

2017 China Life Sciences and Health Care Investment Promotion Report

China Investment Promotion Agency of Ministry of Commerce, P.R.China.

Deloitte China

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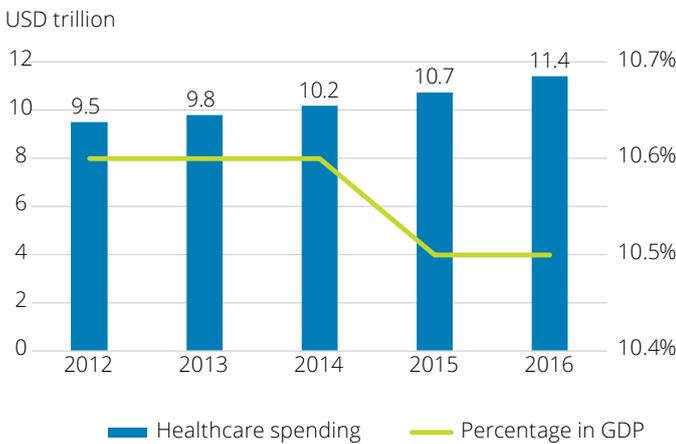
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Chapter I Present state of LSHC industry

I. Macro trends of global LSHC industry

Global healthcare expenditures reached USD11.4 trillion in 2016 and the compound growth rate has stayed at about 4.7% between 2012 and 2016, peaking at 6.5% between 2015 and 2016.

Figure 1: Global healthcare spending per capita and its percentage in GDP, 2012-2016



Source: EIU, World Bank, Deloitte Research

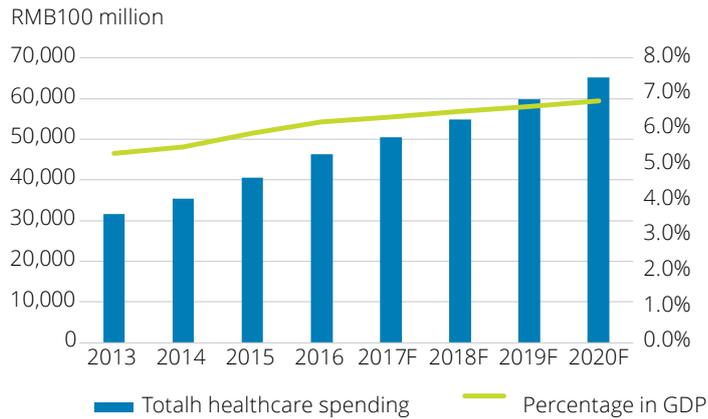
Over the past five years, M&A activities have been active in the global LSHC industry with strong growth in both the volume and amount. Due to macroeconomic constraints and regulators' restrictive measures, however, the LSHC industry recognized a decline in the total amounts of investment for M&A transactions in 2016. Investments in the global LSHC industry will tend to be steady, and large-scale business restructuring and the integration of companies will become the main drivers for industrial investments and M&As.

Big health industry requires sustainable innovation. The Global Healthcare Outlook released by Deloitte Global in 2017 outlines ten innovations in the big health industry which will be or have become the hot investment areas, including: next-generation sequencing (NGS), 3D-printed devices, immunotherapy, artificial intelligence (AI), point-of-care (POC) diagnostics, virtual reality (VR), leveraging social media to improve patient experience, biosensors and trackers, convenient care and telehealth.

II. Present state and future trends of China's LSHC industry

China's health spending totaled RMB4.6 trillion in 2016 at the compound growth rate of 13.5% over the past three years. But China's healthcare expenditures only take up 6.2% of GDP. As proposed during the "12th Five-Year Plan" period, the total health spending as a percentage of GDP should rise to 6.5%-7% by 2020 and the health services sector will become the focus of the big health industry.

