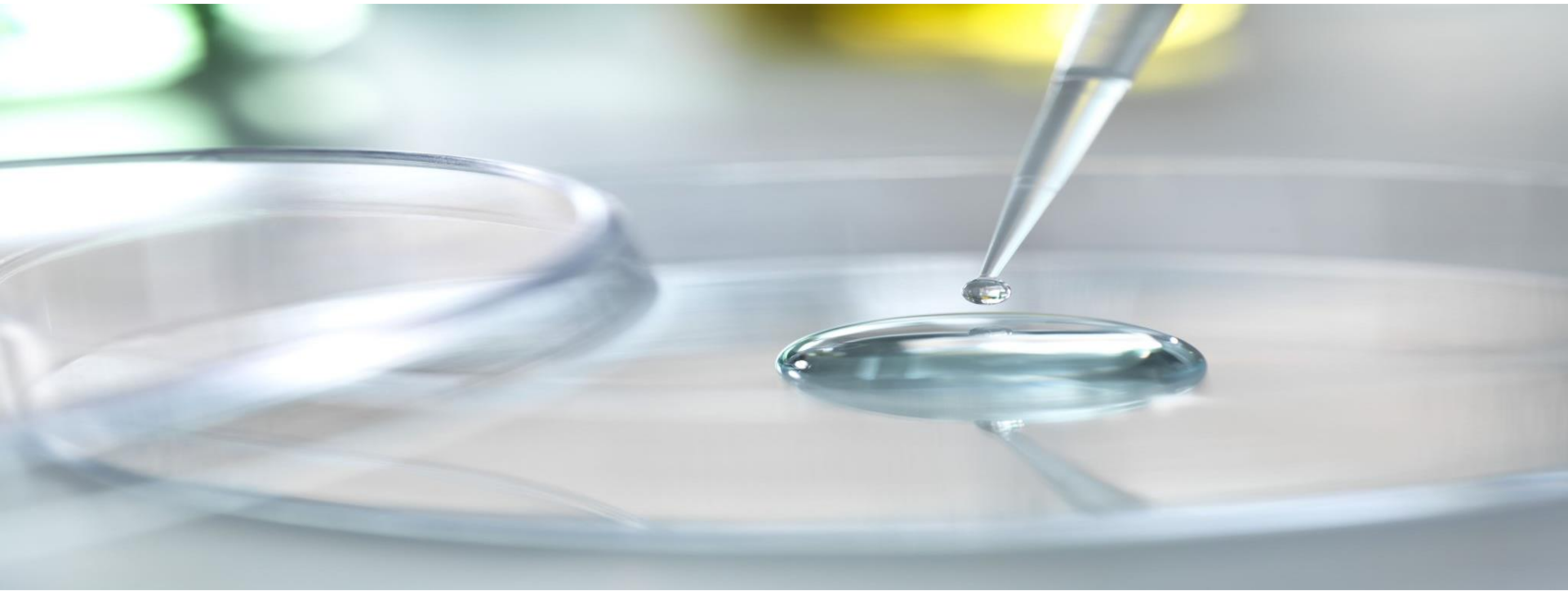
Global Healthcare Outlook 2023

BlackRock



As we anticipate continued equity market volatility driven by persistent inflation, geopolitical uncertainty and a looming global recession, the healthcare sector may provide a compelling opportunity coupling defensive, resilient characteristics with innovation-driven seeking growth.

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BlackRock Health Sciences
$30 billion AUM
8 investment professionals
6 scientific degrees

As of December 2022

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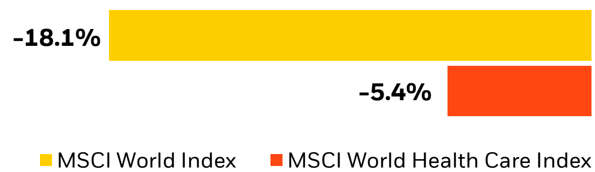
Playing defense amid volatility

Following a challenging year where both equity and fixed income markets delivered negative returns, we brace for continued volatility as inflationary pressures and geopolitical and macroeconomic uncertainty persist. The healthcare sector has historically demonstrated relative resilience during equity market declines due to the inelasticity of demand for many healthcare products and services. This resilience was evidenced during the equity downturn last year. Healthcare equites significantly outperformed broad equity markets and exhibited 23% less volatility[1].

