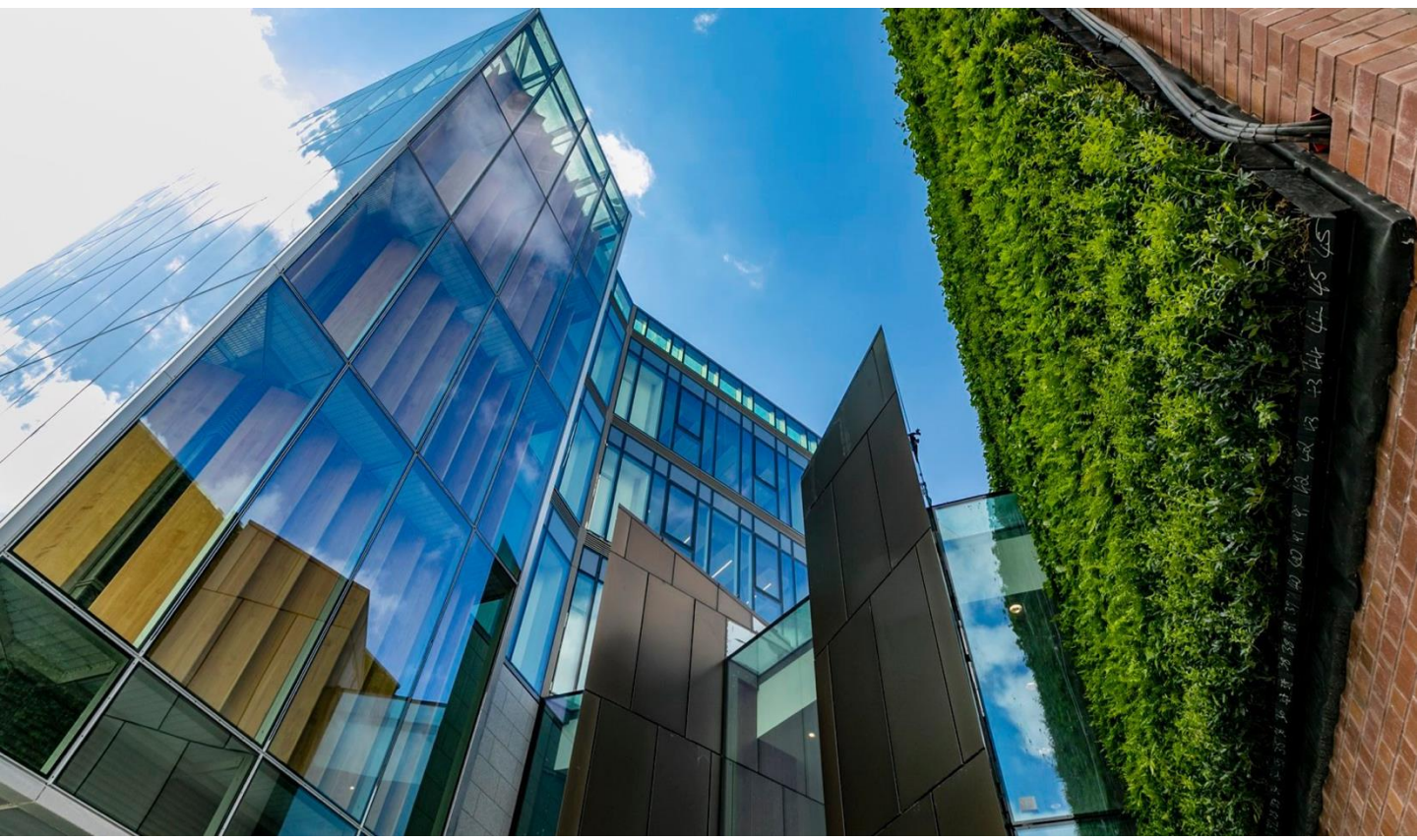
Trinity Student Managed Fund
Sector Reports

Non-Pharmaceuticals

September 2024



TRINITY SMF
STUDENT MANAGED FUND

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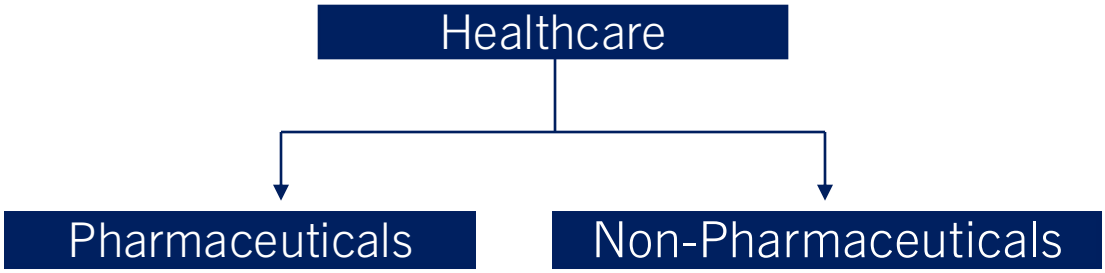
Sector Overview

Sector Description

The healthcare industry can be broken up into two sectors, pharmaceutical and non-pharmaceutical. This report will focus specifically on non-pharmaceutical sector and aims to provide a comprehensive overview of relevant details. Please note that due to their inherently interconnected nature, there may often be overlap.