Figure 2: Trends and predictions of total healthcare spending, 2013-2020

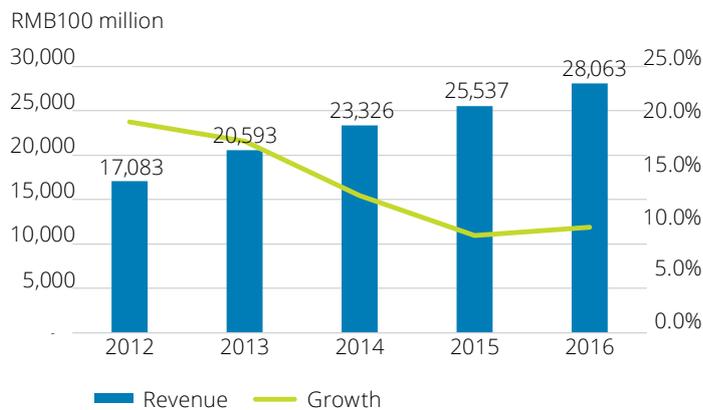


Source: National Bureau of Statistics (NBS), Deloitte Research

Pharmaceutical sector

The main business revenues in China's pharmaceutical sector grew at the rate of 9.9% in 2016 with the profit growth reaching 13.9%, experiencing a stable overall growth rate. Businesses stop pursuing excessively the rapid growth of business revenues, opting instead to shift the focus on products' quality and strive for industrial upgrading, willing to enhance the overall profitability.

Figure 3: Main business revenues in the pharmaceutical sector, 2012-2016



Source: National Bureau of Statistics (NBS), Deloitte Research

Figure 4: Main business profits in the pharmaceutical sector



Source: National Bureau of Statistics (NBS), Deloitte Research

Pharmaceutical distribution sector in China

The sales in pharmaceutical distribution sector reached RMB1.84 trillion in 2016, an increase of 10.4% from 2015 with a steady growth rate. Due to policies such as "two-invoice system", the pharmaceutical distribution sector is expected to see a huge shock in the next few years.

In terms of marketing channels, the sales to manufacturers accounted for 0.3% of the total sales volume in 2016, while the sales to wholesale businesses as a percentage of the total sales dropped by 0.9% year on year, and that to terminals as a percentage of the total sales increased by 0.6% year on year. As for the sales to terminals, the sales to healthcare providers took up 71.0% while the sales to retail terminals and resident retailers occupied 29.0%.

Negative growth emerged in export

In 2016, the imports of LSHC products increased by 3.83% year on year while the exports declined by 1.82% year on year, creating the first negative growth in China's LSHC industry exports. Exported products include western drugs (57%), medical devices (37%) and traditional Chinese medicine products (6%). The negative growth in the exports of LSHC products is mainly caused by the slump in exports of medical devices and traditional Chinese medicine products.

III. New hot topics impacting the investment in China LSHC industry in 2017

Release of Healthy China 2030

In October 2016, the State Council released the Outline of the Plan for "Healthy China 2030", depicting the blueprint of big health industry. The "Healthy China 2030" strategy sets goals on the scale of the healthcare industry, specifies many key indicators for "Healthy China" construction, and raises the requirements on healthcare services. "Healthy China" strategy will serve as an important guideline for developing China's healthcare industry in the next 15 years with the theme of co-building, sharing and achieving nation-wide health based on the principles of health first, reform and innovation, scientific development and fairness and equality.

Updates in National Drug Reimbursement List (NDRL)

In 2017, the Ministry of Human Resources and Social Security officially updated the national drug list for basic medical insurance, work-related injury insurance and maternity insurance. In the future, the list will be likely to link up with new drug approval and the dynamic changes of the list will probably become the norm. The future of drugs will no longer be entirely determined by the inclusion in the list but depends more on the market competition for drug quality and the acceptance by doctors and patients. Moreover, negotiations about the inclusion of drugs in the NDRL are predicted to accelerate. Reduced drug prices through negotiations will help the healthcare fund ease the increasing financial pressure, creating an overall positive impact on domestic companies.

Implementation of healthcare reform policies

Meanwhile, various progresses have been made in 2017 after the healthcare reform policies being implemented for years, including "zero mark-up drug policy", "two-invoice system", and "tiered healthcare system" and the GMP reform.

The implementation of "zero mark-up drug policy" has directly impacted the revenues of hospitals, especially public hospitals. After years of pilot operation, the percentage of drug revenues in the total revenues of public hospitals has declined significantly while the percentage of examination and health materials has visibly risen. Therefore, public hospitals need to step up efforts in changing medical services to boost revenues.

