GLOBAL HEALTH CARE

An Opportunity to Invest in Innovation

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Introduction

Investing in the global health care industry requires an in-depth understanding of various health care systems, including regulatory frameworks in various jurisdictions. It also requires a solid understanding of the clinical practice of medicine and scientific research. All of this must be integrated with knowledge of the industry as a whole.
Of particular focus, the United States and China remain the engines of growth for the industry. As such, this report provides a high-level overview of both the American and Chinese health care systems, including the demographics, economics, and reforms associated with these markets. It then presents opportunities related to innovation currently underway in areas such as biopharmaceuticals, medical technologies, research tools and health care services. It also illustrates how the global health care sector has historically tended to outperform during broad market downturns. Finally, it illustrates how companies with strong business fundamentals and innovative product pipelines could offer attractive investment opportunities in the global health care space.

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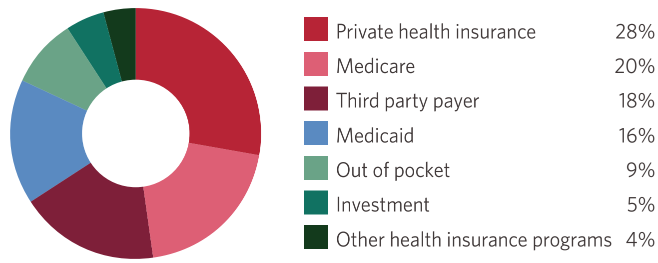
Largest market in the world: The United States

Assessing opportunity in the global health care industry necessarily begins with the United States. Whether examining the biopharmaceutical, medical technology, or services industry, the U.S. remains the center of the global health care industry. The National Health Expenditure Accounts (NHEA) releases official estimates of U.S. total health care spending. The most recent reports indicate that U.S. health care spending grew 9.7% in 2020, reaching $4.1 trillion or $12,530 per person.[1] As a share of the nation's Gross Domestic Product, health spending accounted for 19.7%[1]. About 55% of spending goes to hospitals and physicians, with the remaining fragmented between drugs, administration, research, dental services, etc. At over $574 billion USD in nominal spending on medicines in the U.S. in 2021, the U.S. accounted for approximately 45.9% of the global pharmaceutical market.[2] The amount of spending in the United States is largely an outcome of the structure of the industry and associated economics. Many developed countries globally, such as Germany or the United Kingdom, have a market-based system in which the government plays a significant role in setting prices, purchasing drugs, equipment, and products. In these countries, health insurance is largely centralized either at the federal or provincial/state level. Conversely, the U.S. health care system is built on free-market principles. Medical treatments and associated costs are largely determined through reimbursement structures, and purchasing is highly fragmented, with very little government centralization of health insurance.

With free-market principles informing the industry, U.S. healthcare spending is highly fragmented, with funding coverage coming from a variety of different sources:

- **Medicare** covers members of the population 65 year old and above, who are typically the largest users of the healthcare system, given their age and associated health issues.
- **Private health insurance** covers typically younger to middle aged insured individuals. While they are charged more than other programs on an individual basis, they have fewer health issues.
- **Medicaid** is the government program for low-income citizens. Despite paying lower rates than private insurance, costs are typically higher due to increased health issues in comparison.

Private health insurance is the greatest source of expenditure in the U.S. health care system, followed closely by Medicare.



Source: National Health Expenditure Data Fact Sheet. Available at https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet

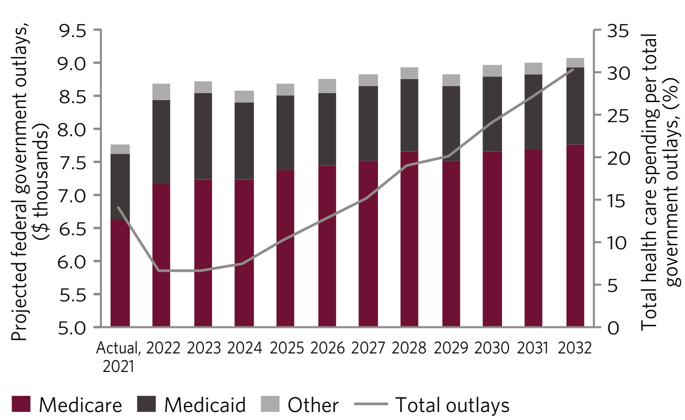
The costs associated with running the programs listed above have been increasing over time. Even before the Covid-19 pandemic, government-related expenditures in the health care industry were growing rapidly. They have ballooned in recent years. As of the end of fiscal 2021, Medicare and Medicaid accounted for approximately 22% of federal government spending and are expected to continue rising.

As at May 2022	Actual, 2021 ($Bn)	% of total government outlays
Total government outlays	6,822	-
Medicare	868	12.7
Medicaid	521	7.6
Other	88	1.3
Total health spending	**1,476**	**21.6**

Source: U.S. Congressional Budget Office https://www.cbo.gov/topics/health-care

By 2032, federal health care spending projections, as a percentage of total government outlays, are expected to reach around 32%. This is due to the fact that the U.S. population is rapidly aging and increasingly impacted by the onset of chronic disease and obesity. In addition, health care inflation increased in 2022 amid surging inflation in the broader economy.

Federal health care spending projections



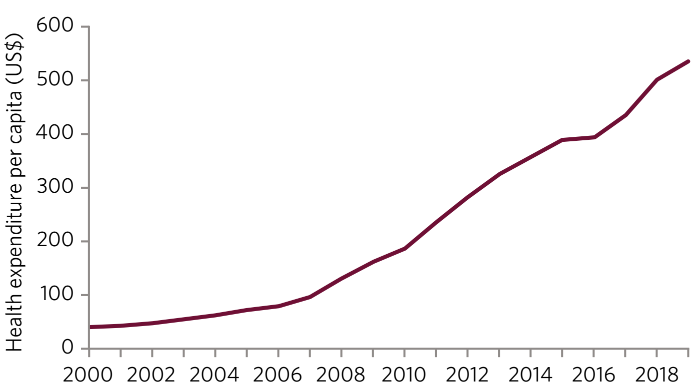
Source: National Health Expenditure Data Fact Sheet. Available at https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet#:~:text=Projected%20NHE%2C%202019%2D2028%3A,reach%20%246.2%20trillion%20by%202028

Health care costs have become a significant problem for the U.S. government. They will likely be top-of-mind for citizens and investors over the next decade. Programs such as the Center for Medicare and Medicaid Innovation (CMMI), and the Affordable Care Act (Obamacare) are all programs designed to improve quality, reduce costs, and provide health care coverage for citizens previously uninsurable. These represent on-going improvements for an increasingly costly health care system in need of reform. However, structural reforms will be a slow and gradual process with significant disagreement between multiple stakeholders on how to shape the health care system. Regardless of the solution, there will be a natural shift towards efficiency in the United States as the system comes under increased pressure. Investment opportunities can present themselves in connection with changes to the health care system.

Transformation causing rapid growth: China

While the United States remains a titan in the health care industry, China is undergoing significant transformation which could lead to strong future growth. Over the last decade, China has reformed its system in areas such as patient outcomes, mortality, scale, and speed of delivery, resulting in a wave of investment and innovation. Chinese health care expenditure, while significantly lower than the United States, has sharply risen over the past decade.

Chinese health expenditure per capita



Source: World Bank Group. Data as at January 31, 2022. Available at https://data.worldbank.org/indicator/SH.XPD.CHEX.PC.CD?locations=CN

As in the U.S., Health care expenditure in China rose sharply after the Covid-19 pandemic and has also been impacted by long-term demographic trends such as an aging population. The system has also been impacted by decades of low fertility, increasing life expectancy, and the growing proportion of the middle-aged and senior cohort of the total population.