The non-pharmaceutical sector is a multi-faceted sector largely composed of medical technology (medtech), biological technology (biotech), and health insurance companies. There are thousands of non-pharmaceutical companies around the world dedicated to designing, manufacturing, and improving products, as well as offering services that help patients achieve a better quality of life. Like the pharmaceutical sector, the non-pharmaceutical is widely regarded as non-cyclical in nature. This is due to an inelastic demand for healthcare products and services. Unlike many other sectors, the consistent need for healthcare makes the industry resilient during economic recessions.

The industry's global importance is evident as healthcare spending made up an average of 9.2% of GDP in OECD (Organisation for Economic Cooperation and Development) countries in 2022. The OECD is an international forum with 38 member countries, the vast majority of which are the world's leading economies. Notable outliers in healthcare spending include the United States, and Germany with significantly above average spending, totaling 16.6%, and 12.7% respectively. Comparatively, Indonesia and India spend 3.4%, and 2.9% respectively (although both India and Indonesia are OECD partners not members). The fact that the healthcare industry alone makes up almost a tenth of GDP in leading economies speaks volumes to it's global, political and economic importance.

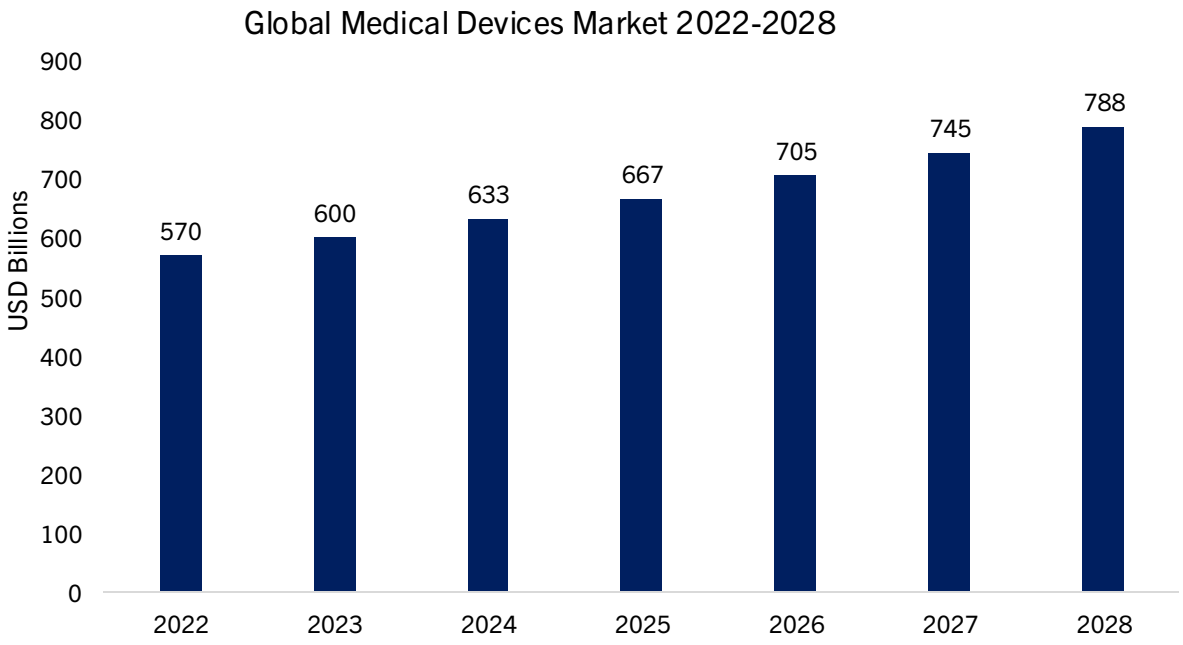
The significance of the industry is reinforced with the World Health Organisation reporting a global life expectancy rise of 6 and a half years since 2000 (from 66.8 to 73.33), and the fact that an all time high of 18% of the U.S. population is older than 65, as per Morgan Stanley. Considering these factors, and dozens of others that will be detailed in this report, the non-pharmaceutical sector's demographic is undoubtedly shifting in a favorable manner and encouraging both growth and change across the industry.

