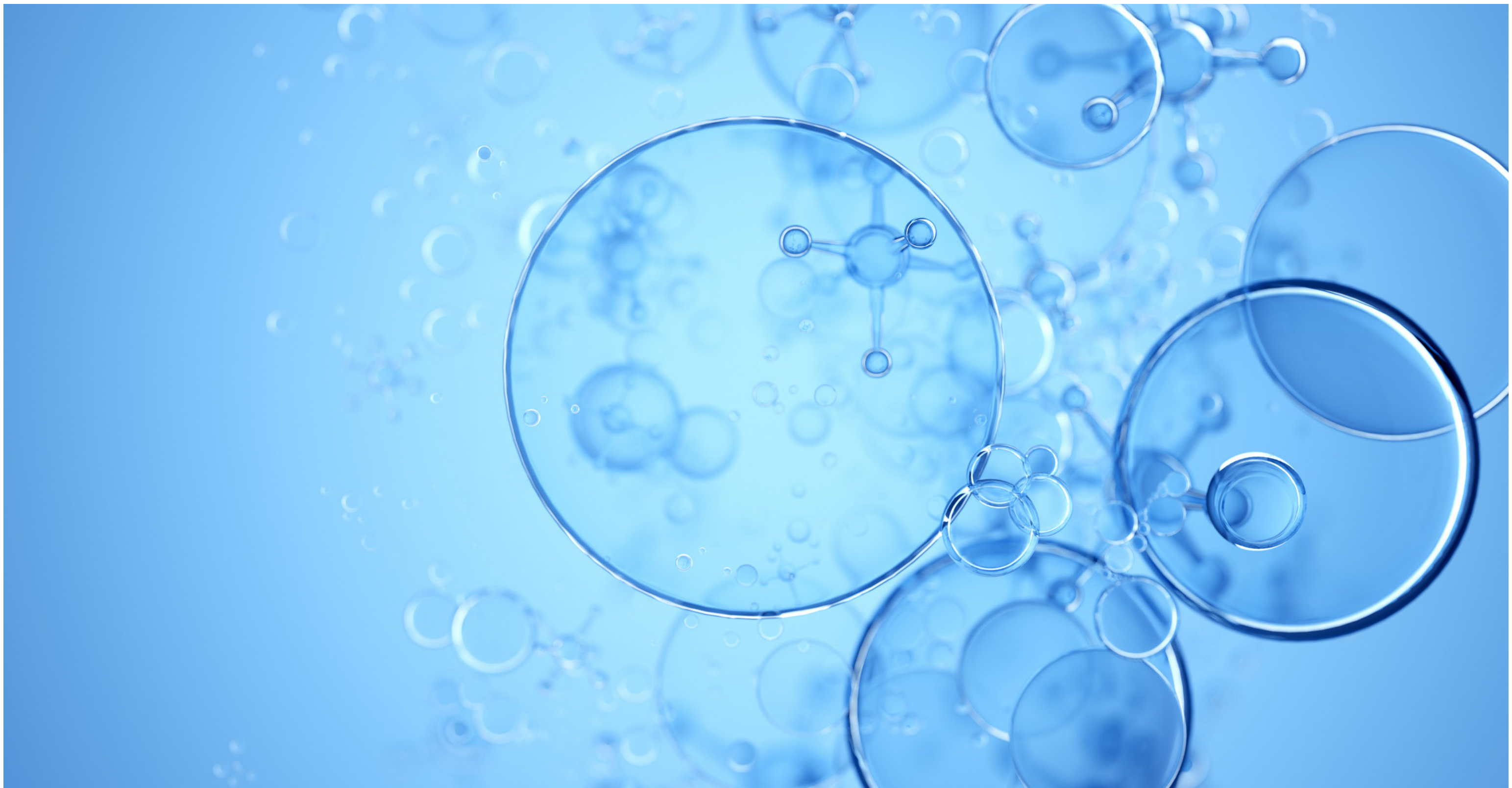

Investing in Health Care: Beyond the Buzzwords

Artisan Non-U.S. Small-Mid Growth Strategy

ARTISAN PARTNERS
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A R T I S A N P A R T N E R S

Investing in Health Care: Beyond the Buzzwords

Some of the 21st century's biggest breakthroughs are happening in health care, transforming the way we diagnose, treat and prevent grave diseases. From gene sequencing and proteomics to the prospect of artificial intelligence (AI)-enabled drug discoveries, what seemed like science fiction just a few years ago is increasingly an everyday reality. These advancements are prompting many to call this the golden age of health care innovation.