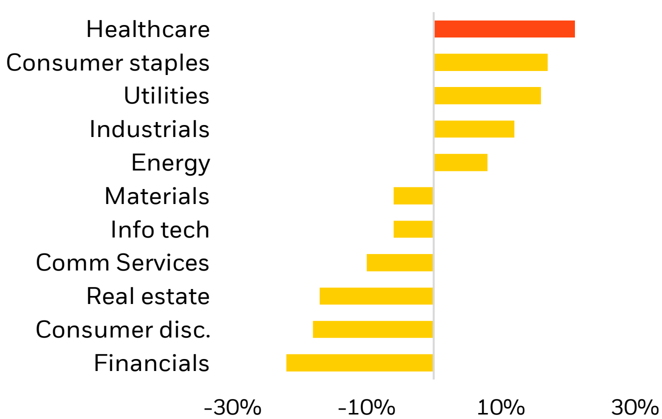
2022 Performance[2]
(as of 12.31)



Indexes are unmanaged and one cannot invest directly in an index. **Past performance does not guarantee future returns.**

As we contend with a potential global recession, many segments of the healthcare sector may offer defensive benefits. In fact, over the last 7 recessionary periods, the healthcare sector has outperformed broad markets by an average of 10%[3]. Additionally, healthcare has historically delivered above-average earnings growth in recent recessionary environments. Over the last 6 recessionary periods, healthcare earnings on average grew 21%.

Healthcare Earnings in Recessions[4]
Relative change in earnings during recessionary periods 1980-2020



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[1] Morningstar Direct, December 2022
[2] Source: MSCI World Health Care Index Returns, Factset, BlackRock 2022
[3] Sector Business Cycle Analysis, SPDR Americas, 2019
[4] Source: BlackRock Fundamental Equities, with data from Refinitiv 2022
[5] Source, Factset, 2022.

This structural demand similarly helps insulate the sector from inflationary pressures. Long-term secular tailwinds, including an aging global population, further support demand in the long run regardless of the economic environment.

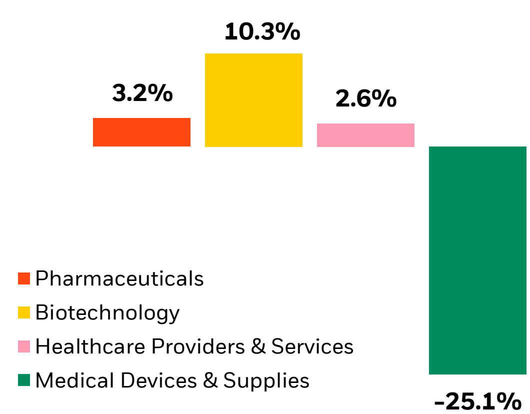
Not all healthcare is the same

The healthcare equity investment landscape is complex and diverse, ranging from emerging biotechnology companies to large, established healthcare conglomerates.

While the majority of the healthcare sector can be relied upon for its relative resiliency, there are certain segments of the healthcare industry that have been more economically sensitive. Consumer healthcare companies, for example, were more susceptible in declining markets due to deteriorating demand for non-essential products and procedures.

Medical device companies were sensitive to a confluence of macroeconomic pressures last year including supply chain disruptions and inflation. Biotechnology was a positive performer for the year, yet returns within the industry were quite variable. Some early stage biotechnology companies were vulnerable to rising rates, while other companies' positive clinical developments fueled positive momentum irrespective of the macroeconomic headwinds.

2022 Dispersion of Healthcare Returns[5]
(MSCI World Healthcare Index returns as of 12.31)



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Given the dispersion of returns not only across sub-sectors, but within each sub-sector, diversification is critical to seeking to provide potentially superior risk-adjusted returns

Diversification does not assure a profit and may not protect against loss of principal.

Pivoting from the pandemic

The healthcare industry's rapid response to the COVID-19 pandemic was revolutionary. The scientific strides made in a few years had a profound societal impact as the transmissibility and severity of the virus was significantly mitigated. As the acute threats of the pandemic abate, the healthcare industry seeks new applications leveraging recent innovations.

mRNA vaccines have effectively prevented the spread and reduced the severity of COVID-19's evolving variants[1]. With over 13 billion COVID-19 vaccine doses administered globally[2] the demand for subsequent COVID vaccine boosters has waned.

We expect revenues from COVID vaccines to continue to decline over the next few years, but we see compelling investment opportunities for new applications of mRNA technologies.

Pharmaceutical companies such as Roche are exploring mRNA technologies to treat diseases ranging from Alzheimer's to Parkinson's. Elsewhere, scientists at Moderna and Pfizer are researching oncological applications, including the treatment of pancreatic cancer, colorectal cancer and melanoma.