Sub-Sectors

Medical Technology

Medical technology companies cater their services toward patient care and provide equipment, devices, machines, software and other tools for medical facilities. They assist in nearly every step of the healthcare experience including preventative measures, diagnosis, monitoring, treatment and care. Medical equipment is generally known for it's longevity, with Radiology and Oncology Systems reporting that the average age of MRI systems and CT scanners that were removed in 2022 were 14 years and 12 years respectively. Since these industrial-grade systems are either bought and held for decades or leased for a period of three to five years, medical devices have infrequent but simultaneously inelastic demand. Due to the enduring lifespan of these products, the Advanced Medical Technology Association reported that medical device spending only made up about 5% of healthcare spending in the U.S. Obviously, medical technology also includes other types of tools and equipment, but generally current changes within the medical device market are driving MedTech growth.

In the coming years, the current model surrounding medical devices will likely change as the digitalization, specifically relating to AI integration, of these machines will become more prevalent. This means machines will frequently require software updates, with companies like GE Healthcare already researching and beginning to integrate AI within their MRI machines. While AI's current focus is primarily on reconstructing images from MRI, CT Scans, and X-rays allowing for lower radiation doses and clearer images, the next step is AI analysis, already evident as Google's Med-PaLM2 scored an 85% on the U.S. Medical Licensing Exam.

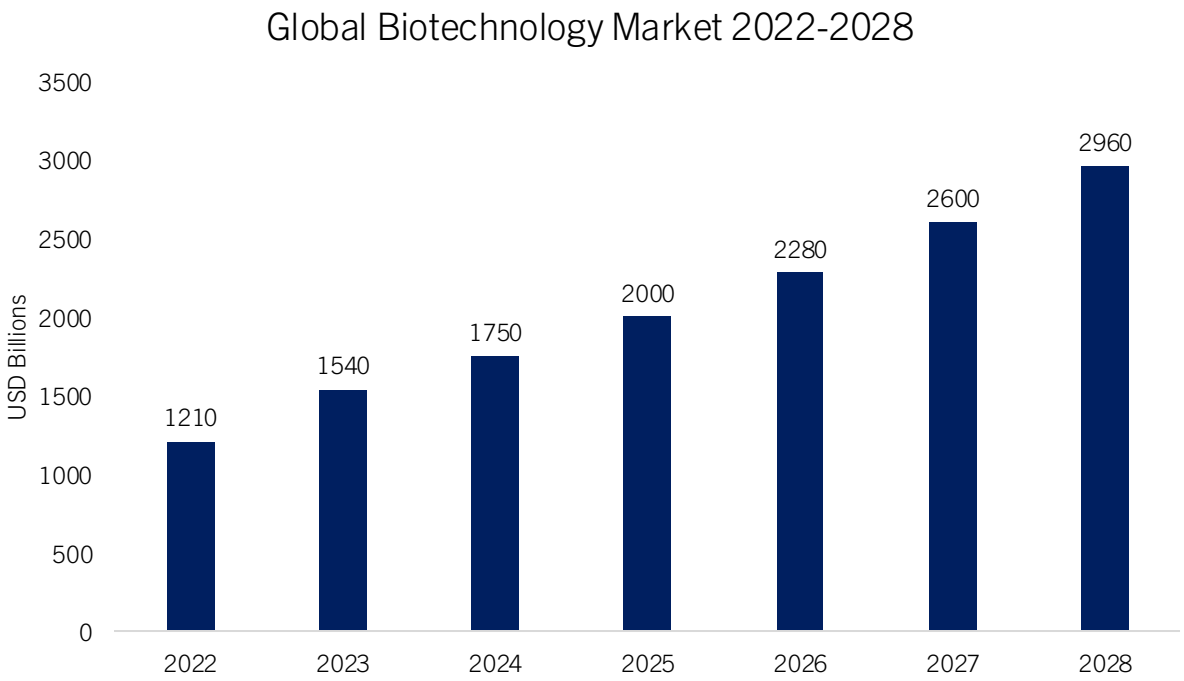


Sub-Sectors

Biotechnology

Biological technology primarily biological systems to develop, create and modify products. The origins of modern-day biotechnology are found with genetic engineering advances in the 1970s. Today, biotechnology is the driver behind gene therapies, agricultural biotechnology, and vaccine development, as well as dozens of other technological advancements. With biotechnology developing rapidly in the past several decades, a distinction has been formed between biological pharmaceutical companies and biological technology companies. While all biopharma companies are also biotechnology companies, not all biotechnology companies are biopharma companies. The companies that develop vaccines and other drugs would generally be considered biopharmaceutical companies, whereas biotechnology obviously covers a vast array of products and innovations.

