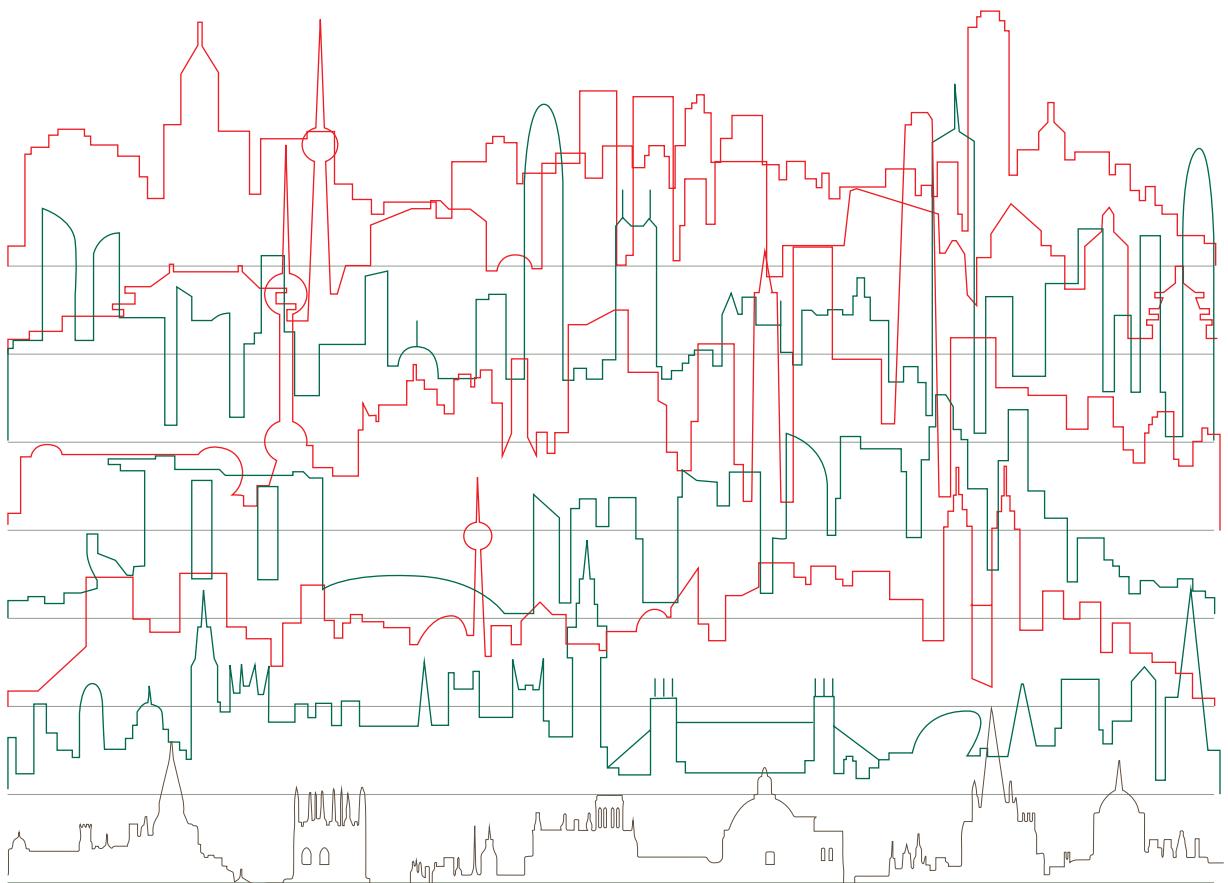


## CHINA HEALTHCARE INNOVATION THE KEY TO VALUE

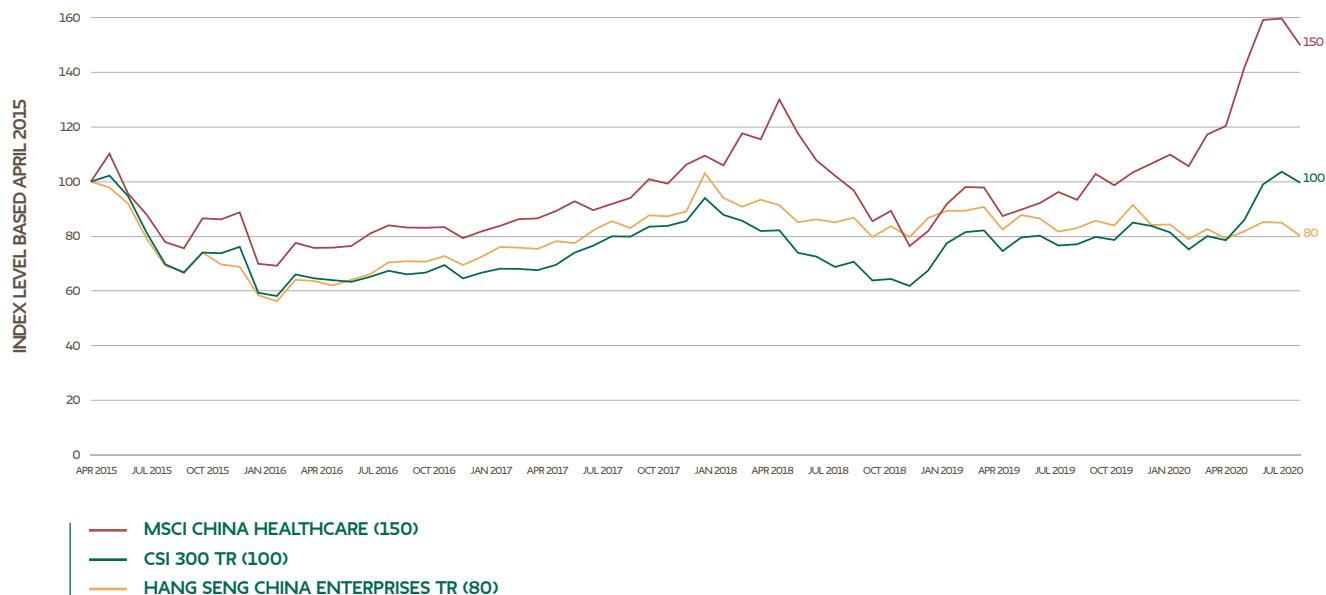
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**CHINA HEALTHCARE: A BRIGHT FUTURE**