As an important healthcare reform measure focusing on cost control, the "two-invoice system" has been fully implemented since 2017. Currently, the majority of Chinese provinces have developed implementation plans for adopting the "two-invoice system". It is foreseeable that the "two-invoice system" will be fully implemented across the country by the end of 2018.

In recent two years, the China Food and Drug Administration (CFDA) has made several changes in GMP certification system, and the core change is weakening the GMP certification and strengthening the normalized unannounced inspection. That is certain to increase workload significantly for manufacturers and bring much pressure on the cost and operation of businesses in the short term. However, along with some

small enterprises and unqualified companies that failing to meet production standards being washed out and acquired, the industry will improve its overall quality and will grow more healthily in the future.

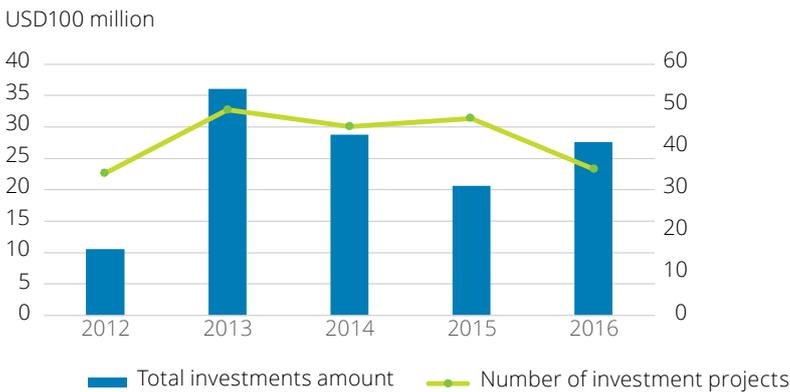
With the gradual implementation of several cost control related policies including "two-invoice system" and "zero mark-up drug policy", the focus of the healthcare reform will shift to addressing the unbalanced allocation of healthcare resources and improving the quality of healthcare services, and ultimately realizing a "tiered healthcare system". The "tiered healthcare system" can alleviate the increasing healthcare demands of Chinese people and reallocate the healthcare resources which are seriously unbalanced at present. But there is a long way to go in implementing the system as many difficulties still need to be overcome.

Chapter II Inbound of Foreign Direct Investment

I. Foreign direct investment in China

With the deepening of the opening-up policy, the improving infrastructure construction and living standards of Chinese people, the growing net population growth and the aging population trend, the market attracts more and more foreign pharmaceutical companies to invest in China. Though the China LSHC industry has seen a wave of the investment amounts from foreign companies over the past five years, the number of investment projects has remained relatively steady.

Figure 5: Investment of foreign companies in China’s LSHC industry, 2012-2016



Source: Fdi market, Deloitte Research

Of top ten foreign companies ranking by the number of investment projects in China’s LSHC industry between 2012 and 2016, the majority are pharmaceutical companies (six out of ten). Another three places of top ten are taken by healthcare services companies, which demonstrate that the foreign investment in China’s healthcare services industry is still at a high concentration rate at present.

In terms of locations of investment resources, the United States remains the top one. Projects invested by foreign pharmaceutical companies in China are primarily distributed in China’s developed areas such as Shanghai, Beijing, Jiangsu, Zhejiang, and Guangdong. In terms of the investment scale, Jiangsu, Zhejiang and Shanghai remain the top areas, showing a strong attractiveness of the Yangtze River Delta region to foreign pharmaceutical companies. The followings in ranking are Guangdong and Liaoning, which have good industrial bases, sales markets, and research strengths.

Hot investment areas and trends

There are four sectors of the LSHC industry: the pharmaceutical sector, medical devices sector, biotechnology sector and medical services sector. The pharmaceutical sector enjoys the largest number of foreign investment projects, followed by medical devices and biotechnology sectors. Despite a small number of investment projects in medical services sector, it keeps continued growing over the past five years.

In terms of the investment amount, the entire LSHC industry has attracted USD12.35 billion of foreign investments between 2012 and 2016. The average investment project amount of biotechnology sector and pharmaceutical sector is higher than that of the medical devices sector and medical services sector.