The notable difference and reason for the biopharma distinction is that pharmaceutical companies generally develop their products utilising a chemical base, whereas biotech companies interact, research, and modify living organisms to generate their products. Additionally, Biotechnology's emphasis on genetic editing, industrial and agricultural improvements and research on living organisms all contribute to a massive presence within the non-pharmaceutical sector. Please note that this report will focus on non-pharma biotechnology, for more information on biopharma, please see the Trinity Student Managed Fund's Pharmaceuticals' Sector Report



Sub-Sectors

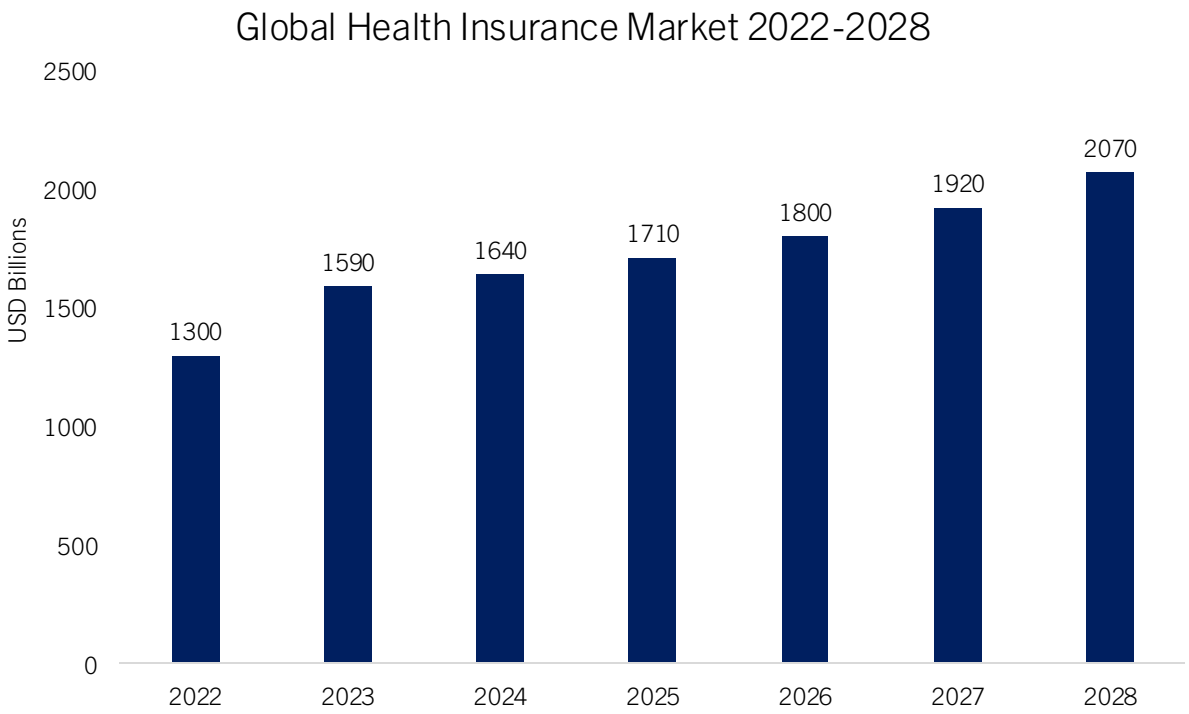
Healthcare Providers and Services

This sub-sector is quite diverse but can be summarized as healthcare distributors, systems and managed healthcare companies.

Healthcare distributors are responsible for obtaining, storing and distributing medical supplies and other products. These companies, such as McKesson Corporation and Medline Industries, ensure that relevant healthcare facilities have and will have the equipment, pharmaceuticals, and resources they need in an efficient, timely manner.