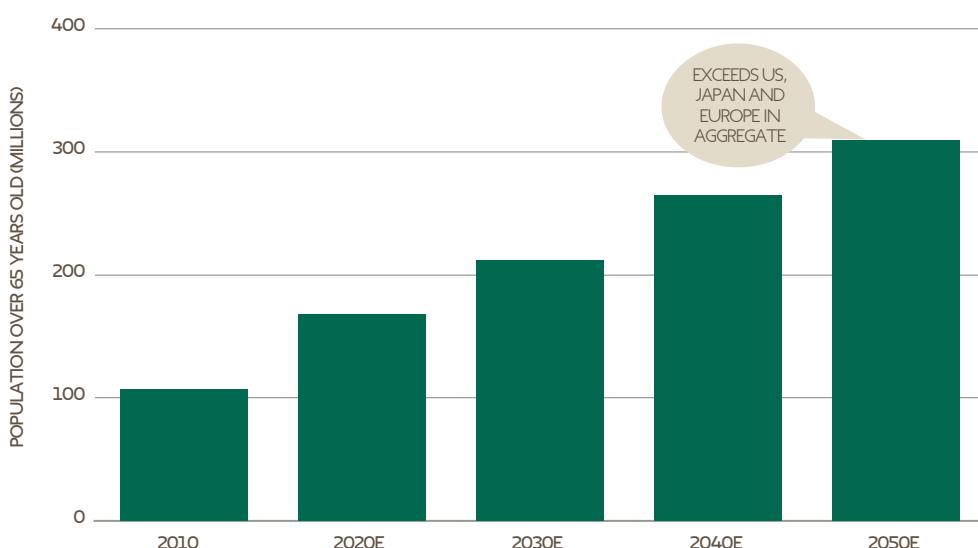
Against a backdrop of industry reform - and despite the current global pandemic - the Chinese healthcare sector prospered in 2020, recording stellar performance in the year to date. Right across its many subsectors (see Market Statistics below) a bright future is unfolding for China's pharmaceutical companies, taking into account the impetus provided by its ageing population and its burgeoning healthcare spending. Given their strong innovative capabilities, a 'goldilocks' prospect is in view for investment in Chinese pharmaceutical companies, as indicated by the MSCI China Healthcare Index' recent performance:

| FIGURE 1: China healthcare performance

**CHINA'S GREY BOMB CRIES OUT FOR INNOVATION**

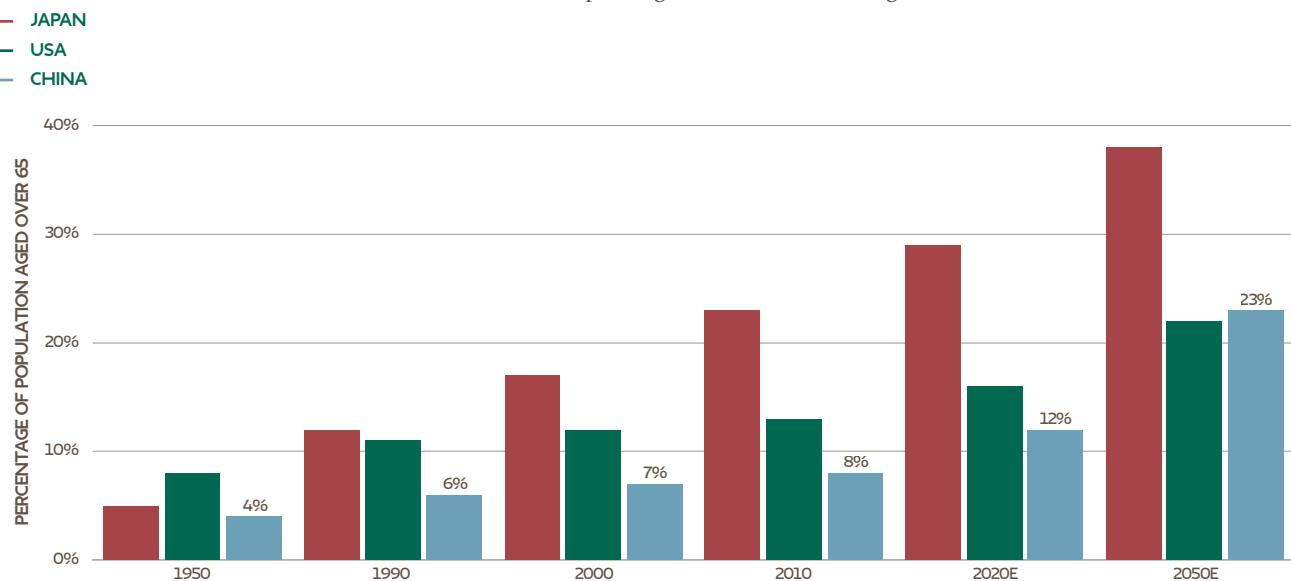
China's over-65 population is projected to reach 310 million by 2050 and account for 23% of the population (Figure 2). By then, China's enormous elderly population is estimated to exceed those of the US, Japan and Europe combined. This rapid growth will in turn demand reform in China's healthcare system and improved access to affordable quality drugs, particularly those able to combat the chronic diseases associated with ageing. Unfortunately China's spending on healthcare is low compared to other developed countries, making up only 6.4% of total GDP compared to 17% in the US and 12% in Japan and Germany (figure 3).

