China Healthcare: Potential Opportunities From One Of The Fastest Growing Major Global Healthcare Markets

An Overview of the KraneShares MSCI All China Health Care Index ETF (Ticker: KURE)

Introduction to KraneShares

About KraneShares
Krane Funds Advisors, LLC is the investment manager for KraneShares ETFs. Our suite of China focused ETFs provides investors with solutions to capture China’s importance as an essential element of a well-designed investment portfolio. We strive to provide innovative, first to market strategies that have been developed based on our strong partnerships and our deep knowledge of investing. We help investors stay up to date on global market trends and aim to provide meaningful diversification. Krane Funds Advisors, LLC is majority owned by China International Capital Corporation (CICC).
Investment Strategy:
KURE seeks to measure the performance of MSCI China All Shares Health Care 10/40 Index. The Index is a free float adjusted market capitalization weighted index designed to track the equity market performance of Chinese companies engaged in the health care sector. The securities in the Index include all types of publicly issued shares of Chinese issuers, which are listed in Mainland China, Hong Kong and United States. Issuers eligible for inclusion must be classified under the Global Industry Classification Standard (GICS) as engaged in the healthcare sector. The issuers included in the Underlying Index may include small-cap, mid-cap and large-cap companies.

China Health Care Sector Highlights:
- China currently has the fastest growing major healthcare market in the world with a five-year compound annual growth rate of 17%, compared to just 4% in the United States, and -2% in Japan\(^1\).
- China is the second largest healthcare market globally with total healthcare expenditures reaching $594 billion in 2015\(^1\), a number projected to reach $1.1 trillion by 2020\(^2\).
- There is still opportunity for considerable growth in China’s healthcare market with per capita health spending at just $426, compared to an average of over $5,200 for the world’s top eight healthcare markets\(^3\).
- China’s aging population, rising incomes and increasing urbanization may provide a sustained catalyst for growth in China’s healthcare sector.

KURE features:
- Exposure to Chinese companies listed in the Mainland, Hong Kong and United States that are involved in the healthcare industry. Specifically: patent and generic pharmaceuticals, hospital administration, biotechnology, medical equipment production, healthcare IT, and traditional Chinese medicine.
- Exposure to companies that benefit from China’s growing middle class and aging population.
- Access to leading Chinese pharmaceutical companies which have been recipients of favorable policy and market conditions for research and development and the invention of new medicines and devices.

China’s healthcare sector is growing rapidly.

- China currently has the fastest growing major healthcare market in the world with a five-year compound annual growth rate of 17%, compared to just 4% in the United States, and -2% in Japan.¹
- China is the second largest healthcare market globally with total healthcare expenditure reaching $594 billion in 2015, a number projected to reach $1.1 trillion by 2020.²

Chinese pharmaceutical sales have continued to break historical records, despite having significantly lower per capita healthcare expenditures.

- China’s pharmaceutical sales reached $122.6 billion in 2017\(^1\). This number is projected to grow to $175 billion by 2022\(^1\), according to healthcare information company, IQVIA.
- Per capita health spending remains low at $426, as compared to an average of over $5,200 in the world’s top eight healthcare markets in terms of per capita expenditure\(^2\).
- In 2011 China adopted Universal Healthcare with 95% of China’s population gaining access to healthcare services\(^3\).

![Global Top 10 Pharmaceutical Spending in 2016\(^4\)](image1)

![Per capita healthcare expenditure of major countries in 2015\(^2\)](image2)

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As China’s population moves to cities and wages increase, healthcare is becoming a greater focus

- As average household income and urbanization rates have risen, Chinese citizens have greater access to healthcare knowledge and have a greater ability to pay for medical-related costs
- Healthcare now comprises the largest segment of household consumption in China²
- However, rising incomes and urbanization have given rise to China’s current obesity problem as more citizens adopt western eating habits
- Today, about 30% of Chinese adults, approximately 320 million people, are overweight, while 11.9% of adults are obese¹
- In 2016, the government responded to growing healthcare concerns by launching the “Healthy China 2030 Plan”, which is a national initiative that promotes diet, exercise, and access to healthcare services