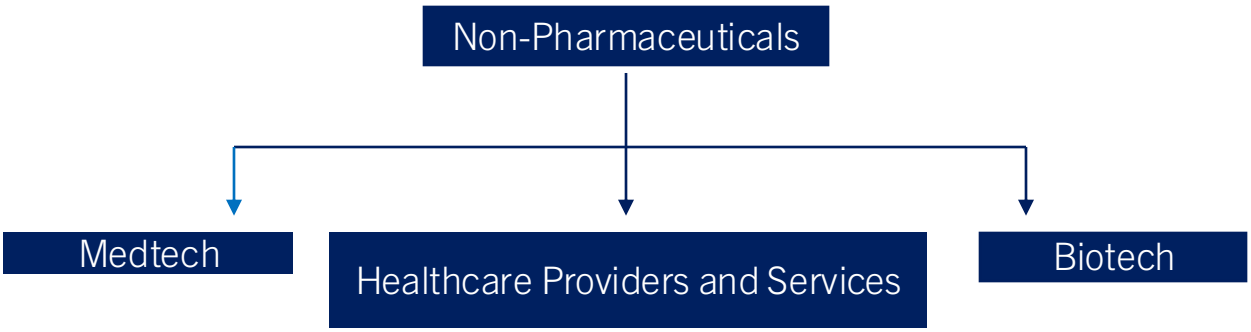
Healthcare systems are best defined as an organisation that utilises institutions, health practitioners, and other resources to improve health for a population (definitive healthcare). While this includes your general hospitals, doctors and nurses, it also includes nursing homes, rehabilitative centers, and dentists. Some of the best known healthcare systems include HCA Healthcare, Universal Health Services, and the U.S. Department of Veteran Affairs.

Managed healthcare companies are generally healthcare insurance companies that form contracts with patients to provide them with better financial access to hospitals, doctors, equipment, medications and other products or services depending on their needs. In the U.S., this market is dominated Healthcare's "Big Five", the five biggest for-profit commercial health insurers. They are United Health Group, Centene, CVS Health/Aetna, Elevance Health, and Molina Healthcare.



Sub-Sectors Overview

Summary – Breakdown and Examples



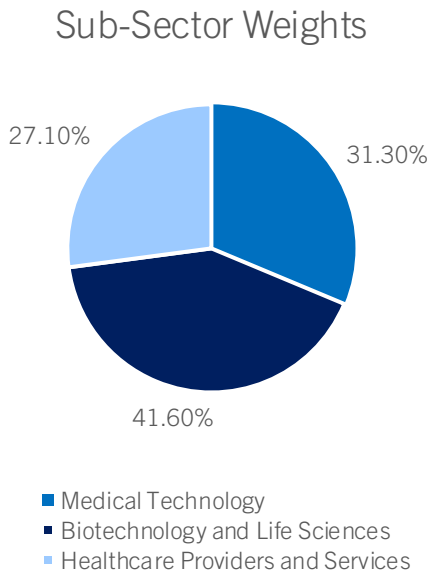
While the differences between these sub-sectors, especially Medtech and Biotech, are often nuanced, understanding their unique features and their interconnected nature is essential. Biotechnology can be used to modify a cell, observed by a microscope, a type of medical technology, that comes from a human insured by a healthcare provider. However, each sub-sector's market, supply chain, operations and products are vastly different from that of another.

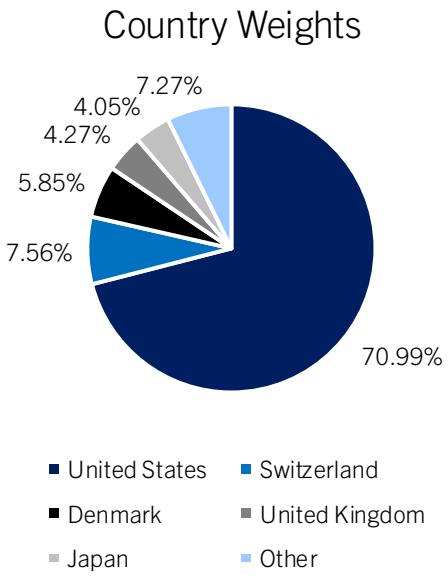
The table below provides a summary of each sub-sector to further clarify their purposes and differences.

	Medtech	Biotech	Healthcare Providers and Services
Where is it used?	- Hospitals - Clinics - specialized medical practices	- Laboratories - Pharmacies - Clinics - Agriculture	- Insurance providers - Care homes - Rehabilitative facilities
Types of Technology	- MRIs - Thermometers - Scissors	- CRISPR - GMOs - mRNA vaccines	- Telehealth - Analytics - Databases
Purpose	- Patient Care - Detection, Diagnosis, and Treatment	- Harness biology to improve lives and the planet	- Improve access to medical care - Specialised care