| FIGURE 2: China 65 years &amp; older



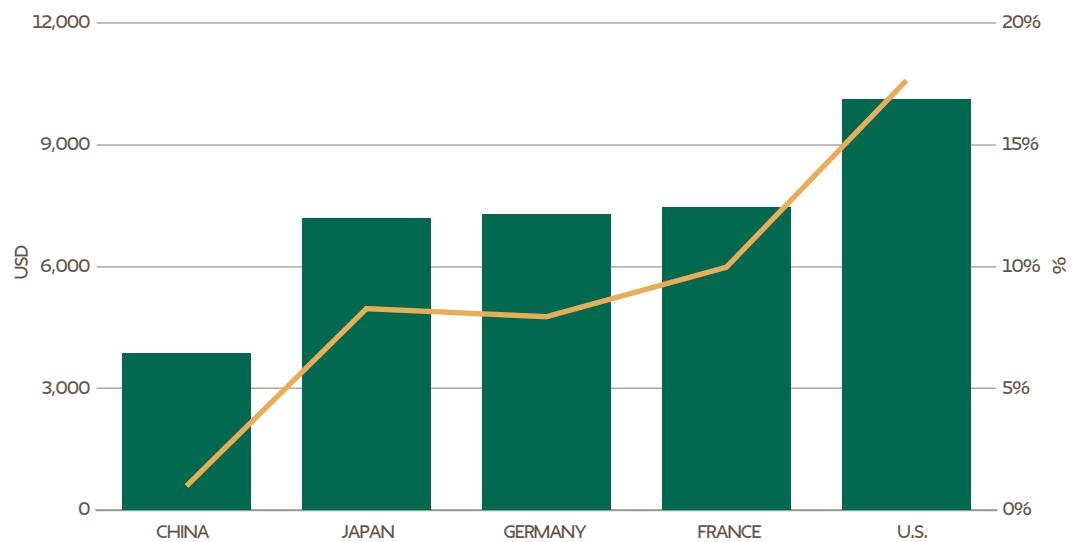
| FIGURE 3: Comparative ageing rates

To close the gap, the Chinese government needs both to ramp up investment in healthcare and to allocate its spending with maximum strategic effectiveness.



| FIGURE 4: Comparative health expenditure

MEDICAL EXPENDITURE AS % GDP (%)  
MEDICAL EXPENDITURE PER CAPITA (\$)



#### REGULATORY REFORM PROVIDES THE LAUNCH PAD

A milestone was passed in May 2018 with the establishment of China's National Healthcare Security Administration (NHSA), which took over previously fragmented responsibilities in healthcare and social security from other government institutions. Focusing on the most effective allocation of resources, the NHSA launched a centralised bulk procurement programme, also known as the Group Purchasing Organization (GPO), in order to consolidate bargaining power, obtain the best prices for selected generic drugs and to eliminate poor quality drug-makers. A summary of the GPO's record to date is shown in Tables 1 & 2 below.

The first round of the GPO's programme was unveiled in the fourth quarter of 2018, involving 25 generic drugs in 11 cities (known as the “4+7”: four municipalities plus seven key cities). Its directives required pharmaceutical companies to tender for supply contracts with only the lowest single bidder to be chosen for each drug. This initiative resulted in an average price cut of 52% for these generic drugs. In its wake were immediate share price corrections among mass generic drug makers given concerns about substantial reductions in their profit margins.

One year later, a second round of the programme went nationwide in September 2019, taking in 23 provinces, and allowing up to three winning bidders for each drug. Although the pressure of exclusive supply was thus less tight, the revised tender process further squeezed the profit margins of lower value-added generic drugs. This trend is likely to continue given the expressed willingness of Chinese authorities to push the programme forward.