At the same time, an aging world population and a growing middle class with more disposable income, particularly in emerging market countries, are two important tailwinds that should drive structural growth in health care end markets for many years to come, regardless of the cyclical backdrop.

As long-term investors who seek idiosyncratic opportunities at the intersection of growth and change, the health care sector has produced some of our most successful investments, and it continues to be a fertile area for our investment approach. In our view, rising complexity in this rapidly evolving landscape favors smaller, nimbler companies. The quest to identify truly differentiated, high-quality companies that improve people's lives invigorates us, and investing early in the journeys of these businesses has proven very rewarding for our shareholders.

At the same time, the ability to find uncorrelated return profiles also brings with it the need to thoughtfully manage the accompanying risk, which we aim to do through fundamental research, calculated position sizing, and proper diversification.

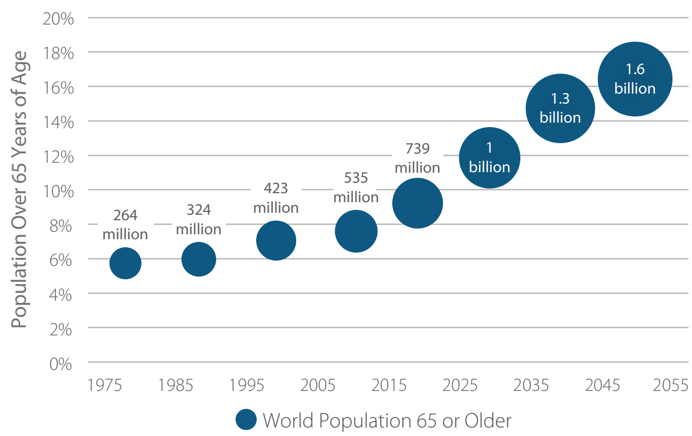
In the following pages, we will discuss the structural changes behind health care innovations and our investment approach that leads to unique insights and the opportunity to compound returns over the long term.

Megatrends in Health Care

Aging Population and Growing Demand

Across the globe, people are living longer and having fewer children, resulting in population aging. This trend has already had profound social and economic effects, notably within health care. The number of people aged 65 and older has tripled from 260 million in 1980 to 761 million in 2021. By 2050, this figure is projected to reach over 1.6 billion. Put differently, whereas 1 in 10 people globally are aged 65 and older today, the ratio will be 1 in 6 by the mid-century mark. Geographically, Asia will contribute some 60% of the global increase in the next 30 years.

Exhibit 1: An Aging World Driving Increased Health Care Demand



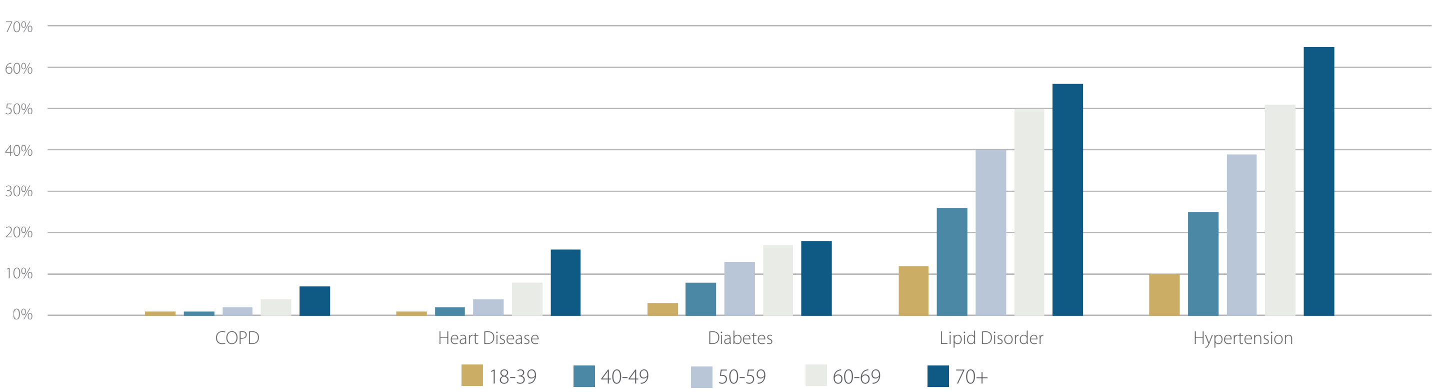
Source: United Nations World Population Prospects. As of 1 July 2022.