China population by age and sex: 2022

Source: United Nations Department of Economic and Social Affairs, Population Division. Data as at 2022. Available at https://population.un.org/wpp/Graphs/DemographicProfiles/Pyramid/156

Although costs have increased with an aging population, the composition of payment sources has dramatically changed. The system had been dominated by out-of-pocket expenditures for many decades. This took a toll on Chinese citizens, especially on low income individuals who were left impoverished by unexpected medical expenses. This form of expenditure has been on the decline since 2000. Government and social insurance-related programs now occupy a larger portion of total health expenditure. Out-of-pocket health expenditure has gone from around 60% of total health expenditure in 2000, to around 25% in 2016. Both social and government programs have steadily risen and are expected to comprise of around 80% of total expenditure in 2030.[3]

Within the government and social segments, China offers a universal health plan, which includes the following three segments:[4]

1. **Urban Employee Basic Medical Insurance (UEBMI):** Covers urban employees of private companies and state-owned enterprises and is mandatory for employees to join.
2. **Urban Resident Basic Medical Insurance (URBMI):** Covers urban residents not eligible for UEBMI, such as the disabled, unemployed or students. It is run on a voluntary basis and provides relatively basic coverage compared to UEBMI.
3. **New Rural Cooperative Medical Scheme (NRCMS):** Covers rural residents on a voluntary basis.

All three of the above plans are expected to increase costs for the Chinese government going forward.

Given the rise in expenditure within the overall system, an aging population, and out-of-pocket payments still acting as a burden on many Chinese citizens, the government promulgated its "Healthy China 2030" reforms in 2016, establishing a national strategy aimed at improving the quality and efficiency of the health care system. The four pillars of this strategy are as follows:

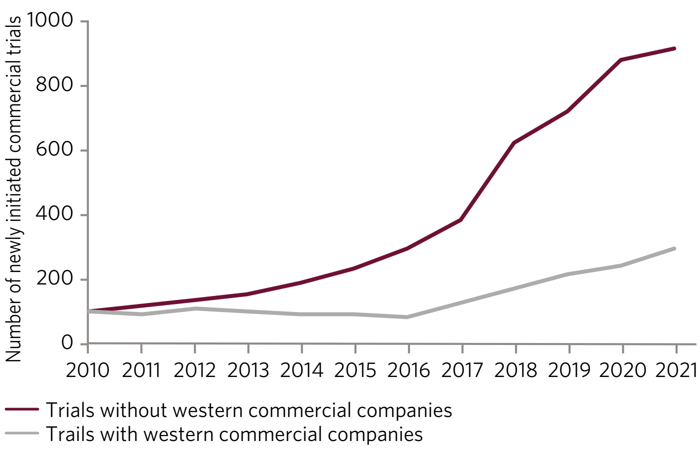
1. **Health Priority:** Making health care a strategic priority for the government.
2. **Innovation:** Speeding up reforms in the industry with government assistance.
3. **Scientific Development:** Increasing the prevention of diseases amongst the population and the discovery of cures.
4. **Fairness and Justice:** Equal access to health care, especially in rural areas.

Significant progress has been made since the these policies were promulgated. China's government has pushed for improvements in drug pricing, re-aligned financial incentives for hospitals and practitioners, and helped to build a more robust R&D pipeline. The innovation pillar has resulted in a rapid increase in the number of clinical trials initiated in China in recent years.

Drug trials in China

Growth in commercial trial activity in China has been driven by local companies

Indexed newly initiated commercial trials by year, 2010 activity = 100



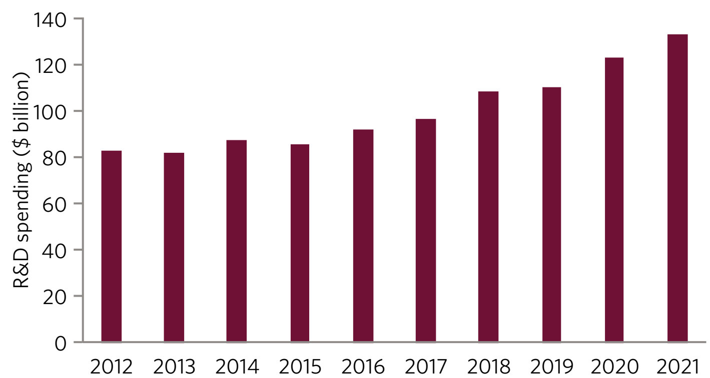
Source: GlobalData. Available at https://www.clinicaltrialsarena.com/analysis/china-clinical-trial-challenges-cta-exclusive/