Sector Overview

Current Climate



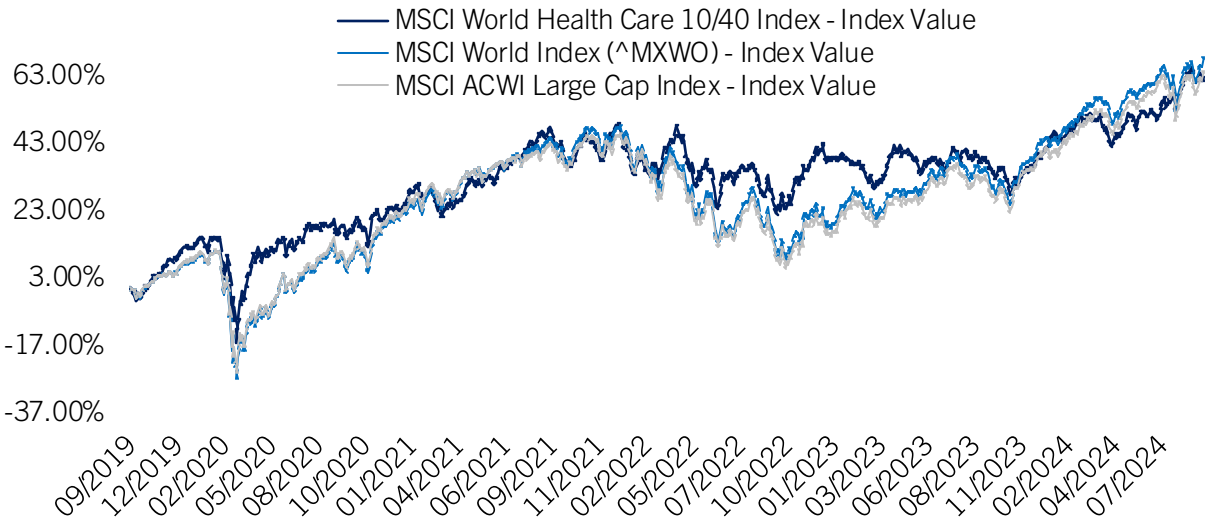


While each of the sub-sectors have uniquely important roles within the sector, it is not surprising that biotechnology (along with life sciences) occupies a commanding 41.6% of the non-pharmaceutical industry. Biotechnology's massive emphasis on R&D has fostered innovative biopharma developments and has allowed the sub-sector to take full advantage of recent technological advancements like AI. The medical technology sub-sector's 31.3% weight will undoubtedly shift as present advancements in medical devices will likely change the supply and demand of medical technology thus altering the current long-term buy or lease model. Healthcare providers and services 27.1% share is relatively stable as insurance is necessitated by population, however, our outlook on population shifts and how they affect insurance is discussed more in our investment themes section.

Geographically, the United States overwhelmingly dominates the entire healthcare industry, commanding nearly 80% of the market. The United States' private healthcare system is unlike any in the world, and the market's private nature encourages unparalleled competition and high levels of investment. Interestingly, the country with the second largest healthcare system, Switzerland (7.56%), has a private healthcare system as well. Conversely, Denmark, the U.K., and Japan all have largely public healthcare systems and occupy 5.85%, 4.27%, and 4.05% of the global healthcare market, respectively. Understanding healthcare within a global context is essential as 5% geographically still amounts to hundreds of billions of dollars. Yet, when this is considered, the U.S. healthcare system's $4.5 trillion value becomes evermore astounding.

Sector Overview

MSCI World Healthcare Index



The MSCI World Healthcare Index is one of the most respected and utilised healthcare tools throughout the world and is used to measure the global healthcare market. Encompassing 23 developed markets and 135 constituents, the index is both a useful tool and valuable benchmark. The top 3 constituents at the time of this report are Eli Lilly, United Health Group and Novo Nordisk. In fact, Novo Nordisk, the innovative pharmaceutical company that brought the world Ozempic, is currently Europe's largest company by market capitalization.

Year-to-date (YTD) the World Healthcare Index is up 11.88% still trailing behind the 14.03% and 13.41% benchmark of the MSCI World and ACWI Indices (respectively). This is not surprising with the healthcare sectors defensive nature with a relatively stable and inelastic demand for products. However, defensive sectors have historically outperformed growth sectors in recessions and other times of economic uncertainty. Since the creation of the index in 1994, that defensive nature and other factors have allowed the MSCI World Healthcare Index to outperform the MSCI World and ACWI Indices (10.95% gross returns to 8.5% and 8.17% respectively).

It is worth noting that 9 of the top 10 constituents in the MSCI World Healthcare index are technically pharmaceutical companies, however each of those 9 companies also having large biotechnology departments or are solely focused on developing biotechnology (biotechnology including biopharmaceuticals). In fact, the MSCI index has non-pharmaceutical sub-sectors making up the majority of the healthcare market (58%), while pharmaceuticals make up only around 42%.