Though we may try to fight it, declining physical and mental capabilities are a natural part of the aging process, as is the propensity to develop diseases. Common signs of aging include vision impairments, osteoarthritis, hearing loss, diabetes and a long list of other chronic diseases, all of which boost demand for health care. For instance, half of those aged 60 and older have a cataract, a cloudy lens in the eye that requires surgical removal and replacement, and people aged 65 years and older are 11 times more likely to develop cancer than younger people. This demographic shift will continue to serve as a tailwind to the industry for much of this century.

Not only is the world growing older, but a significant portion of the population is becoming wealthier. In 2018, more than half of the world's population entered income groups of "middle class" or above for the first time in human history, a significant milestone in our collective economic well-being. These groups, accounting for two-thirds of total household consumption, are projected to grow by another 1.7 billion or so by 2030 to over 60% of the global population. The rise of the global middle class will further drive increased demand for better health care, as evidenced by the rapid rise in health care spending in China over the last four decades. Globally, approximately 10% of GDP is spent on health care today. The US spends more than 17% of its GDP on health care, the highest among major countries. On a per capita basis, health care spending around the world is projected to grow from $1,500 today to over $2,000 per annum

Exhibit 2: With Aging Comes Chronic Diseases

Prevalence of Selected Chronic Disease by Age Group

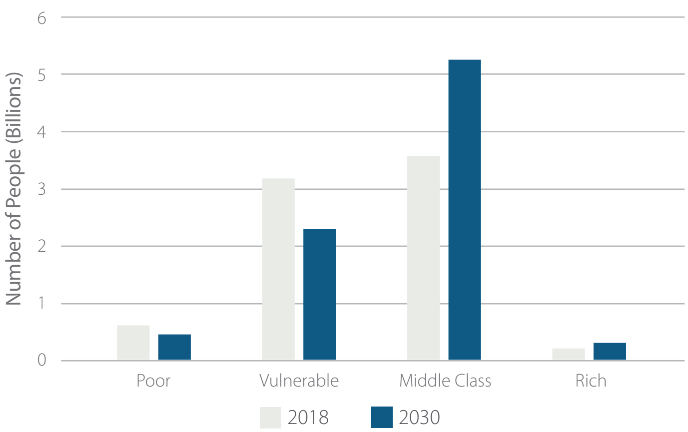


Source: Catapult Health. As of 15 Oct 2019.

by 2050, with projected spending reaching close to $10,000 in high income countries and more than $17,000 in the US (in purchasing power parity terms).

Exhibit 3: The World is Getting Wealthier

Growth of Population by Income Groups



Source: World Data Lab. As of 31 Oct 2018.