There has been strong demand for drug research and development. Innovative pharmaceutical and biotechnology companies have been significant contributors to the overall industry boom. As China progresses towards its 2030 goals, we may continue to see strong growth and rapid transformation favourable to the global health care investment landscape.

Growing health care expenditure results in more innovation

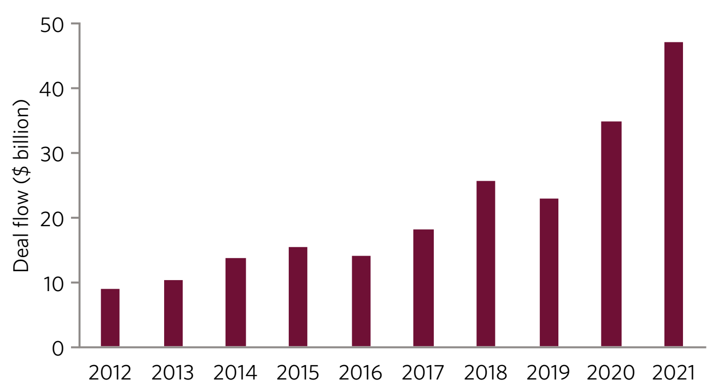
The increase in health care spending globally has resulted in significant advancement in health sciences. Investment in future medical innovation continues to grow, reflecting confidence in ongoing scientific innovation to tackle unmet health needs. 2018 was the first year in which the 15 largest pharmaceutical companies recorded more than $100 billion in R&D expenditure. That amount surged to $133 billion in 2021. 2021 was also a record year for venture capital firms, which invested over $47 billion, with a record number of deals recorded, illustrating the growing opportunities associated with the sector.

15 largest pharmaceutical companies by R&D



Source:Company financial statements; IQVIA Institute. Data as at January 2022. https://www.iqvia.com/-/media/iqvia/pdfs/institute-reports/global-trends-in-r-and-d-2022/iqvia-institute-global-trends-in-randd-to-2021.pdf?_=1663172523115

Venture Capital deal flow



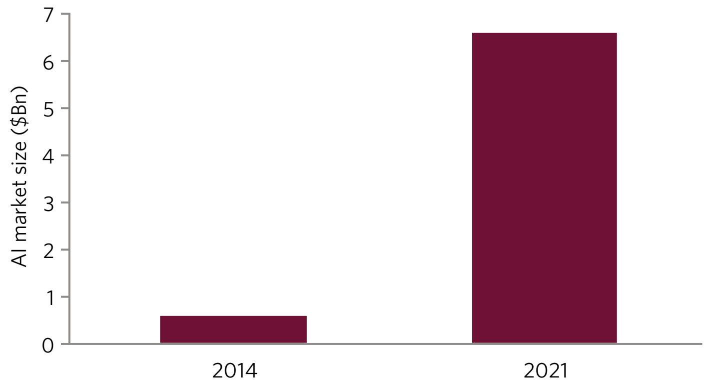
Source: NVCA Monitor Q4 2021, accessed January 2022. Available from: https://www.iqvia.com/-/media/iqvia/pdfs/institute-reports/global-trends-in-r-and-d-2022/iqvia-institute-global-trends-in-randd-to-2021.pdf?_=1663172523115

Clearly, appetite for industry exposure has rapidly increased. However, in order to assess innovation and investment opportunities within the broader health care space, we need to segment the health care industry into three distinct subsectors: Biopharmaceuticals, Medical Technologies, and Health Care Services.