Amid widespread anticipation a third round of the GPO was launched in July and August of this year. 56 drugs are involved aiming to achieve an average price cut of 72% by October 2020. The number of allowed winners was further increased to eight for each drug.

| TABLE 1: Timeline of GPO achievements

DATE	FOCUS	SCALE (GENERICs)	MAX. WINNERS	AVERAGE PRICE CUT	IMPLEMENTED
<b>Late 2018</b>	<b>4+7 pilot cities</b>	<b>25</b>	<b>1</b>	<b>52%</b>	<b>Feb/March 2019</b>
<b>March-September 2019</b>	<b>National</b>	<b>25</b>	<b>3</b>	<b>25%</b>	<b>December 2019</b>
<b>January 2020</b>	<b>National</b>	<b>33</b>	<b>6</b>	<b>53%</b>	<b>April 2020</b>
<b>July 2020</b>	<b>National</b>	<b>56</b>	<b>8</b>	<b>72%</b>	<b>October 2020</b>

| TABLE 2: GPO high value consumables project

DATE	FOCUS	PRODUCT RANGE
<b>July 2020</b>	<b>National</b>	<b>Cobalt and platinum-chromium coronary stents that elute rapamycin or its derivatives</b>

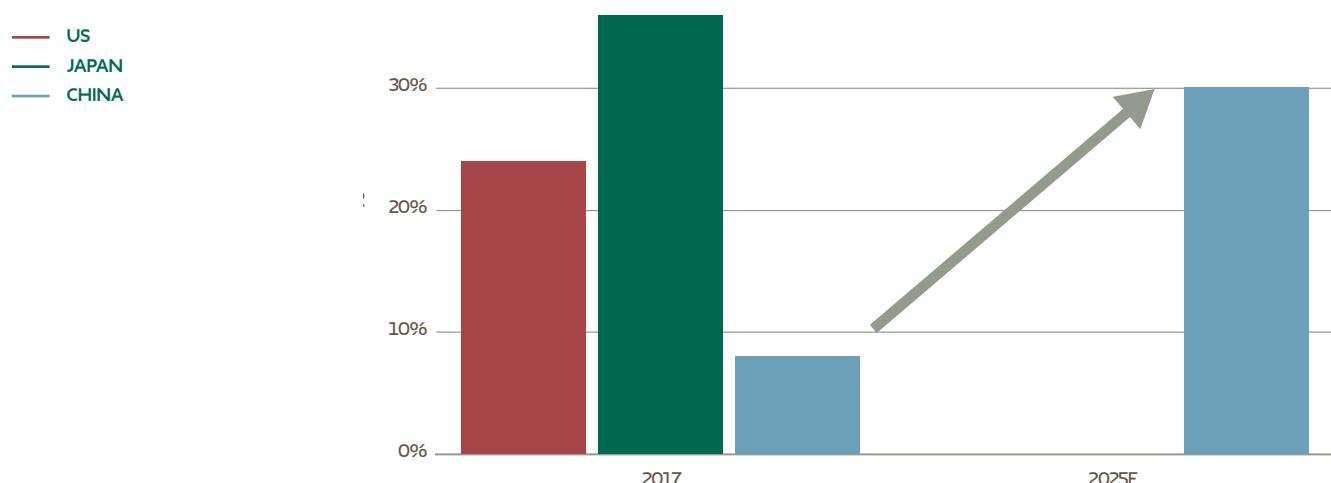
#### TWO KEY MESSAGES FOR INVESTORS

Firstly, GPO activities have triggered sector consolidation as high quality domestic players have continued to gain market share as a result of winning GPO bids. The increase in their market share has further accelerated as multinational corporations have become less active in the market (only three of them won bids in the latest GPO round). This heralds a far wider role for domestic drugs and their producers in future. It confirms our long-term view that GPO activities will particularly benefit sector leaders as the industry consolidates and domestic players become increasingly dominant. It is anticipated that the market share of the top four generic drug makers will jump from single figure percentages to 30% by 2025 (Figure 5).

Secondly, although the volume increases enjoyed by successful bidders have gone some way to offset the price cuts in generic drugs, companies will need to be able to draw on a pipeline of high quality innovation in future. Such innovation demands major investment, and only the biggest producers will be in a position to fund the necessary R&D. As well as capital to pursue fundamental research companies will also need the resources to undertake widespread clinical trials and other pre-clinical studies. Extensive sales networks and comprehensive intellectual property protections will also be indispensable for any pharmaceutical company aiming to survive and win in this environment.

The push for innovation can also be expected to further fuel consolidation in the industry, in part because small niche drug manufacturers' profitability is under increasing pressure but also because market entry barriers have risen. The converse is that innovative drugs will offer opportunities for much higher growth, especially as regulators seem prepared to streamline approval processes in order to ensure adequate amounts of domestic drugs come on stream to combat the chronic diseases associated with an ageing population.