**China Urban Population Growth³**

<table>
<thead>
<tr>
<th>Year</th>
<th>Population in Millions</th>
</tr>
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<tbody>
<tr>
<td>1964</td>
<td>133</td>
</tr>
<tr>
<td>1982</td>
<td>212</td>
</tr>
<tr>
<td>1990</td>
<td>302</td>
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<tr>
<td>2000</td>
<td>459</td>
</tr>
<tr>
<td>2010</td>
<td>666</td>
</tr>
<tr>
<td>2016</td>
<td>794</td>
</tr>
</tbody>
</table>

**China Annual Disposable Income of Urban Households³**

<table>
<thead>
<tr>
<th>Year</th>
<th>USD ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td></td>
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<tr>
<td>2001</td>
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<td>2002</td>
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<tr>
<td>2014</td>
<td></td>
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<tr>
<td>2015</td>
<td></td>
</tr>
</tbody>
</table>

**Household Consumption By Sector in 2017²**

- Healthcare 11.0%
- Food 4.3%
- Transportation and Communication, 6.9%
- Education, Culture and Recreation, 8.9%
- Household Facility 7.4%
- Residence 9.6%
- Clothing 2.9%

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China’s growing aging population is fueling the demand for increased healthcare services.

- China’s aging population is expected to increase the burden of chronic disease by 40% by the year 2030¹.
- By 2053, China will have 487 million senior citizens, making up 35% of the total population².
- The number of nursing homes in China is growing at a rate of 20.6% year-on-year to meet public demand, however, there currently is a shortage of medical care supplies for the elderly. For every 1000 senior citizens, there are only 31.6 nursing home beds².

[Population Aged 65 and Over in China³]

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The China healthcare ecosystem

- Patent and Generic Pharmaceuticals
- Medical Equipment Production
- Hospital Administration
- Biotechnology
- Traditional Chinese Medicine
- Healthcare IT
China’s domestic pharmaceutical market is flourishing due to favorable market conditions and policies.

**Favorable Policies**

- Several market-friendly policies have been introduced encouraging joint ventures between multinational companies and domestic companies.
- In 2015, the China Food and Drug Administration (CFDA) issued the “Opinions on Reforming the Review and Approval System for Drugs and Medical Devices”, which set policies aimed towards:
  - Increasing efficiency and transparency of drug review and approval processes
  - Maximizing quality of generic drugs
  - Enhancing efficiency in R&D innovations
- Over 35 major new drug launches in 2017, as compared to 5 nationally approved drug launches in 2016¹.

**Lower Research & Development Costs**

- R&D costs are significantly lower in China. On average, drug development costs in the US amount to $3 to $4 billion, while comparable developments could be done in China for about $30 to $40 million².
- CFDA now allows drug license holders to sub-contract manufacturing so that R&D institutions can focus solely on high quality R&D innovations rather than investing in their own manufacturing plants.

**Technological Innovations**

- IT Companies are leveraging China’s robust internet infrastructure to increase efficiency and transparency in the healthcare R&D space.

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The medical device market has been one of the fastest growing market sectors in China with the industry maintaining double-digit growth for over a decade.

In 2016, the medical device market reached $53.62 billion, an increase of 20.1% compared to 2015.

72.7% of this growth is fueled by hospital procurements.

The government’s “Made in China 2025” initiative to improve industry efficiency, product quality, and brand reputation aims to further spur the development of domestic medical device manufacturers and increase the competitiveness of Chinese medical device brands.

China’s medical device market maintains a double-digit growth rate.

<table>
<thead>
<tr>
<th>China Medical Device Market</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017 (Estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Market Size</td>
<td>39.32</td>
<td>47.38</td>
<td>53.62</td>
<td>58.63</td>
</tr>
<tr>
<td>Total Local Production</td>
<td>31.54</td>
<td>34.22</td>
<td>40.64</td>
<td>46.01</td>
</tr>
<tr>
<td>Total Exports</td>
<td>35.97</td>
<td>38.49</td>
<td>38.91</td>
<td>39.39</td>
</tr>
<tr>
<td>Total Imports</td>
<td>18.08</td>
<td>18.49</td>
<td>20.23</td>
<td>21.34</td>
</tr>
</tbody>
</table>

Due to perceived quality advantages medical equipment imports from the U.S. and Europe remain high. However, as quality increases, Chinese domestic medical device companies are increasingly competing with U.S. and European companies making particularly strong gains in medium-level technology niches.