The biopharmaceuticals sector continues to see tremendous growth in investment. The development of R&D pipelines has grown at an unprecedented pace, with drug approvals and launches at record levels. Areas of particular focus have been in human genetics and molecular biology, which has led to more advanced therapies for dealing with new and existing conditions. Advancements are equipping caregivers with tools that can target the mechanism behind a specific disease and identify potential targets for treatment using genetic sequencing, spatial genomics and protein analytical tools. There are now significantly more targeted treatment options for medical conditions, including personalized medicine, highly targeted complex drugs, and cell therapies. The incremental rate of progress in this field is accelerating. This has made the process of treatment discovery and development much faster. There has also been a significant de-risking in the research of new treatments, which are more rationally designed. We believe the de-risking of R&D will result in better levels of productivity, whereby organizations are able to achieve a higher return on investment, and clinical trials have a much higher degree of success. Going forward, we believe the main areas of innovation will be related to oncology, genetic disorders, immunology, and infectious diseases. In light of this, internal R&D will likely continue to be a significant contributor to pipeline creation, although M&A will likely be crucial in filling gaps in pipelines and technologies. Ultimately, we believe that biopharmaceuticals will continue to be a very attractive subsector, given strong demand for existing products combined with a steadily growing pipeline of new products. Key risks are evolving regulatory changes.

Similar innovation is underway in the Medical Technologies subsector. Patient experiences have significantly improved with the development of new therapeutics, medical imaging, better diagnostic tools, and less invasive surgical procedures. Artificial intelligence (AI) has had a significant impact allowing scientists to process vast amounts of data that previously would have been impossible to interpret. This has led to diagnostics and treatment enhancement through automation of processes, more accurate analysis of patient or research data, and better early disease identification, which improves favorable outcomes for patients. As AI continues to improve the way patients are cared for and the way new substances are tested and delivered to the market, we believe there will be significant opportunities for value creation.

Explosive growth in the AI health market



Source: Accenture, "Artificial Intelligence: Healthcare's New Nervous System". Available at: https://www.ehidc.org/sites/default/files/resources/files/Accenture-Health-Artificial-Intelligence.pdf

We believe the Medical Technologies subsector is well positioned for sustainable growth in view of its exposure to rapidly growing scientific advancements in medicine, combined with rapid innovation. There are also a tremendous number of start-ups driving innovation in this space. We expect that many of these start-ups will be acquired by larger companies in the industry, offering additional opportunity to invest in companies with M&A upside. Key risks include increasing barriers to research funding, and increasing competitive pressures.

Innovation in the Health Care Services subsector is much more modest and incremental. The focus is mainly on lifecycle management and replacing certain products. Companies still need to be in differentiated by their area of focus—whether in therapeutics or less invasive treatments—but progress is much more gradual. However, just because innovation is a lot slower does not imply that the area is less attractive from an investment perspective. Healthcare Services offers many investment opportunities, particularly in areas of integrated care delivery and outsourcing offerings in advanced research and manufacturing. Many of these businesses are trying to integrate themselves with health care reform, working with programs like Medicare to help with cost reforms, and working with drug providers. This could present opportunities for investors going forward. Key risks are from potentially disruptive healthcare system reforms in various markets.

Combining all three subsectors within the health care industry results in attractive long-term investment opportunities in the presence of strong secular tailwinds such as global demographic shifts and increasing demand for medical services, combined with an unparalleled innovation.

Health care sector can protect throughout market downturns

After strong performance in calendar 2021, markets have experienced significant volatility throughout 2022. Inflation surged globally, largely due to a mix of binding supply constraints and excessive demand, excess liquidity, and a tightening labour market. As a result, interest rates began to rise over the course of year and markets experienced heightened volatility and a sharp rotation out of high-growth and expensive quality sectors, and into value-oriented securities such as resources, financials and staples. Year-to-date, the health care sector has been one of the best-performing global equity sectors.