Favourable policies for wholly foreign owned hospitals

Since August 2014 the National Health Commission and the Ministry of Commerce announced that foreign investors are allowed to establish wholly foreign owned hospital through new establishment or acquisition in Beijing, Tianjin, Shanghai, Jiangsu, Fujian, Guangdong and Hainan seven provinces in China, more and more overseas capitals have started to invest in healthcare institutions in China. Besides building up wholly owned hospitals, many overseas healthcare institutions have also cooperated with domestic real estate companies to set up hospitals together. This model can address various difficulties for overseas healthcare institutions when they establish hospitals by themselves.

Table 1: Cases of hospitals established by foreign healthcare groups in China in recent years

Investor	Location	Case
Raffles Medical Group, Singapore	Shanghai	Raffles Medical Group signed an agreement with Shanghai Lujiazu Group in 2015 to invest RMB1 billion in developing an international hospital with 400 beds in Shanghai.
Columbia Health, U.S.	Jiaxing	The construction of Jiaxing Kaiyi Hospital invested by Columbia Health with USD150 million was officially started in August 2017. Prior to that, Columbia Health has owned Shanghai Kaiyuan Orthopaedics Hospital, three facilities for the elderly and two medical cosmetology clinics in China.
Apollo Hospitals, India	Haikou	Apollo Hospitals signed a strategic cooperation agreement with Hainan Ecological Software Park in June 2016 to build a modern hospital in Hainan.
IHH Healthcare, Malaysia	Shanghai	IHH's Parkway Health announced in June 2016 to set up Gleneagles Shanghai International Hospital in Shanghai with RMB455 million, which is expected to open in 2020. Parkway Health has already established a hospital in Chenghua District, Chengdu in 2015.

Source: Deloitte Research

II. M&As by foreign companies in China

In recent years, the inbound M&As in China LSHC industry are limited, significantly fewer than outbound acquisitions in this industry. From 2012 to 2016, the top two fund sources of inbound acquisitions have been Hong Kong and the United States, followed by Germany, Singapore and other developed countries whose LSHC industries are strong.

From 2012 to 2016, inbound acquisitions in China LSHC industry were primarily led by foreign pharmaceutical companies with the aim to acquire domestic pharmaceutical companies to diversify their own product lines and enhance their presence in Chinese market. Yet the model of joint ventures, after 30 years' practice, still has a long way to go.

Moreover, the year of 2016 witnessed a boom in the amounts of inbound investments in China healthcare sector. Both international healthcare groups and outstanding overseas investment firms have turned their attention to China's healthcare services market.

III. Challenges for multinational pharmaceutical companies, and their countermeasures under China's new healthcare reform

Sinohealth CMH's data shows that the sales of top 20 multinational pharmaceutical companies in five terminals (including tiered urban hospitals, primary urban care, drug stores, tiered county hospitals and grass-roots medical care in rural areas) reached approximately RMB250.3 billion with a year-on-year increase of 9.6% in 2016, showing a slight rebound compared to the growth in 2015 but still with a certain gap of the double-digit growth before 2014.

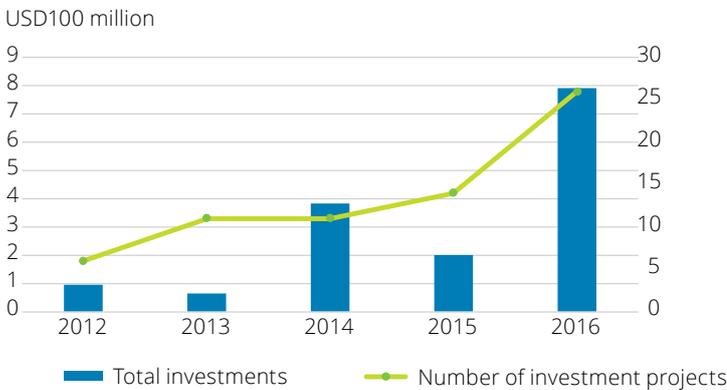
The decreasing growth rate of MPCs' sales is closely related to China's healthcare reform focusing on cost control. The government is applying a series of policies to control drug prices and reduce the hospitals' reliance on drug sales. In order to turn this situation around, multinational pharms are carrying out measures such as structure readjustment and strategic transformation. Meanwhile, all pharms are also readjusting their localized structures as well as local production and research bases. Furthermore, it is suggested that multinational pharms could actively march into the primary care market, explore new business models and cooperate with insurers to transform into the provider of overall health solutions.

