrial upgrading and technological advancement, the expansion of middle-income groups is another driving force of China's economic growth, which is particularly important and must be valued in the process of China's economic growth. According to the standard set by the National Bureau of Statistics, namely, a typical family of three members with an annual income between RMB100,000 and 500,000 as the middle-income group, our country has more than 400 million middle-income groups. In order to resolve long-term internal economic growth impetus and achieve high-quality economic growth, the key is to advance the multiplication of middle-income groups in China through effective macroeconomic policies.

In order to add 400 million new middle-income families, China needs to raise less than RMB100,000 of annual household income among the middle-lower income and middle-income groups to RMB 100,000 or more according to the current income distribution of residents in China. If the disposable income of households increases at

an annual rate of 8%, 7% and 6% respectively each year (the annual growth rate of actual income will be 6%, 5% and 4% respectively, and price of commodities will increase by 2% each year), and the birth rate will remain unchanged, we expect that it will take 11, 12.4 and 14.5 years respectively to achieve the multiplication of middle-income groups. In other words, with 2018 as the base year, we assume that the annual disposal income of households will increase by 6%, China is expected to achieve the multiplication of middle-income groups within 15 years or three five-year plans.

Exhibit 100 Forecast of multiplication of middle-income groups

S.N.	Annual growth of disposal income	Years for achieving the goal	Year when the goal is achieved
1	8%	11	2028
2	7%	12.4	2030
3	6%	14.5	2032

Data source: ACCEPT forecast

Based on the data from the China Labor Force Dynamics Survey (CLDS) in 2016 and the China Household Finance Survey (CHFS) in 2013, we predict that among new 400 million middle-income groups for the next 15 years, rural and urban populations account for 74.2% and 25.8% respectively in terms of rural-urban distribution; over 45 years old, 50.5%, 26-35 years old, 17.8% and 36-45 years old, 23.8% in terms of the age distribution; and in terms of geographical distribution, groups from east areas, 56.5%. In particular, among the migrant workers in four first-tier cities including Beijing, Shanghai, Shenzhen and Huizhou, about 30.4% will join the middle-income groups in the next 15 years, representing about 16.9% of new 400 million middle-income groups. Based on the above forecast, we conclude that the agricultural population not yet urbanized should be the main force for the multiplication of middle-income groups for a period in the future, especially the migrant workers who have worked and lived in the first-and second-tier cities.

If China can achieve this goal within the future 15 years, the size of China's middle-income population will be two times that of "EU+ the United States + Japan." It will be a great achievement in economic history and be of tremendous importance to the growth of global economy. China needs to unleash the potential as the world's largest consumer market to the fullest extent through the multiplication of middle-income groups to solve a series of structural problems caused by insufficient internal

impetus necessary for growth and to constantly promote the high-quality growth of China's economy.

Challenge 2: Continued reforms to improve Chinese institutions of market economy

In order to further promote the sustainable and high-quality growth of China's economy, China needs to tackle a few prominent challenges, establish and improve the market economy that fits the conditions of realities of China and responds to the call of the times. In this process, China needs to balance the relationship between the government and the market and further energize market economy supported by the government. China should consider the following key issues on China's economic development in order to establish this market economy.

First, as the most important feature of the socialist market economy with Chinese characteristics, how can the state achieve its involvement in the economy? China's economy is jointly promoted by the government and the market, and the state-owned economy is an important part of this system. However, the state-owned economy can be realized not only through the state-owned enterprises, and the state-owned enterprises are not limited to the traditional stated-owned enterprises tightly controlled by the government. To this end, the Chinese government conducted a pioneering exploration in Shenzhen. At present, Shenzhen's GPD exceeds RMB2 trillion, and its state-owned assets hit RMB3 trillion. In fact, the state-owned assets of Shenzhen are mainly realized in the form of various state-owned funds rather than stated-owned enterprises. But now, Shenzhen and other regions of China need to further explore how to properly manage these state-owned funds and how to exert their advantages that the private capital cannot achieve.

Second, in terms of the important production factors, especially land, how can the relationship between the government and the market regulation be balanced? It is impossible to follow the previous path that the fiscal revenue was obtained mainly from selling the land to support the local development. But if the land is completely controlled by the government, how can land use efficiency be improved? Where does the government's fiscal revenue come from? How can the government operate efficiently? All of these are important topics. For these purposes, Shenzhen, Xiong'an New Area and other regions must step up to the task of exploration.