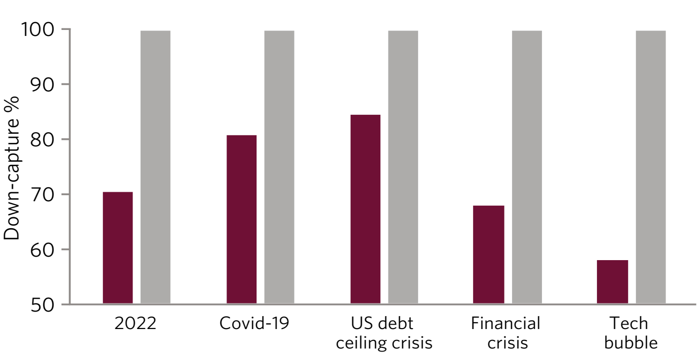
One of the biggest misconceptions associated with the health care sector is that the innovation generated by R&D intensive companies results in a volatility profile similar to that of the information technology or communication services sectors. In reality, the health care sector has outperformed global equity markets (as represented by the MSCI World Index) in every major market dislocation since the inception of the MSCI World Health Care Index on September 15, 1999, including the volatility we are experiencing today.

Returns	2022 market downturn	Covid-19 downturn	US debt ceiling crisis	Financial crisis	Tech bubble
MSCI World/ Health Care Index	-11.13%	-19.46%	-9.04%	-13.61%	-0.12%
MSCI World Index	-15.93%	-27.00%	-9.26%	-32.17%	-17.62%

Source: Morningstar Direct 2022. Data as at August 31, 2022.* ‡

In addition, the MSCI World Health Care Index has an average down-capture ratio of 72% over the same 5 major market dislocations, illustrating its ability to mitigate downside risk, offer a potentially smoother investment experience, and offer investors an opportunity to invest in innovation.

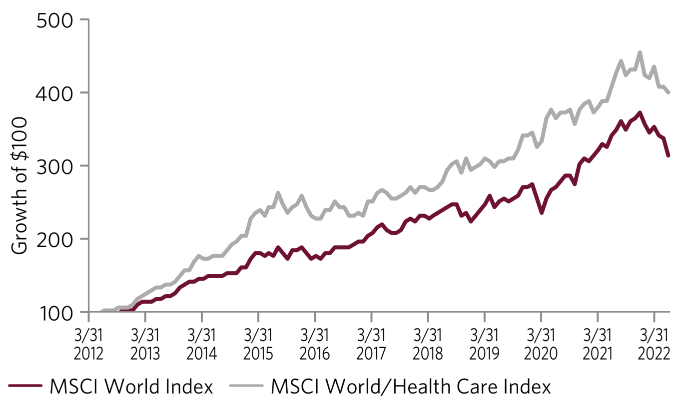
Health Care down-capture lower in last 5 market corrections
Average down capture of 72%



Source: The information was prepared by CIBC Asset Management Inc. using the following third-party service providers' data: Morningstar Direct 2022. Data as at August 31, 2022.*

Whereas sectors such as information technology or consumer discretionary experience slowdowns in recessions, stable and mature health care businesses are potentially better positioned to hedge against rising inflation and interest rates, and slowing economic growth. In recessions, people still need drugs. The prevalence of disease stays fairly constant, and long-term secular growth trends from rising health care spending and aging populations remain, regardless of where we are in the economic cycle. As a result, health care has historically mitigated broader market dislocations. The health care sector has significantly outperformed the broader markets over the past 10 years.

10-year investment growth



Source: The information was prepared by CIBC Asset Management Inc. using the following third-party service providers' data: Morningstar Direct 2022. Data as at August 31, 2022.*

Since health care can potentially mitigate broader market downturns, the final component to consider is active versus passive investing in health care. In our opinion, the importance of understanding where we are in the cycle and being nimble is key to outperforming over time. For instance, the biopharmaceuticals subsector represents a diverse set of companies ranging from defensive large cap pharmaceuticals to highly volatile small cap biotechnology companies. Such diversity creates immense investment opportunities, but at different points in time. When markets are volatile, it is prudent to shift towards large-cap pharmaceutical stocks, diverting capital out of higher-beta biotechnology stocks and shifting into higher quality within the sector. However, when markets are more stable, the biotechnology sector is ripe with opportunity. Biotechnology expanded rapidly over the last 20 years and has become the model of innovation within the health care industry, with technology driving the advancement in targeting-therapeutics. The importance of recognizing where we are in the cycle and picking the highest-quality stocks at a given point in time is a key benefit of active management and is essential to achieving strong long-term performance.