As China’s population becomes more health conscious demand for high quality preventative care also increases, providing a catalyst for private hospitals and facilities that offer health examinations, evaluations, and consulting services.

Privatization
- Rising demand from wealthier Chinese seeking quality care and diverse services has led to increased privatization of hospitals to match demand
  - In 2015, China’s private hospitals outnumbered public hospitals for the first time with 15,570 vs 12,871 respectively

Emphasis on preventative care
- The “Healthy China 2030” policy outlines the Government’s plans to upgrade the standards and quality of service in primary care institutions
  - The government sees General practitioners as the gatekeepers of people’s health and primary method of controlling medical expenditures
  - By 2030 the goal is to have five qualified general practitioners available for every 10,000 residents in China
  - The National Health and Family Planning Commission estimates China needs to add 210,000 general practitioners
  - Establishment of a medical network and referral system geared toward reducing overcrowding in China’s largest tertiary hospitals

Preventative Health Examination Volume is Projected to Grow


2. WANG XIAODONG “China to improve training of GPs” China Daily 1/25/2018
Four major catalysts for China’s biotechnology and life science industry

Government funding
• Biotech industry highlighted in three of the government’s latest five-year plans
• Estimated $100 billion¹ already invested in the life-sciences sector by central, provincial, and local governments in an effort to reach the five-year-plan targets.

Venture Capital / Private Equity Funding
• ChinaBio reports that Chinese venture capital and private equity funds raised $45 billion over a period of 30 months for life-sciences investment¹.

Regulatory Changes
• China is moving toward global standardization
• In June 2017 China joined the International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use (ICH)

Returning Talent
• Foreign undergraduate and advanced degree recipients are increasingly returning to China to work.
• Over 2 million returnees in last 6 years, estimated 250,000 in life science¹

THREE YEARS
A snapshot of China’s biotech industry

2015
• Chinese scientists alter a human embryo using CRISPR–Cas9 and trigger a global debate on gene editing.
• Regulatory reforms kick-off that will support the discovery and development of drugs.
• A Chinese biotech firm expands an existing deal with US pharmaceutical company Eli Lilly, adding US$1 billion in potential value to the partnership.

2016
• Two Chinese biotech firms successfully list on the NASDAQ stock market, raising more than $100 million.
• A Chinese biotech start-up breaks the country’s record for first-round financing, raising $150 million.

2017
• China’s drug administration body agrees to align Chinese drug regulations with the rest of the world.
• Chinese CAR-T cell trial impresses on the global stage, showing excellent results for relapsed or refractory multiple myeloma.


Data from Shannon Ellis, "Biotech booms in China" Nature, Jan 17 2018
The Traditional Chinese Medicine (TCM) industry represents a sizable portion of the entire market.

- TCM has a rich 2,000 year history encompassing herbal medicine, acupuncture, massage and dietetics.
- In recent years, TCM has enjoyed a modern resurgence championed by Chinese president Xi Jinping.
- In December 2016, China’s State Council issued the “Strategic Plan on the Development of Traditional Chinese Medicine” making the development of TCM a national strategy.
- The policy emphasizes promoting a balance between Western medicine and TCM practices.
- The TCM industry grew by 20% in 2017, earning a total $130 billion, or one third of total medical industry output1.
- Currently, there are about 482,000 TCM practitioners in China1.
- TCM practitioners emphasize preventative medicine and treating diseases before they occur through healthy living and proper diets. This is especially important in China which has increasing obesity, diabetes and smoking rates.

Healthcare IT services catch up with China’s growing healthcare demand.

• China’s healthcare IT market reached $3.4 billion in 2014. With a compound annual growth rate (CAGR) of 13.8%, the China Internet Datacenter Services expects the market to reach $7.2 billion by 2020¹.

• The growth of China’s healthcare IT market has been driven by:
  • Convenience and timeliness to consult with healthcare professionals
  • Greater access to areas that lack adequate healthcare resources
  • Ability to provide continuous support to patients with chronic diseases

• In China’s National Planning Guideline for the Healthcare Service System, the Government aims to establish a nationally-accessible digital health information database network which will integrate patient health profiles and medical records in electronic form by 2020.
  • The Guangdong province has already surpassed their target electronic health record (EHR) utilization rate of 80%. In 2014, EHR adoption rate in Huizhou (a city within Guangdong) reached 91% of the city’s population¹.