Chapter III Outbound investment of Chinese enterprises

I. Outbound direct investment

China LSHC companies' outbound investment overseas has grown rapidly from 2012 to 2016. Especially in 2016, an explosive growth emerged with the investments reaching USD790 million through the year, exceeding the total investments accumulated in the previous four years.

Figure 6: Outbound direct investment of Chinese LSHC companies, 2012-2016



Source: Fdi market, Deloitte Research

The United States ranks No.1 of the overseas investment targets of Chinese LSHC companies, far ahead of other countries by both the volume and amount of investment projects. Germany, ranking No.2 by the volume of investment projects, however receives smaller investments than volume third-ranked Hong Kong due to lower average project amount.

Of four sectors of the industry, biotechnology sector and pharmaceutical sector have carried out large-scale outbound direct investments in 2012-2016. Despite a large number of outbound investment projects by medical devices companies, their total investments amounts are lower than those of biotechnology and pharmaceutical companies due to the lower average investments amount. Besides, different from foreign inbound investment in China, Chinese healthcare companies carry out smaller scaled outbound investments, indicating that Chinese companies are not willing to invest in building overseas hospitals or clinics directly.

II. Outbound M&As of Chinese companies

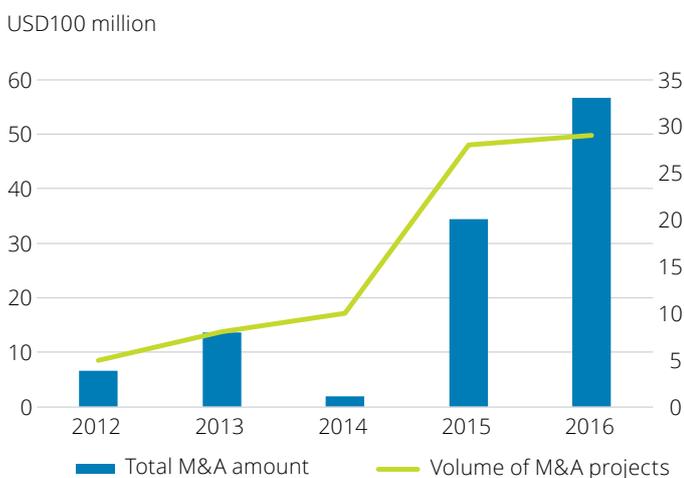
Outbound M&As of Chinese LSHC companies have grown rapidly from 2012 to 2016 with mega overseas M&A deals coming up frequently.

In terms of M&A target areas, China healthcare outbound investors mainly prefer areas with advanced healthcare services. Overseas medical services institutions are the hottest target. Investors who acquire such overseas institutions are large healthcare investment groups and insuring companies. Meanwhile, among healthcare M&A transactions, the acquiring targets tend to become diversified and the pharmaceutical is another hot area in overseas M&As.

III. Opportunities and challenges of Chinese companies in overseas markets

In the next few years, the trend of China LSHC industry overseas M&As is expected to continue with a smooth rise in both the volume and amount of transactions. Overseas M&A deals will still bring about many opportunities but are also accompanied with certain risks and challenges. Therefore, as more and more Chinese companies go global, Chinese capital's investments in overseas LSHC market will become more mature. Compared with the domestic market, investing in overseas LSHC markets will generate better returns, but it will also pose huge risks. Accordingly, Chinese investors must be prudent and well-prepared.