Considering an allocation to the Renaissance Global Health Care Fund for innovation exposure

The Renaissance Global Health Care Fund represents an opportunity to invest in long-term secular trends and the vast amount of innovation discussed throughout this paper. We invest in high-quality, global innovation-driven leaders with proven management teams and innovative pipelines that can potentially outperform significantly over the long-term. Our bottom-up stock selection process focuses on finding an informational advantage related to key scientific, medical, regulatory, and economic trends. Although we run a concentrated portfolio of 20 to 40 stocks, we are well diversified between the biopharmaceuticals, health care services, and medical technology sub-sectors. All of our research uses proprietary in-house analysis utilizing an extensive array of tools. Capital preservation guides our qualitive and quantitative risk management capabilities, which are embedded within our process. We use our background in scientific research, clinical medicine and finance—including over a decade of investment management experience—to make informed decisions. We can therefore understand how developments in the health care industry could potentially impact a company and, more importantly, its valuation. Experience informs our investment decisions, and our technical expertise allows us to truly understand businesses and their potential for innovation.

For example, take a company like Roche Holdings, which is a global pharmaceutical and diagnostics company. Roche has a robust R&D engine in drug development innovation across all areas of the market, including small molecules to large molecules, gene and cell therapy, etc. It's pipeline of assets is in the top quartile in potential contribution to revenue, and it has one of the highest percentages of end-stage assets compared to its global peers. It also has one of the deepest pipelines of early stage assets. Being able to accurately measure Roche's assets and, more importantly, to understand the likelihood that these trials could result in successful outcomes is something that we can ascertain given our expertise in medicine and investing.

Another example is IQVIA, which is a U.S. health information technology data company that has built a robust network of clinical research trials and associated laboratory and analytical services. The company contributes to the advancement of research globally through insightful analysis and scientific expertise applied to granular non-identified patient-level data. Over the past few years, IQIVA has continually showcased its advanced capabilities in its clinical development. The company has full capabilities in areas such as contract research services, as well as in the setup and implementation of clinical trials. IQIVA is driving the rational design of studies and using formats that are empirically tested while using artificial intelligence and best-in-class machine-learning to maintain its leadership in pharmaceutical R&D. In addition, the company has exposure to the entire universe of pharmaceutical R&D, which provides enhanced diversification and reduces idiosyncratic risks associated with the industry. IQVIA is a great example of a company we've identified in our research process as developing the most advanced technology and capabilities to further its value. Both Roche and IQVIA are top weights with the Renaissance Global Health Care Fund and illustrate the high-quality companies and best-in-class innovation that investors gain exposure to by investing in the Fund.

Conclusion

In this paper, we have highlighted health care developments in the U.S. and China, and the massive increases in spending expected over the next decade, the rapid innovation underway in three main areas of the health sector, the sector's ability to mitigate market downturns, and finally how investing in high-quality businesses using an informational advantage could be conducive to long-term outperformance. Altogether, we believe the Renaissance Global Health Care should be a strong candidate for investors seeking exposure to innovation in their portfolios.

Let's Connect

Should you have any questions about this report, please do not hesitate to connect with us:

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[1] https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical

[2] https://www.statista.com/statistics/245473/market-share-of-the-leading-10-global-pharmaceutical-marketsl

[3] Research in health policy making in China:out-of-pocket payments in Healthy China 2030', by Wei Fu et al., in The British Medical Journal (2018;360:k234); Available at https://www.bmj.com/content/bmj/360/bmj.k234.full.pdf

[4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8240306/

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