FIGURE 5: Market share top 4 generics



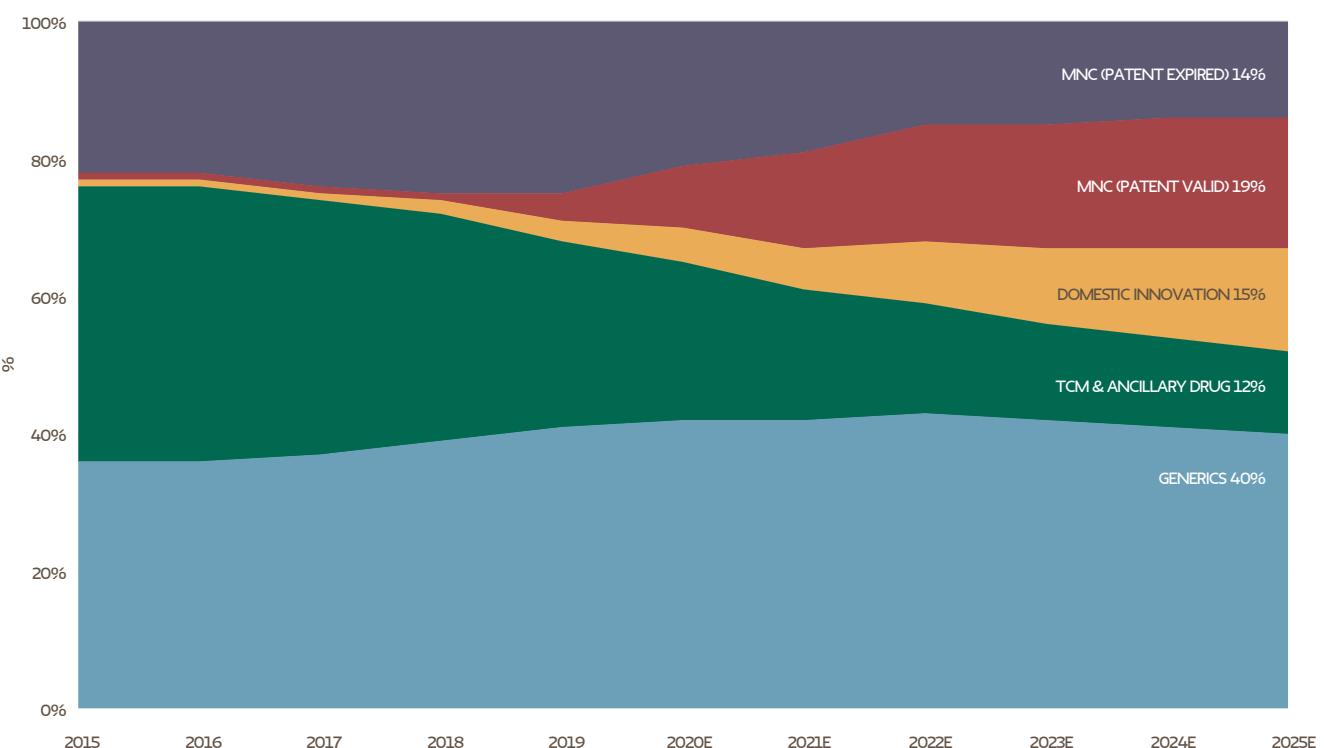
#### CHINA'S HEALTHY ENVIRONMENT FOR DRUG INNOVATION

To improve quality and promote innovation, China's National Medical Products Administration (NMPA) has rolled out a string of measures to facilitate approvals for drug registration. These include shorter timeframes for approval, acceptance of overseas clinical trial data and a fast-track approval process for novel high quality drugs that promise clear clinical benefits. Innovative drugs can now enjoy faster inclusion in China's National Reimbursement Drug List (NRDL). From a sales point of view this is crucial. In China, around 70% of drug sales derive from hospitals, which for the most part only dispense NRDL-listed drugs. Historically, the majority of the drugs in the NRDL have been generic drugs but increasing numbers of innovative drugs are now also being included. In addition, since 2017 China has been updating its registration list annually instead of every five years, thus fostering much faster adoption of innovative products.

Overall, growth potential for the innovative drug market is huge. Domestic sales of such drugs are expected to rise significantly, as illustrated in Figure 6 below, jumping from 3% of total drug sales in 2019 to an estimated 15% by 2025.