In a recent melanoma clinical breakthrough, Moderna's mRNA vaccine, in combination with Merck's Keytruda immunotherapy drug, was found to reduce cancer recurrence or death by 44% as compared to a treatment of Keytruda alone[4]. Additionally, evidence suggests that the treatment's utilization may extend beyond skin cancer to potentially treat other types of highly mutated cancers, including lung cancer.

[1] Source: CDC, March 2022

[2] Source: ourworldindata.org, December 2022

We continue to monitor clinical milestones, including the results of phase 3 trials anticipated in the new year.

While these innovations are positive developments, there are lingering effects of the pandemic that continue to challenge certain segments of the healthcare industry.

Labor shortages

Healthcare staffing shortages, due in part to an uptick in early retirement following the stresses of the COVID-19 pandemic, have put a strain on hospitals and other health providers. Skilled medical professionals are necessary to carry out a large volume of medical and surgical procedures. Hospitals' margins have been pressured due to the higher costs of contracted medical staff that have been relied upon in replacement.

1 in 5 healthcare workers in the US have left their jobs since 2020.
2 out of 3 of those who have quit decided to leave the industry entirely.[3]

Staffing issues have also had a detrimental impact on medical devices and supplies companies. The declining number of medical professionals available to use medical devices for elective procedures and surgeries has resulted in decreased demand for certain products.

These headwinds have brought long-lasting operational deficiencies into focus. Faced with new constraints, there is now greater urgency for the industry to leverage technology to streamline processes, manage costs and enhance patient care.

Although it is our view that labor shortages have peaked and should alleviate in the next several years, we continue to explore investment opportunities as healthcare providers innovate to achieve greater efficiency.

[3] Source: Definitive Healthcare, 2022

[4] Source: Reuters, December 2022

Med Tech outlook

Despite the labor and supply chain headwinds medical device companies have faced recently, the industry has continued to innovate and fuel attractive opportunities for potential growth.

Diabetes is a common affliction impacting 37 million Americans, or 11% of the adult population[1]. Continuous glucose monitors enable patients to manage their diabetes via real-time glucose data feedback without having to endure painful finger pricks. Medical device company Dexcom has developed a new G7 disposable sensor that is 60% smaller than predecessor models. The device, pending FDA approval, has also demonstrated improved efficacy as compared earlier versions. Additionally, the company obtained FDA approval last year to pair its diabetes data with third party fitness trackers enabling blood sugar data to be displayed on smart watches[2].

Technological advances in minimally invasive procedures continue to enhance patient outcomes and present attractive investment opportunities. The technology enables smaller incisions and more rapid patient recovery times for neurosurgery, cancer surgery, endovascular and gynecologic surgery, among others. We anticipate this market to grow over time.

The minimally invasive surgical market size was valued at $48bn in 2021 and is forecasted to grow at a rate of 8% annually, reaching $76bn by 2027[3]

Forecasts are based on estimates and assumptions. There is no guarantee that they will be achieved.

Robotic assisted surgery volumes have encouragingly recovered to pre-COVID levels. Intuitive Surgical, well known for its da Vinci robotics platform, continues to innovate with new integrated systems and single port capabilities designed to reduce procedural variability and enhance patient care.

[1]Source: Diabetes.org
[2]Source: Dexcom Investor Relations Website December 2022
[3]Source: Research Reports World: G lobal Minimally Invasive Surgery Market Research Report 2023, December 2022.

Elsewhere, Penumbra has developed a physical therapy application using a full body virtual reality system. Their Y-Series technology guides patients through muscle and cognition strengthening activities using a virtual reality headset and connected body sensors.

The pioneering technology is designed for both physical and occupational therapy to help improve range of motion, posture, balance and cognitive stimulation[4].

Although these innovative developments present attractive investment opportunities, we expect certain segments of the med tech industry to remain challenged in the short-term. The recovery of medical procedure volumes has been variable. Some procedures, such as spinal surgeries, have been slow to recover and have impeded demand for certain medical devices.

Additionally, inflationary pressures and component shortages will pressure some companies' margins through the first half of the year. We therefore favor companies with strong product pipelines and favorable earnings growth prospects.

Alzheimers' developments

The search for Alzheimer's' treatments has been a challenging one with numerous clinical setbacks over the past 20 years. Still, an effective therapy is needed to treat the estimated 55 million people worldwide affected by the disease[5].

[4]Source: Med Tech Dive Publication, November 2022.
[5]Source: World Health Organization, September 2022.