Figure 7: Outbound M&As of Chinese LSHC companies, 2012-2016



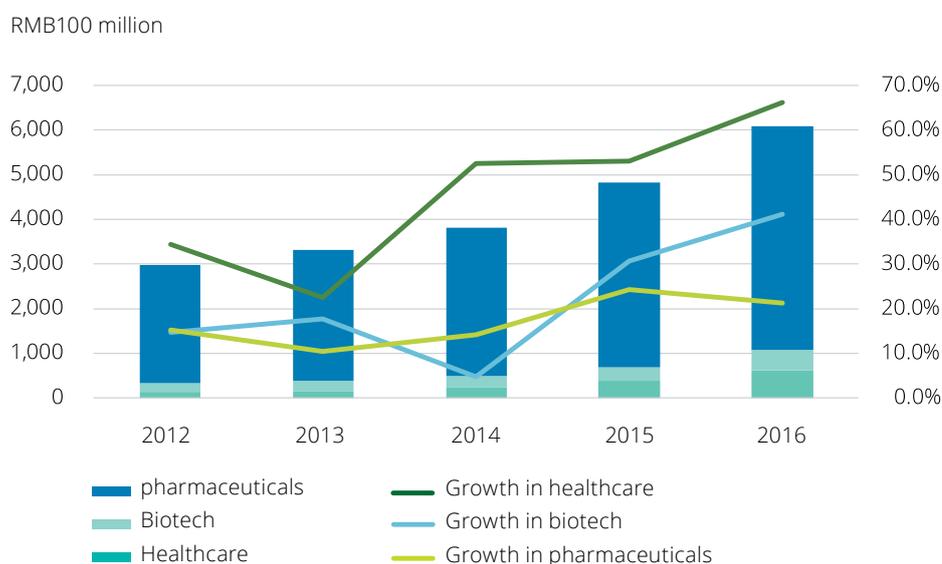
Source: Mergermarket, Deloitte Research

Chapter IV Performance of the LSHC industry in the capital market

I. Performance of the LSHC industry in Chinese capital market in 2016

The revenues of LSHC companies listed in China capital market (including A share of both Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE), and New Third Board) exceeded RMB600 billion in 2016, with a year-on-year increase of 41% over 2015.

Figure 8: Revenues and growth rates of listed Chinese LSHC companies, 2012-2016



Source: wind, Deloitte Research

The rapid revenue growth of listed LSHC companies is driven by multiple factors. Among the three main sectors, healthcare companies experience the fastest growth in the capital market. Within the biotechnology sector, in vitro diagnostic reagents and instruments are also growing quickly. Combined with the fast growing third party medical laboratories belong to the healthcare sector, "medical laboratory science" composed of these sectors is expected to attract constant attention from capital. Moreover, with more policy support and increasing engagement of social capital, the third party healthcare outsourcing companies are bound to gain more market shares with huge market potential.

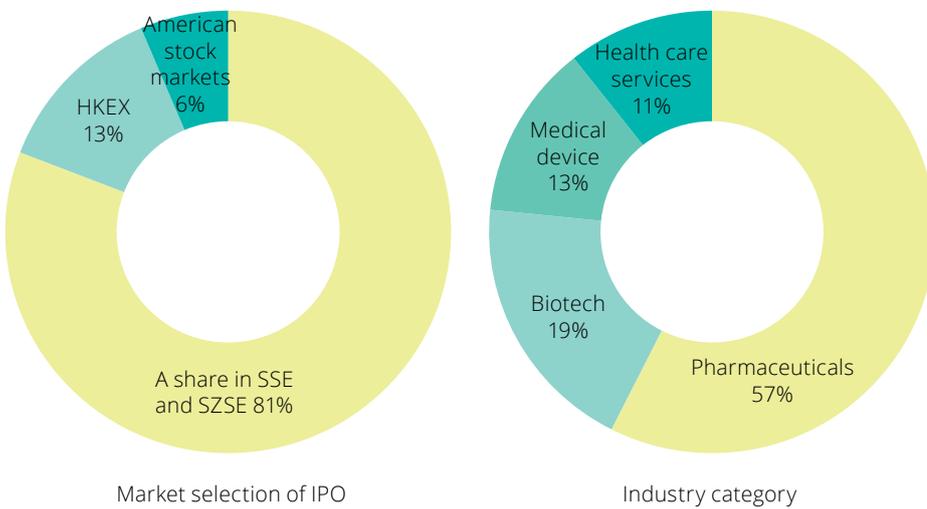
II. Trends of the LSHC industry in the capital market

A big boost has emerged in the IPOs of LSHC companies in 2017. By the end of October 2017, 47 LSHC companies have completed IPOs, indicating a great interest of domestic capital on LSHC industry.

From industry side, although the pharmaceutical sector leads the IPO, accounting for 57% of all LSHC IPOs,

it faces rising regulatory pressure with the explosion of IPO demands. The future regulation on IPO will focus more on abnormal income, unsound internal control, disguised transfer of interest, violation of laws and regulations, unreasonable investment projects, etc. Accordingly, LSHC companies with intention of going public should make prepare as early as possible for those issues that may affect their IPO approval processes.