FIGURE 6: China projected drug sales market share

- MNC (PATENT EXPIRED)
- MNC (PATENT VALID)
- DOMESTIC INNOVATIVE
- TCM & ANCILLARY DRUG
- GENERICS

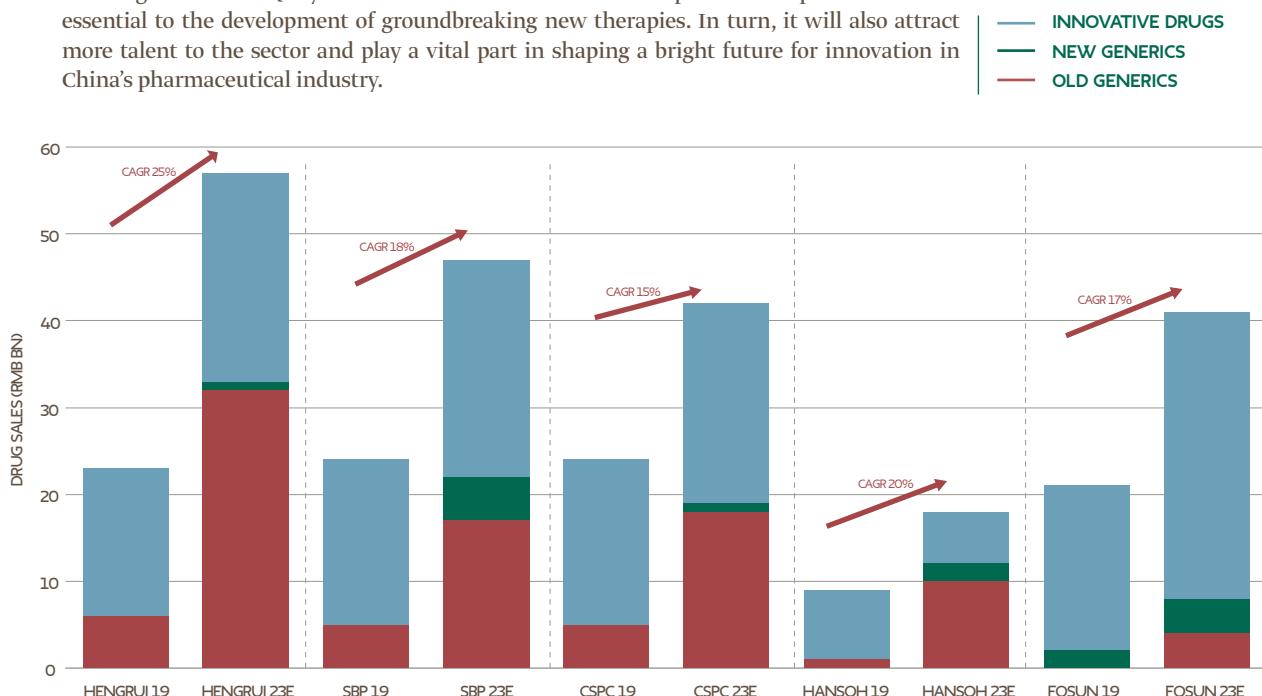


The underlying growth potential of the Chinese pharmaceutical sector is also demonstrated in Figure 7, which shows that the top five Chinese drug makers can expect to enjoy strong double digit percentage drug sales growth over the next few years - a surge in growth largely driven by the development of innovative drugs.

Taking all these factors into account, as investment prospects we therefore favor those pharmaceuticals which have strong innovation capabilities and should fare better regarding GPO and NRDL inclusion. Pharmaceuticals with diversified product pipelines and higher expenditure on R&D will outperform and better weather any future regulatory changes.

Last but not least, the door to additional finance has opened with Hong Kong Stock Exchange reforms that permit pre-revenue or pre-profit biotech listing and with the launch of Shanghai's NASDAQ-style STAR board. This influx of new capital will help drive the R&D essential to the development of groundbreaking new therapies. In turn, it will also attract more talent to the sector and play a vital part in shaping a bright future for innovation in China's pharmaceutical industry.

FIGURE 7: Top 5 drug-makers growth



#### A VALUE OPPORTUNITY: THE JIANGSU HENGRI MEDICINE COMPANY

The Jiangsu Hengrui Medicine Company focuses on the development, manufacturing, and commercialization of innovative, high quality healthcare products. With the largest R&D team in China, it has an outstanding track record in the development of oncology drugs, imaging agents and anaesthesia. Its key features include:

FIGURE 8: Hengrui share price performance



Oncology, especially camrelizumab (PD1) with the best sales growth. Hengrui aims to have PD1 included in the China National Reimbursement Drug List (NRDL) in 2020, and, if included, management expects a significantly faster take-up by public hospitals.