The Innovation Explosion

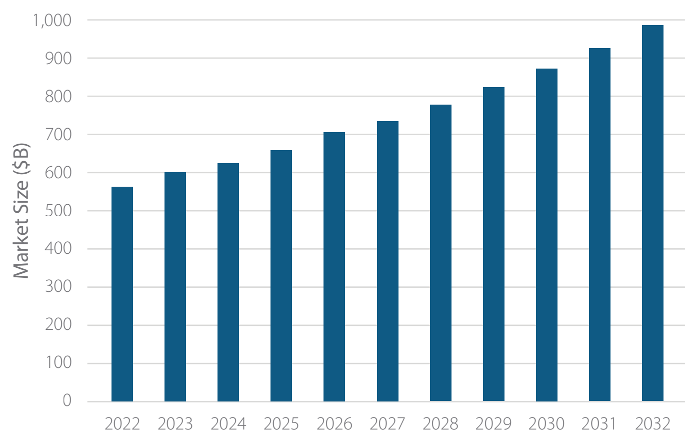
The pace of health care innovation in recent years has been unmatched in history, markedly improving patients' well-being as well as giving rise to exciting investment opportunities. The development of the COVID-19 vaccine in record time using mRNA technology was a great testament to the scientific prowess and commercial potential within the health care sector. However, beyond mRNA vaccines, innovation is sprouting across the landscape from novel therapeutics, such as chimeric antigen receptor (CAR) T-cell therapy which involves changing immune cells to identify and fight blood cancers, to safer diagnostics and procedures with fewer dangerous side effects. What may have seemed far-fetched in recent memory is quickly becoming a reality, opening up new markets potentially worth billions of dollars.

Take AI-enabled drug discovery, an area at the center of the ongoing big-data revolution in health care. Traditionally, drug development is a slow, arduous and expensive undertaking. It could take up to 10 years and more than $1 billion to develop a new drug that is both effective and safe. The chance of failure is notoriously high, with only 10% of drug candidates reaching the regulatory approval stage. AI is transforming this process. From identifying novel targets to designing new drugs and predicting their behaviors in the human body, early work that had to be done in the lab or through clinical phases previously can now be carried out in silico. This allows researchers to more efficiently select molecules most likely to be safe and effective therapies. Assuming only modest improvements in early-stage drug development success rates, up to 50 novel therapies are projected to be discovered over the next decade, translating to a more than $50 billion opportunity.

In addition, next-gen cell and gene therapies, precision medicine and drug delivery are all areas of technological breakthrough with large commercial potential. Approved cell therapies already generated $2 billion in sales in 2021 and are expected to grow to $60 billion in 2030. Precision medicine, a field dating back to the human genome project and turbocharged by the recent proliferation of genetic and biomedical data, is rapidly growing and maturing with the progress in genomics, device innovation and dramatic reductions in genome sequencing costs.

Yet another area experiencing strong structural growth is global medical tools and devices, or medical technology. This area is projected to grow from $570 billion in 2022 to $997 billion in 2032, with the growing prevalence of chronic diseases and the increasing emphasis by health care agencies toward early diagnosis and treatment. In addition to improving traditional medical devices, such as wound care and ophthalmic devices, R&D investment and technological advances are creating entirely new market segments, such as in-vitro diagnostics (IVD). IVDs are expected to grow meaningfully due to the increasing use of real-time tests for precise diagnosis of chronic and infectious diseases. Taken together, health care today presents some of the most promising investment opportunities in recent history.

Exhibit 4: Global Growth in Medical Tools and Devices Improving Health Outcomes



Source: Precedence Research. As of 1 Nov 2023.

Our Differentiated Approach in Action

Health care represents a meaningful portion of our portfolio and has been a source of consistent strength. Since our inception at Artisan nearly five years ago, stock selection in the sector has been one of the leading sources of alpha. Importantly, we have not taken outsized risk to achieve such results—the standard deviation of our health care holdings' returns is among the lowest of all sectors since inception. The diversification and idiosyncratic nature of our holdings have helped to mitigate volatility and deliver consistent growth.

We seek businesses early in their respective journey to becoming meaningfully larger enterprises, with many possessing the opportunity for industry leadership and a global revenue base. We underwrite an initial 5-year holding period and aim to find businesses we can own indefinitely. Throughout our history, there are many examples of current and past portfolio companies that continue to invest in R&D, evolve with their expanding end markets or establish entirely new markets and continue to boast valuations that do not reflect this future growth. For illustrative purposes, please see Exhibit 5 with market capitalization growth over the past decade for a subset of holdings.