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Biogen and Eisai's lecanemab, a new antibody treatment that seeks to remove damage-acerating amyloid from the brain, may offer hope. The drug slowed the rate of cognitive decline by 27% in a phase 3 study of nearly 1,800 people in the early stages of Alzheimers'. The FDA's decision regarding an accelerated approval for the treatment is expected early in the new year. While the clinical data is promising, there are questions regarding lecanemab's side effects and whether they outweigh the potential benefits.

Along with lecanemab, other high-profile anti-amyloid drugs are simultaneously in clinical trials, including Lily's donanemab.

An aging global population will amplify demand for Alzheimers' treatments for many years to come. We continue to assess the business opportunity associated with these treatments while considering the risk of potential clinical setbacks.

M&A considerations

We anticipate 2023 to be a key year for certain patent expirations. Biotechnology company AbbVie, for instance, is expected to lose market exclusivity for its best-selling anti-inflammatory drug, Humira. Similarly, Januvia, a diabetes drug produced by Merck, is also expected to lose market exclusivity in the US. Although peak patent expiries are not expected for another few years, the threat of future declining revenues may prompt an increase in M&A activity as drugmakers seek to diversify their portfolios.

We have observed notable acquisitions recently. In December, biotechnology company Amgen agreed to acquire Irish drugmaker Horizon Therapeutics for $27.8 billion, the largest healthcare acquisition of the year. Johnson & Johnson announced plans to acquire medical technology company Abiomed for $16.6 billion, expanding its cardiovascular business. Separately, pharmaceutical company Merck announced the $1.4 billion acquisition of Imago Biosciences to bolster its oncology capabilities.

We continue to monitor M&A activity and the associated impacts on companies' pipelines and product portfolios.

Clarity on the policy front

With the passage of drug pricing reforms included in the Inflation Reduction Act, there is now greater clarity following years of speculation. The legislation, passed in August, included key healthcare provisions that pave the way for future policy expectations.

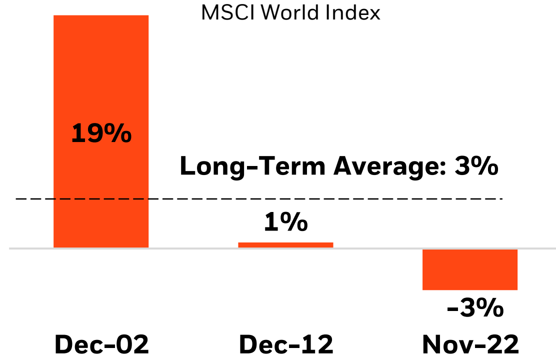
Overall, we believe the potential impact of the drug reforms will be mixed for the pharmaceutical industry. On the positive side, patient out-of-pocket expenses will be capped, enhancing affordability for certain medications, such as diabetes drugs, that may result in increased sales volumes. Conversely, other drugs covered under Medicare may be negatively affected as they become eligible for price negotiation beginning in 2026. These negotiations could result pricing discounts ranging from 25 to 60%, depending on the time since launch. We continue to monitor these developments, headline risks and the associated effects on the companies in which we invest.

Attractive entry points

Valuations today for the healthcare sector remain attractive and below the long-run average, with FY1 P/E ratios currently at a 3% discount to broad global equity markets. Within the healthcare sector, we see particularly compelling valuations among large biotechnology and pharmaceutical companies. These valuations are additionally attractive relative to other defensive equity sectors that have rallied following the recent growth-to-value rotation.

Healthcare Relative Valuations

Avg FY1 P/E Prem/Disc. MSCI World Health Care Index vs. MSCI World Index



Source: BlackRock, November 2022

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Conclusion

We are encouraged by healthcare's demonstrated relative resilience amid a historically volatile macroeconomic backdrop. Healthcare offers distinctive defensive characteristics and potential diversification[1] benefits given the sector's limited reliance on external macroeconomic forces.

Importantly, healthcare offers equally compelling opportunities for potential growth. Fueled by continuous scientific innovation, the industry presents a unique, complex and everchanging investment opportunity set. Given the technical nature of the healthcare industry, having a deep understanding of the science behind each company is key in developing distinguished fundamental insights.

In the long-term, the secular growth drivers supporting healthcare demand remain. The number of persons aged 80 years or over is projected to triple, from 143 million in 2019 to 426 million in 2050[2]. These changing demographics provide potential for long-term secular demand and growth for healthcare products and services for decades to come.

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[1] Diversification may not full protect you from market risk and does not assure a profit and may not protect against loss of principal.
[2] Source: Our World In Data, 2022

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