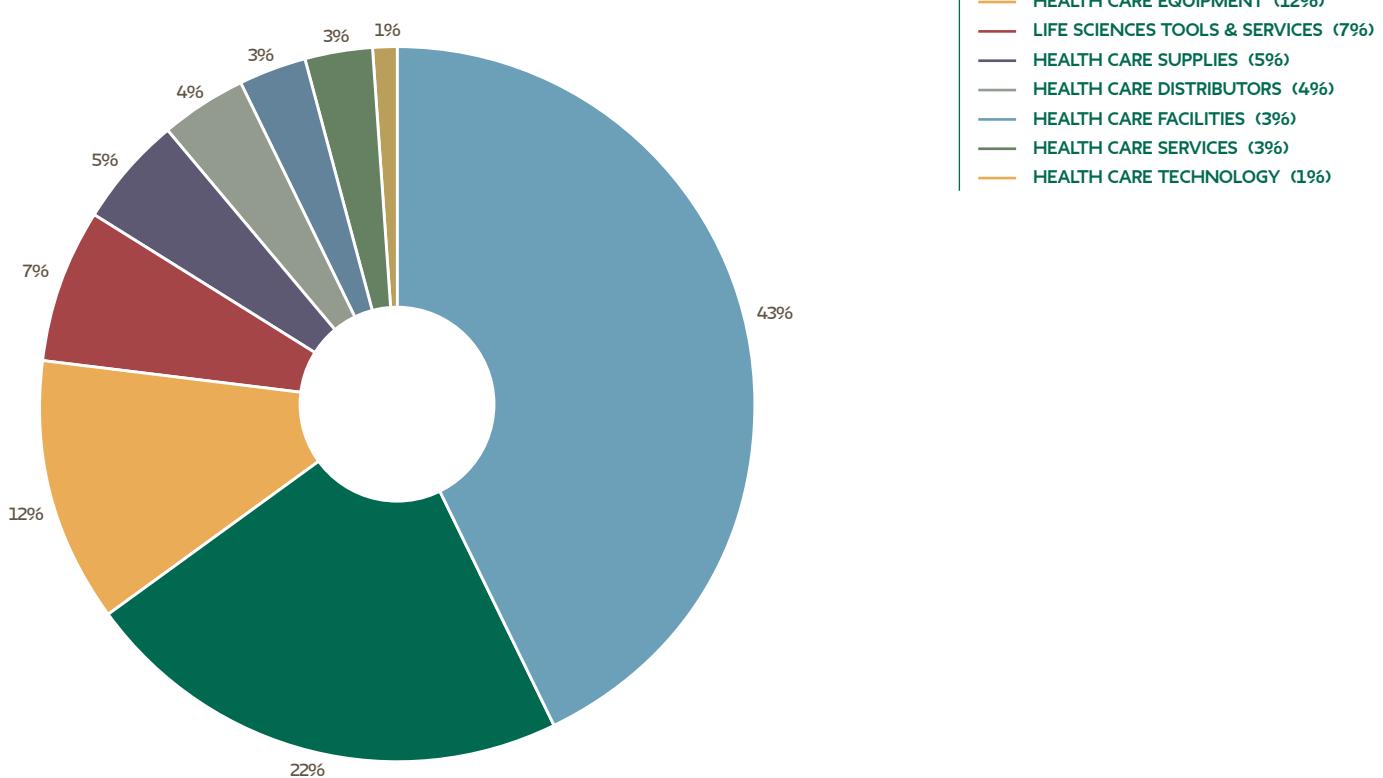
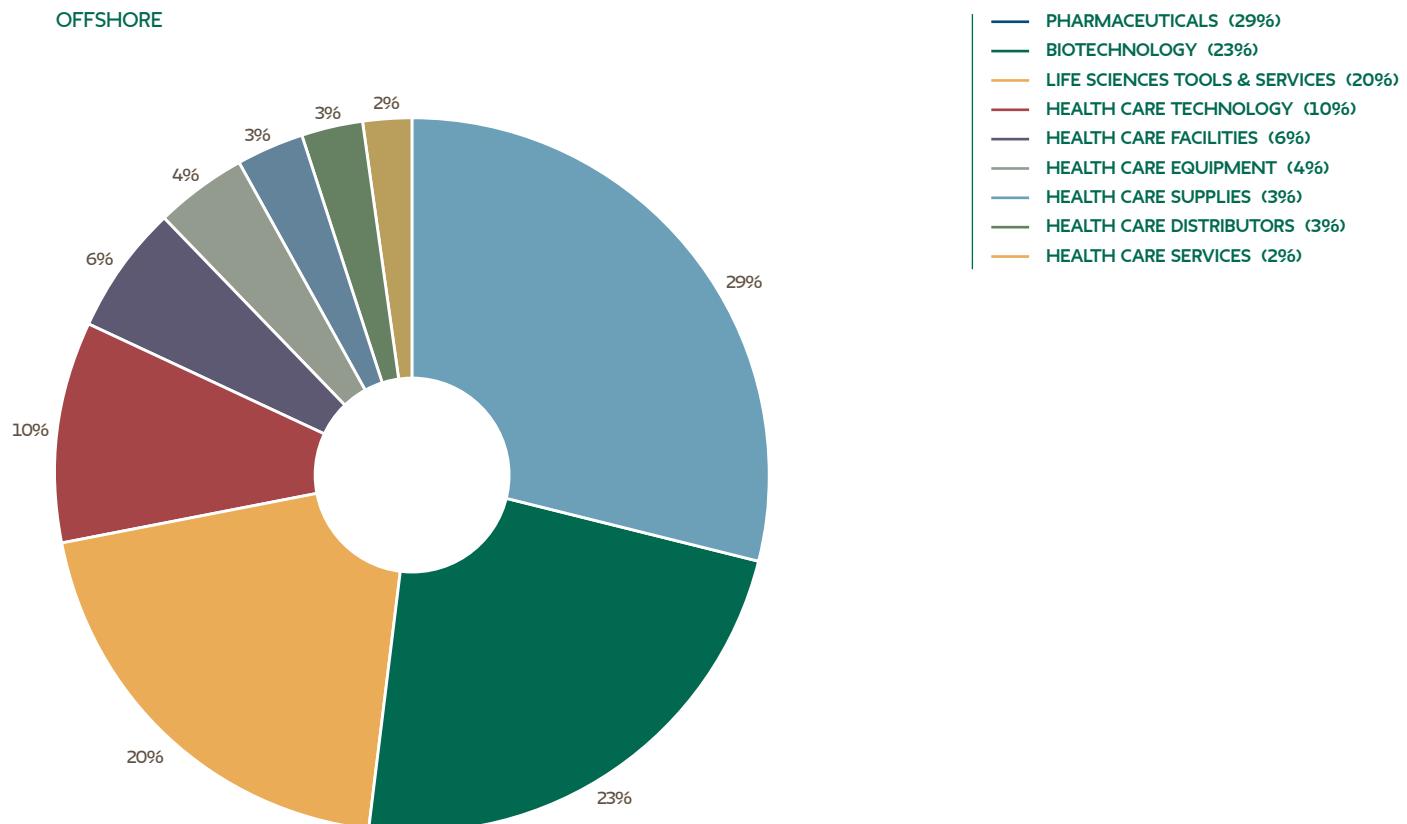
Hengrui has also made major steps in taking its oncology drugs worldwide. We judge Hengrui's salesforce to be stronger than those of its overseas peers and expect it to gain a significant market share globally.