Exhibit 5: Explosive Growth Over a Decade

	2013	2023
Genmab	$1.5 billion	$24.9 billion
Carl Zeiss Meditec	$2.7 billion	$9.7 billion
Lonza*	$4.0 billion	$44.4 billion

Source: Bloomberg. Growth in market capitalization shown for illustrative purposes. As of 30 June 2023.*Lonza is no longer held in the portfolio.

The goal of our investment process is to find high quality companies we can own for the long term as they continue on their journey of growth and innovation. In a sector beset with swift momentum shifts and binary outcomes, our approach emphasizes business quality, which includes management talent, balance sheet strength, unique assets and diversity in value drivers.

Pioneers of the Biotech Revolution

Given strong intellectual property protection in biotechnology and limited barriers to entry at the technological frontier, small companies are pioneering some of the most exciting breakthroughs in health care, ranging from antibody therapeutics for cancer treatment to new drug development for rare diseases. Many of our portfolio companies are leaders in the biotech revolution.

Swedish Orphan Biovitrum (SOBI) is a specialty pharmaceuticals company that develops and commercializes therapies and drugs for the treatment of hemophilia, inflammation and genetic diseases. Investors focused on short-term binary outcomes fail to recognize the highly stable nature of SOBI's specialty pharmaceutical business. SOBI has three important product launches, all of which have FDA approval—Beyfortus™, a therapy to prevent respiratory syncytial virus infections in infants, a leading cause of infant death; ALTUVIIIO™, a weekly infusion for adults and children with hemophilia A that has the potential to become the standard treatment; and recently acquired Vonjo™, which treats myelofibrosis. SOBI is profitable, growing in large end markets and remains attractively valued.

Genmab specializes in the development of antibody therapeutics for the treatment of cancer. We first invested in Genmab many years ago and have witnessed its rapid growth driven by highly successful product launches and impressive commercial execution. With multiple approved therapies incorporating Genmab technologies, the company has built a proven R&D engine and world-class pipeline. Its most advanced candidates include epcoritamab for non-Hodgkin's lymphoma and Rybrevant for lung cancer. Genmab's biggest success, Darzalex®, is rapidly becoming integral in the treatment of multiple myeloma. Darzalex® sales have been growing more than 30% annually in recent years and totaled more than $20 billion since approval. In our view, Genmab's R&D capacity will continue to produce successful treatments and there is embedded pipeline optionality not reflected in the stock price.

Innovators in Tools & Devices

Medical tools and devices are similarly undergoing fundamental changes, with rapid advances in material science enabled by miniaturization and robotization, and the integration of AI. Today, more than 500 medical devices enabled by AI or machine learning have been approved by the FDA. As illustrated earlier, the global medical devices market is expected to be about 50% bigger by 2030 than it is today. We have long been interested in companies innovating in the medical devices space and are attracted to the market's structural growth.

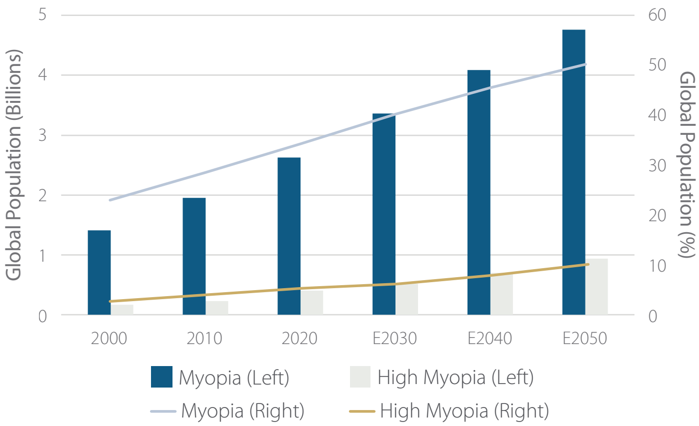
UK medical device pioneer ConvaTec is a leader in the stable markets of ostomy and incontinence care for use after colon surgery—a business that requires tremendous trust in design given the intimacy with customers. ConvaTec's end markets are worth tens of billions dollars globally and are growing at a high-single digit annual rate. Previously a business line under Bristol Meyers, ConvaTec was spun out and suffered years of underinvestment in R&D from its private equity backers. As is often the case with small businesses, the right visionary leadership is required to unlock their value potential. In ConvaTec's case, the right leadership team began to come together in 2018-2019 and continues to strengthen. With a rich product pipeline and a digitally enabled ecosystem, ConvaTec is expanding into the structurally growing and higher value-added markets of infusion devices for insulin pumps and wound care. In addition to the company's continued growth journey, management's cost optimization strategy and reduction in selling, general and administrative (SG&A) expenses are expected to continue delivering margin improvement.