Sector Overview

KPI's

Established presence in the operating room

An established presence in the operating room is a crucial success factor for med-tech companies. Reliability, consistency, and trust are essential when hospitals choose equipment for their operating rooms, making it easier for established, large market-cap producers to thrive. For example, Boston Scientific, with over 13,000 biotechnology products, has a global presence, with their products commonly found in hospitals worldwide. Once a company has secured a strong presence in the operating room, it becomes difficult for their products to be substituted, further solidifying their market position

Operating Room Capacity

As we emerge from the COVID-19 pandemic and healthcare systems around the world continue to recover, the importance of operating room capacity has never been more pronounced. During the pandemic, operating room capacity fell by roughly 17% compared to pre-pandemic levels, with many people delaying elective surgeries. This led to a significant backlog in healthcare systems globally. As a result, hospitals and suppliers experienced a drastic decrease in revenue due to the reduction in surgical procedures. However, as the effects of the pandemic gradually lessen, hospitals are beginning to clear the backlog that has accumulated. Non-pharmaceutical companies are well-positioned to be key beneficiaries in the post-pandemic healthcare landscape, providing the necessary equipment to help address these backlogs and meet the pent-up demand.

Average cost of service

This performance indicator shows the average amount a hospital charges for treatment. This indicator best gauges the change in costs across the industry as the prices that customers pay will likely reflect the increase or decrease in costs within hospitals and health centers alike. An Increase in average treatment charges will likely result in better revenue for healthcare suppliers.

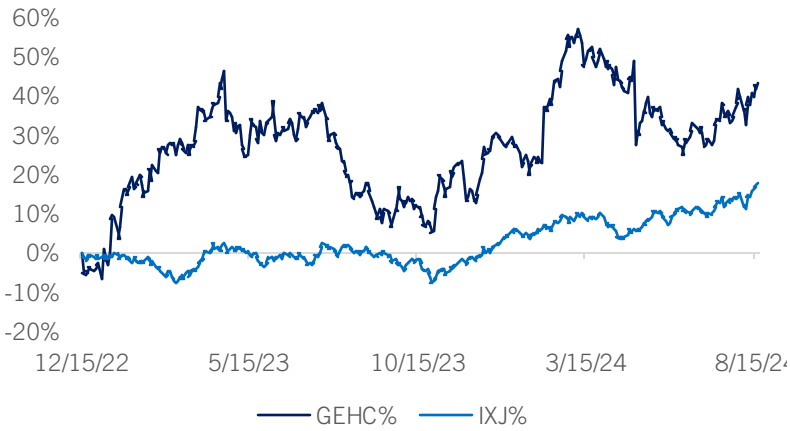
Claims denial rates

Most healthcare costs are typically paid by insurance providers. However, there are plenty of instances where the provider sees reasons not to pay. Typically, insurance institutions should be looking for a claims denial rate below five percent. A low claims denial rate means that the organisation has more time to focus on patient care while spending less time on paperwork, ultimately benefitting the insurance brokers.

Current Holdings

GE Healthcare (NASDAQ:GEHC) Sentiment: Hold

GE HealthCare Technologies, Inc is an American multinational medical technology company headquartered in Chicago, Illinois, spun-off from General Electric in January 2023. The company develops, manufactures, and markets a portfolio of products, services, and digital solutions. Their portfolio includes imaging, ultrasound, patient care and diagnostic solutions.



After a successful year within the SMF portfolio, GE Healthcare has continued from strength to strength. Their recent spin-off has allowed for the company to streamline their operations, allowing for them to effectively create more value. This allows for GE Healthcare to see organic growth through innovation, which is already showing to be true, as their revenue has increased 14% YoY from 2Q 24

AI & Precision Medicine

GE Healthcare is positioned to benefit greatly from the recent developments in artificial intelligence and precision medicine. Strides in these fields will allow GE Healthcare to treat unique illnesses in patients correctly. They have committed over $1bn to R&D in 2023 alone and will benefit greatly from the resurgence in healthcare spending post-pandemic.