• As China’s government continues to invest in internet-based healthcare services, utilization rates for internet-based healthcare services are expected to grow

• From 2016-2017, about 84% of China’s total population has already used connected-care technology to share health information with a healthcare professional².

² KPMG, "Commercial Opportunities in the Primary Care Market in China", Oct 2016.
The China healthcare sector in both Mainland (A shares) and Hong Kong (H shares) has outperformed the broader Chinese markets over the past 5 years.

Index returns are for illustrative purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses. Indexes are unmanaged and one cannot invest directly in an index.

1.) China A Share healthcare sector is represented by CSI 300 Health Care Index
2.) China H Share healthcare sector is represented by MSCI China Health Care Index
3.) Broad China Market is represented by MSCI China Index. See Page 18 for Index Definitions.
## Example Holdings in the KraneShares MSCI All China Health Care Index ETF (Ticker: KURE)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example Holding</th>
<th>Holding weight [as of 6/30/2018]</th>
<th>Company logo</th>
<th>Company Description</th>
</tr>
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<tbody>
<tr>
<td>Patent and Generic Pharmaceuticals</td>
<td>Jiangsu Hengrui</td>
<td>9.04%</td>
<td><img src="image" alt="Company Logo" /></td>
<td>Jiangsu Hengrui develops, manufactures, and markets a variety of medicines and medicine packing materials. The Company specializes in the R&amp;D of new medicines in areas of antineoplastics, endocrine system, cardiovascular, and the immune system.</td>
</tr>
<tr>
<td>Medical Equipment Production</td>
<td>Shanghai Fosun</td>
<td>2.77%</td>
<td><img src="image" alt="Company Logo" /></td>
<td>Shanghai Fosun owns Sisram and AlmaLasers, two innovative medical equipment manufacturers whose products include medical aesthetics and minimally invasive medical devices.</td>
</tr>
<tr>
<td>Hospital Administration</td>
<td>Meinian Onehealth</td>
<td>2.32%</td>
<td><img src="image" alt="Company Logo" /></td>
<td>Meinian Onehealth Healthcare Holdings Co., Ltd. provides health examinations, evaluations, consulting services and other medical services in 200+ medical facilities throughout China.</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>WuXi Biologics</td>
<td>3.89%</td>
<td><img src="image" alt="Company Logo" /></td>
<td>WuXi Biologics owns WuXi AppTec, a leading global pharmaceutical, biopharmaceutical, and medical device open-access capability and technology platform with global operations. WuXi AppTec provides a portfolio of services throughout the drug R&amp;D process.</td>
</tr>
<tr>
<td>Traditional Chinese Medicine</td>
<td>Tong Ren Tang</td>
<td>0.62%</td>
<td><img src="image" alt="Company Logo" /></td>
<td>Tong Ren Tang is a Chinese pharmaceutical company founded in 1669, which is now the largest producer of traditional Chinese medicine. The company is engaged in both manufacture and retail sales and drug store operations throughout China.</td>
</tr>
<tr>
<td>Healthcare IT</td>
<td>Alibaba Healthcare</td>
<td>2.35%</td>
<td><img src="image" alt="Company Logo" /></td>
<td>Ali Health provides internet solutions for the healthcare industry to increase cross-regional sharing of existing social medicine resources and efficiencies of medical treatment. AliHealth specializes in medical e-commerce, smart medical treatment and product tracing.</td>
</tr>
</tbody>
</table>
KraneShares MSCI All China Health Care Index ETF (Ticker: KURE)

The KraneShares MSCI All China Health Care Index ETF (KURE) seeks to measure the performance of MSCI China All Shares Health Care 10/40 Index. The Index is a free float adjusted market capitalization weighted index designed to track the equity market performance of Chinese companies engaged in the health care sector. The securities in the Index include all types of publicly issued shares of Chinese issuers, which are listed in Mainland China, Hong Kong and United States. Issuers eligible for inclusion must be classified under the Global Industry Classification Standard (GICS) as engaged in the healthcare sector. The issuers included in the Underlying Index may include small-cap, mid-cap and large-cap companies.