Gerresheimer makes glass and plastic containers for the pharmaceutical and cosmetics industries. Historically an asset- and energy-intensive business, Gerresheimer has moved up the value chain to more differentiated systems that offer sustainable and highly profitable growth. For example, the company's portfolio includes autoinjector systems for anti-obesity drugs and sterile pre-fillable vials for next-generation biologics. Gerresheimer is also developing wirelessly connectable patch pumps and inhalers with high-value potential by improving patients' medication compliance. This is an enviable market position in an industry with high barriers to entry switching costs. We initiated the underwriting of our investment amid the Russia-Ukraine war—a time when most investors avoided shares of Gerresheimer on concerns of higher natural gas prices and supply scarcity. Our discussions with management teams often uncover information overlooked by the market. In the case of Gerresheimer, we discovered that it had hedged energy prices five years out, it had minimized disruption risk by making its plants interchangeable between gas and oil and the German government had deemed it a systemically important health care industry provider. Our investment thesis continues to unfold, and we believe the stock remains attractively valued.

Enablers of Better Vision

Vision care presents various large opportunities given market inelasticity and growth potential due to a combination of aging demographics in key geographies and increasing affluence worldwide. Globally, at least 2.2 billion people are near- or far-sighted. By 2050, as much as half of the population is projected to be myopic, up from 34% today, with 10% being highly myopic. Leading causes of vision impairment, like cataracts and glaucoma, have significant unmet medical needs despite being, in many cases, preventable, treatable, or curable. Our contrarianism and ability to look past short-term noise bore fruit during the pandemic when elective procedures were postponed. In that turbulent time, we purchased a number of high-quality vision care companies at attractive valuations. Higher demand for premium vision care is benefiting companies with technological expertise, balance sheet strength to fund further R&D and integrated solutions focused on outcomes and workflow efficiency.

Exhibit 6: Global Myopia Prevalence



Source: B. Holden, T. Fricke, et al. Global Prevalence of Myopia and High Myopia and Temporal Trends. Ophthalmology. As of 11 Feb 2016.

Alcon is a global leader in eye care, with a broad range of products in surgical and vision care markets. It is a highly profitable business, growing at a healthy and sustainable rate, as customers tend not to be price sensitive when it comes to their vision care. We invested in Alcon at an extremely attractive valuation during the pandemic, and the share price has rebounded since then as eye care demand and elective procedures return. Backed by a proven R&D engine, Alcon continues to deliver robust sales from new product launches on top of its stable base business in both surgical and vision care. We believe Alcon has meaningful opportunities to continue growing its top line and improving its margins.

Glaukos focuses on novel therapies for the treatment of glaucoma, corneal disorders and retinal diseases. It is on a journey from a single-product company to a comprehensive ophthalmology enterprise. Glaukos has successfully commercialized a suite of microinvasive glaucoma surgery (MIGS) products that are usually administered in conjunction with cataract surgery. Its long-term opportunities stem from a rich pipeline of medical devices, including iStent Infinite and iDose TR. iStent Infinite is a standalone implantable device that projects to expand the MIGS market significantly. iDose TR is an implant for a 12-month release of glaucoma medication, which has the potential to revolutionize the market. Glaukos also continues to expand internationally, with nearly a third of its revenue now sourced from outside the US.