In addition, Hengrui is maintaining its lead in imaging agents and anesthesia segments, both in sales and development capabilities. It continues to enjoy approval for its blockbusters such as remimazolam, which, with its higher quality, can be expected to transform the whole anesthesia landscape.

Finally, Hengrui, as an industry leader, can be expected to benefit from future insurance negotiations and faster innovative drug approvals.

| TABLE 3: Hengrui versus peers

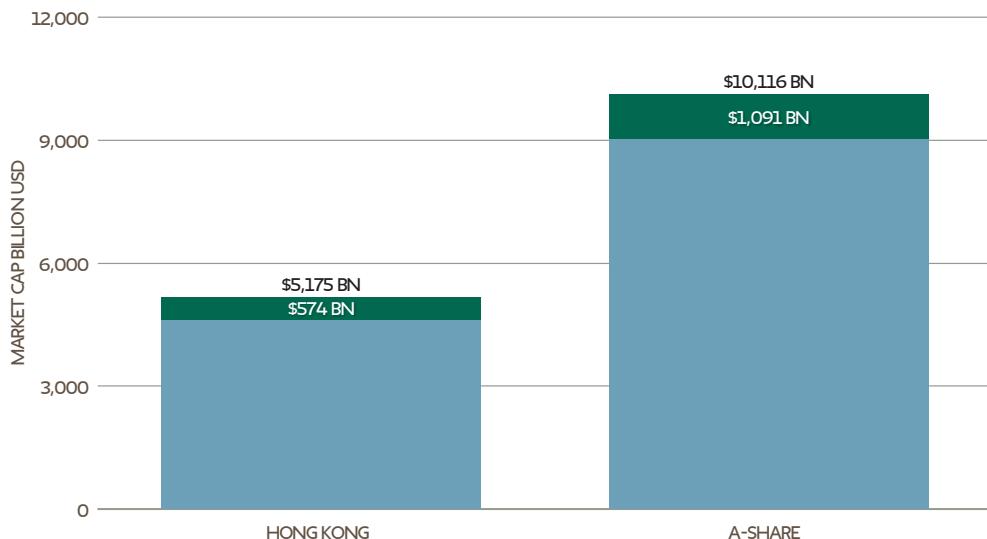
	COMPANIES	MARKET CAPITALISATION (BN CNY)	REVENUE (BN CNY)	EXCHANGE
1	Jiangsu Hengrui Medicine	469.4	23.3	Shanghai
2	Sino Biopharmaceutical	142.5	24.2	Hong Kong
3	CSPC	97.9	22.1	Hong Kong
4	Hansoh Pharmaceutical Group	190.4	8.7	Hong Kong
5	Shanghai Fosun Pharmaceutical	120.6	28.4	Hong Kong

**MARKET STATISTICS****ONSHORE****OFFSHORE**

## MARKET STATISTICS

### INVESTMENT OPPORTUNITIES IN HEALTHCARE IN MAJOR CAPITAL MARKETS

OVERALL MARKET  
HEALTHCARE



OVERALL MARKET  
HEALTHCARE



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## SOURCES

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FIGURE 1: HSBC INSTITUTIONAL TRUST, BLOOMBERG

FIGURE 2: POPULATION PYRAMID, STATISTICS BUREAUX OF RESPECTIVE COUNTRIES AS OF OCTOBER 2019

FIGURE 3: IBID

FIGURE 4: NATIONAL HEALTH COMMISSION, IMF, OECD & STATISTICS BUREAUX FROM RESPECTIVE COUNTRIES AT OCTOBER 2019

FIGURE 5: IQVIA, COMPANY DATA, CITI RESEARCH, 2019

FIGURE 6: IQVIA, COMPANY DATA, CITI RESEARCH, AUGUST 2020

FIGURE 7: HSBC QIANHAI ESTIMATES

FIGURE 8: BLOOMBERG

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TABLE 1: GOVERNMENT WEBSITES, MORGAN STANLEY RESEARCH, JULY 2020

TABLE 2: GOVERNMENT WEBSITES, MORGAN STANLEY RESEARCH, JULY 2020. ( SUBJECT TO CHANGES BY OFFICIAL GUIDELINES)

TABLE 3: BLOOMBERG

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MARKET STATISTICS: WIND, BLOOMBERG AS OF 25 SEPT 2020

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