KGRN Performance History as of 6/30/2018

<table>
<thead>
<tr>
<th>Fund Details</th>
<th>As of 6/30/2018</th>
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<td>Primary Exchange</td>
<td>NYSE</td>
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<tr>
<td>Cusip</td>
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<td>Total Annual Fund Operating Expense</td>
<td>0.79%</td>
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<td>Distribution Frequency</td>
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<td>Index Name</td>
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<td>Bloomberg: M1CXCAH</td>
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<tr>
<td>Number of Holdings (ex Cash)</td>
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<td>Top Ten Holdings as of 6/30/2018 excluding cash. The Fund’s Holdings are Subject to Change.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ticker</th>
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<td>CSPC PHARMACEUTICAL GROUP LT</td>
<td>1093 HK</td>
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<tr>
<td>JIANGSU HENGRIU MEDICINE C-A</td>
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<td>SINO BIOPHARMACEUTICAL</td>
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<td>WUXI BIOLOGICS CAYMAN INC</td>
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<td>ALIBABA HEALTH INFORMATION T</td>
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The performance data quoted represents past performance. Past performance does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor’s shares, when sold or redeemed, may be worth more or less than their original cost and current performance may be lower or higher than the performance quoted. For performance data current to the most recent month end, please visit www.kraneshares.com

Index returns are for illustrative purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses. Indexes are unmanaged and one cannot invest directly in an index.
**Index Definitions:**

**MSCI China Index:** captures large and mid cap representation across China H shares, B shares, Red chips and P chips. With 143 constituents, the index covers about 84% of this China equity universe.

**MSCI China A Health Care Index:** captures large and mid cap representation across China securities listed on the Shanghai and Shenzhen exchanges. All securities in the index are classified in the Health Care sector as per the Global Industry Classification Standard.

**CSI 300 Health Care Index:** consists of all the constituents of CSI 300 Index that are in the health care sector. It aims to reflect the overall performance of the sector.

**Important Notes**

Carefully consider the Funds’ investment objectives, risk factors, charges and expenses before investing. This and additional information can be found in the Funds’ full and summary prospectus, which may be obtained by visiting www.krashares.com. Read the prospectus carefully before investing.

Investing involves risk, including possible loss of principal. There can be no assurance that a Fund will achieve its stated objectives. The Funds are subject to political, social or economic instability within China which may cause decline in value. Fluctuations in currency of foreign countries may have an adverse effect to domestic currency values. Emerging markets involve heightened risk related to the same factors as well as increase volatility and lower trading volume.

Narrowly focused investments typically exhibit higher volatility. Internet companies are subject to rapid changes in technology, worldwide competition, rapid obsolescence of products and services, loss of patent protections, evolving industry standards and frequent new product productions. Such changes may have an adverse impact on performance. Technology companies may be subject to severe competition and rapid obsolescence. The KraneShares MSCI All China Health Care Index ETF is non-diversified.

The ability of the KraneShares MSCI All China Health Care Index ETF to achieve its respective investment objectives is dependent, in part, on the continuous availability of A Shares and the ability to obtain, if necessary, additional A Shares quota. If the Fund is unable to obtain sufficient exposure to limited availability of A Share quota, the Fund could seek exposure to the component securities of the Underlying Index by investment in other types of securities. The fund may invest in derivatives, which are often more volatile than other investments and may magnify the Fund’s gains or losses.

The KraneShares MSCI All China Health Care Index ETF invests primarily in the health care industry. The profitability of companies in the healthcare sector may be affected by government regulations and government healthcare programs, government reimbursement for medical expenses, increases or decreases in the cost of medical products and services, limited product lines, increased emphasis on the delivery of healthcare through outpatient services and product liability claims. Many healthcare companies are heavily dependent on patent protection, which may be time consuming and costly, and the expiration of a company’s patent may adversely affect that company’s profitability. Healthcare companies are subject to competitive forces that may result in pricing pressure, including price discounting, and may be thinly capitalized and susceptible to product obsolescence. Many new products in the healthcare sector require significant research and development and may be subject to regulatory approvals, which may be time consuming and costly and with no guarantee that the product will come to market.

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