Managing Risks in Health Care

Risk management is an integral part of our investment process. Our comprehensive framework reflects several principals, the most crucial of which is our work at the individual company level. We are hyper-aware of the challenges small companies confront. Hence, we orient the portfolio to high-quality businesses run by talented management teams. We perform thorough due diligence on our portfolio businesses before we underwrite them for the next three to five years. When evaluating potential investments, we meet with company management teams, heads of research and development and industry experts in order to understand the sustainable growth prospects for commercialized products and the embedded optionality in the pipeline. This well-rounded approach helps to unlock unique insights into individual companies and industry changes. Throughout our ownership, we also continually test our assumptions regarding a company's quality, including defensibility of the business and market position, balance sheet strength, cash flow generation, pricing power, ability to self-finance growth and ability to generate high or improving returns on invested capital. We then use sensible five-year cash flow projections to value the business.

Another important element of our risk management framework is position sizing and our emphasis on diversification across industries, geographies and themes. We conscientiously avoid overconcentration in any one industry and individual position. As it pertains to health care, we have meaningful exposure across industries, including medical tools and devices, ophthalmology and pharmaceuticals. While the biotech industry represents a tremendous opportunity, we have traditionally kept exposure to mid-single digits, and any business with a binary element to the outcome will be afforded a smaller weight in the tail of the portfolio due to the higher risk profile. Although we are passionate about companies across our portfolio, we temper our excitement with humility and weight positions according to our assessment of the opportunity's magnitude versus our level of conviction.

Our framework of measured risk-taking enables us to capitalize on the vast opportunities in the health care sector while limiting single-stock risk and overall volatility. Our history has shown that a collection of smaller investments with idiosyncratic drivers helps provide an uncorrelated return profile, and a tail to the portfolio filled with highly attractive risk/return propositions can help provide positive convexity to the portfolio.

Conclusion

Health care today is clearly at the intersection of growth and change, making it a fertile area for our investment approach. Technological breakthroughs, demographic changes and rising demand are all long-term structural factors benefiting this sector. We believe it is one of the most exciting and productive areas of the global economy. Within this large and diverse space, we are attracted to a select list of companies with superior technologies, unique assets, quality management teams and abilities to successfully execute business strategies that bring innovative products from laboratories to the market. Consistent with our overall approach to risk management, we are highly valuation-conscious and well-diversified across industries and geographies. We look to invest in a collection of companies with idiosyncratic value drivers and embedded optionality. The already explosive pace of innovation and value creation in health care has room to accelerate, and we are enthusiastic about participating in its growth and compounding returns for our investors in the coming years.

For more information: Visit www.artisanpartners.com

International investments involve special risks, including currency fluctuation, lower liquidity, different accounting methods and economic and political systems, and higher transaction costs. These risks typically are greater in emerging markets. Securities of small- and medium-sized companies tend to have a shorter history of operations, be more volatile and less liquid and may have underperformed securities of large companies during some periods. Growth securities may underperform other asset types during a given period. These risks, among others, are further described in Artisan Partners Form ADV, which is available upon request.

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Net-of-fees composite returns were calculated using the highest model investment advisory fees applicable to portfolios within the composite. Fees may be higher for certain pooled vehicles and the composite may include accounts with performance-based fees. All performance results are net of commissions and transaction costs, and have been presented gross and net of investment advisory fees. Dividend income is recorded net of foreign withholding taxes on ex-dividend date or as soon after the ex-dividend date as the information becomes available to Artisan Partners. Interest income is recorded on the accrual basis. Performance results for the Index include reinvested dividends and are presented net of foreign withholding taxes but, unlike the portfolio's returns, do not reflect the payment of sales commissions or other expenses incurred in the purchase or sale of the securities included in the indices.

Alpha is a quantitative measure of the volatility of the portfolio relative to a designated index. A positive alpha of 1.0 means the fund has outperformed its designated index by 1%. Correspondingly, a similar negative alpha would indicate an underperformance of 1%.

Return on Invested Capital is a calculation used to determine how well a company allocates its capital to profitable projects or investments.

Cash Flow is the movement of money in and out of a company.

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