Figure 9: Market selection and industry category of IPOs completed by LSHC companies in 2017



Source: Pedata.cn, Deloitte Research

Gene sequencing and precision medicine

The official listing of Beijing Genomics Institute (BGI) in July 2017 became the milestone in China LSHC capital market of 2017. And Berry Genomics, another leader in China's gene sequencing sector, succeeded in back-door listing in early 2017. These made 2017 the year zero for the capitalization of gene sequencing companies.

In the future, as the country pays more attention to the concept of precision medicine, the capital will also increasingly focus on investing in precision medicine related sectors. Omics big data is the basis for the development of precision medicine and disease related information mined from genomics data of massive population is the core of precise medical diagnostics.

Exit of investments in LSHC industry

After a plateau period between 2010 and 2013, a new wave of VC/PE investment boom had emerged in LSHC industry since 2014. With the acceleration of IPOs by LSHC companies in 2016, the exit of such investment projects has also been speeded up to realize some cash revenue from their investments since 2017.

Accelerated privatization of China concept stocks

As domestic LSHC capital market is thriving, more Chinese LSHC companies listed in the United States have embarked on the privatization journey since 2015. Among many privatizing companies, WuXi AppTec and Mindray are the largest two. It is expected that the relisting of qualified Chinese LSHC companies in China capital market will drive forward the overall LSHC segment's performance.

III. Investment in hospitals will become a spotlight in the future driven by policies and demands

Since 2009, the State Council and health authorities have continuously introduced relevant policies to encourage social capitals to develop medical institutions and participate in public hospitals reform. They hope to introduce advanced management concepts through capitals to enhance the operating efficiency of healthcare resources and avoid a waste of resources. The mergers and acquisitions of overseas hospitals by Chinese companies will be continuously popular driven by increasing demands on mid to high-end medical services.

Apart from seeking projects themselves, Chinese companies also make acquisitions in other ways such as cooperation with funds or investment institutions. It has witnessed an explosive growth in the amount and volume of investments in healthcare providers in virtue of VC/VE in the past five years.

IV. Other hot fields of investment in the future

Trends of investment in the elderly care industry

As the trend of aging population intensifies, the large elderly population brings about significant opportunities for senior care facilities and services sectors. From the perspective of products structure, current senior care facilities and services in China have gradually met the multi-level needs of the elderly at different ages, yet with the profitability model still need being explored. China's senior care industry as a whole is still in its infancy, no replicable project models and large-scale market leaders have been emerged in regards of the activity of market demands, the diversification of products, and the maturity of services types. On this view, the market still has huge development potential in the future.

In vitro diagnostics and precision medicine

Precision medicine refers to the application of technologies including modern genetics, molecular imaging and bioinformatics integrated with patients' living environment and clinical data to achieve precise and personalized disease prevention, diagnosis and treatment. As the upstream and midstream structures in the entire industrial chain of precision medicine have been clearly identified so far, personalized diagnosis and therapy in the downstream are expected to become the hot fields of investment in the future.

Cell immunotherapy was the hottest segment in precision medicine in 2017. The pipeline of China's CAR-T research and development projects leads the world, outnumbering that of the United States. Coupled with the flood of capital, Chinese companies are expected to catch up with global industry leaders in cell immunotherapy and achieve "corner overtaking".

"Internet plus hospitals" and mobile health

Currently, the cooperation models between mobile Internet companies and self-build healthcare providers fall into two categories. One is the "Internet plus hospitals" model, which refers to Internet hospitals initiated by Internet companies by connecting to hospitals. Another "hospital plus Internet" model is initiated by existing healthcare providers to provide services including remote registration and inquiry through access to Internet services based on their own health information management systems.

Furthermore, as the number of users in mobile health market grows at the rate of over 15% per year, more and more mobile health companies gain support from the capital market. Despite a high investment atmosphere right now, mobile health still faces challenges in profitability problem and policy restrictions at patient-end by far. Once the capital comes back to reason, some less competitive mobile health companies could be exposed to the risk of cash crunch.

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