Third, how does the government shoulder major social responsibilities? There are excessive market-based phenomena in many fields including retirement, pension, medical care and elementary education. The government should abolish the extracurricular classes in the elementary education and the practice of compensating for law medical service charges with high drug prices.

Besides, how can the financial regulatory system be further consolidated? For the public goods including infrastructure construction, the government need to consider how to

overcome the short-sighted problems caused by the reliance by local governments on short-term bank lending, how to continuously promote the innovation of scientific research system, how to clarify the intellectual property distribution, and how to ensure the enthusiasm of scientific research personnel on the basis of clarifying property rights. The above problems, in the end, depend on how to balance the relationship between the government and the market.

In addition, with the previous period of development, some industries in China also undergo a series of problems such as overmuch enterprises and low industrial concentration. Because of low concentration of industries, China's private businesses face arduous merger or restructuring adjustments, especially for those in the middle and down streams. Currently, enterprises are experiencing the overcrowding and excessive competition, so both private businesses and stated-owned economy will be through hardship and adversity in the process of attaining the mature economy with high industrial concentration. In this process, the solutions to economic growth include orderly exit, merger and restructuring, but the experience of economic development shows that this process is often very long. For example, as a typical case, the civil aviation industry in the United States after 1980s took three decades to complete its exit and restructuring. The reason is that the "survivor" who "laughs last" can enjoy higher industrial profits, and therefore any enterprise is unwilling to be act an "escaper" who "timely exits." Finally, many enterprises are overwhelmed by excessive competition and extremely low profits. Therefore, the Chinese government must play an active role in promoting this process for the coming years.

Challenge 3: To assume an appropriate leadership role in the changing world

China is on pace to make the transition to consumption-driven economy from an export-and investment-driven one, becoming the engine and shock absorber of the global economy. China now has the world's largest consumer market and most dynamic consumers. In 2018, our consumption's contribution to economic growth approached 76.2%. As a beneficiary of globalization and facing the unprecedented change, China should actively respond to the countercurrent of economic globalization occurring for the near term, support the multilateral agreements and free trade, and deepen efforts in forming a new pattern of multi-cooperative global economy by pursuing the Belt and Road Initiative.

It has been widely recognized that the relative ability of the United States to lead the globalization has declined compared with 1970s while this ability of China is gradually improving. When delivering a keynote speech at Davos Forum in 2017, Chinese President Xi Jinping put forward the concept of "building a community with a shared future for mankind", and highlighted the importance of continuing to pursue the

economic globalization and guiding its direction to make economic globalization more dynamic, open, reasonable and fairer so that its benefits are shared by all. In a speech at the 2019 Boao Forum for Asia, Premier LI Keqiang proposed that China will open wider to the world, safeguard the international system with the United Nations at its core, support multilateral trade regimes with the rules as the basis, and work to encourage the evolution of global governance system. The Chinese government has initiated the establishment of the Asian Infrastructure Investment Bank and the New Development Bank and jointly pursued the Belt and Road Initiative to give assistance to many countries, especially developing countries in building the infrastructure projects so that other countries can enjoy the profits brought about by the Reform and Opening-up, and to narrow the North-South income gap; and China has made great contribution to eliminating the poverty and alleviating global imbalances.

Looking into the future, the new globalization jointly led by the United States, Europe and China will create new drivers of the growth of the world economy. In order to deepen the development of new globalization, China should continue to unswervingly learn the advanced experience from other countries, deepen reforms in key industries and further enhance its ability to lead globalization. Again, China should seriously consider how to play its due leadership globally, how to avoid mistakes made by the United States and other Western countries in global affairs in the past, how to improve its global leadership and voice, and how to demonstrate China's theories and stories. A nation will prosper only when its young people thrive. With this in mind, our younger generations must have a strong sense of upgrading their ability in international affairs, which is particularly worthy of expectation and exploration.

In order to effectively cope with challenges faced by China's sustainable economic development and see the future growth of China's economy, China needs to give top priority to balance the relationship between the government and the market. There are reasons to believe that the next three decades will be a critical stage for transforming our growth model, refining our economic structure and fostering new drivers of growth, and be 30 years for speeding up the socialist modernization and national rejuvenation. China's economic development and valuable experience for the past 70 years have laid a solid foundation for the growth of the future three decades.

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