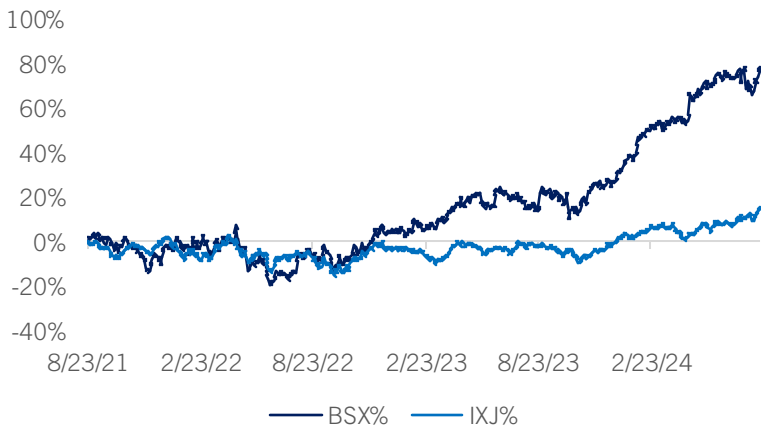
Revolutionary Alzheimer's treatments

GE Healthcare's imaging division is expected to grow immensely in the coming years thanks to GE HealthCare's diagnostic amyloid PET agent. This can be used to determine eligibility for recently approved Alzheimer's disease treatment therapies. As many more Alzheimer's drugs reach the market, such as Leqembi and Donanemab, demand for GE Healthcare's imaging technology will skyrocket.

Current Holdings

Boston Scientific (NYSE:BSX) Sentiment: Hold

Boston Scientific Corporation is an American medical device company headquartered in Marlborough, Massachusetts. The company designs, manufactures, and markets a broad range of medical devices used in various medical fields such as cardiology, urology, and endoscopy. Their portfolio includes stents, catheters, and pacemakers, which are used in medical procedures worldwide.



Boston Scientific is one of the leading medical device companies with a presence all over the globe. In FY23, Boston Scientific recorded 59.2% of their revenue in the US, with Europe, the Middle East and Africa (EMEA) accounting for 20.1% of revenue, Asia Pacific (APAC) capturing 16.9% and Latin America and Canada (LACA) 3.8%. Although the US is clearly dominant, sales in FY23 grew 10.4% in EMEA, 19.1% in APAC and 16.9% in LACA.

Growth through expansion and development

Boston Scientific is currently poised to sustain growth through continued global expansion and innovative developments. Their commitment to expansion and development is integral to their success. 35% of their revenue in FY23 came from products launched in the past 3 years. In FY23, Boston Scientific launched 90 new products while also committing $1.4bn to research and development.

Post-Pandemic performance

Boston Scientific are well-positioned to capitalize in the uptake in elective surgeries which is taking place after the COVID-19 pandemic. The pandemic saw operating room capacity fall while many were hesitant to undergo elective surgeries. The massive wait times and backlog of patience is finally decreasing, making Boston Scientific a key beneficiary of the post-pandemic world.

Buy List

Medtronic (NYSE:MDT)

MDT 12 Month Price Predictions

Avg. Price Prediction - $93

High Price Prediction - $106

Low Price Prediction - $82

Medtronic has been an underperformer within the sector over the last number of years. Despite being somewhat of a sleepy stock for long-term shareholders, we view the valuation today as being quite attractive. At 15.0x P/E and 12.7x EV/EBITDA, the valuation seems compelling for a company that can likely grow its bottom line over the long run. As a market leader within it's sector, a robust and diversified pipeline, and a steady balance sheet that supports the company's capital allocation plans, Medtronic shares can be rated as a 'buy'.

Company overview and breakdown

Medtronic is a global manufacturer and developer of medical based therapies that are used in hospitals for patients. The company boasts numerous portfolios of products and treatments. These portfolios include the cardiovascular portfolio, the neuroscience portfolio, the medical surgical portfolio, and the diabetes operating unit. The cardiovascular portfolio is responsible for the development of devices such as pacemakers and defibrillators and makes up 37% of company revenues. In the neuroscience segment, Medtronic makes implants to treat conditions like chronic pain or movement disorders and at 29% of revenues, this is the companies second largest segment. The medical segment provides tools for various surgeries and medical procedures, making up 26% of total company sales. Lastly, in the diabetes operating unit, Medtronic creates products for managing diabetes, such as insulin pumps and continuous glucose monitoring systems, accounting for 8% of total revenues.

Investment thesis

Within its highest growth markets of neuromuscular, diabetes, structural heart and surgical robots, the company maintains the top 3 share positions in all of these markets, showcasing its leadership within the sector. In more established markets such as cardiac rhythm management and surgical, cranial and spinal tech, the company boasts number 1 and 2 market positions in markets which are growing 3-4% per year on average, showing potential for strong growth. By spending $2.74 billion a year on R&D Medtronic is continuously at the forefront of developing new projects which serves as an encouraging sign to any investor while also highlighting the importance of the companies robust development pipeline. In terms of profitability, Medtronic has strong gross margins of around 66%. During FY24, Medtronic did $5.2 billion in free cash flow, of which $1.6 billion was spent on share repurchases and $3.7 billion was spent on dividends. This capital allocation can be viewed as very shareholder friendly, given the strong return of capital to investors.

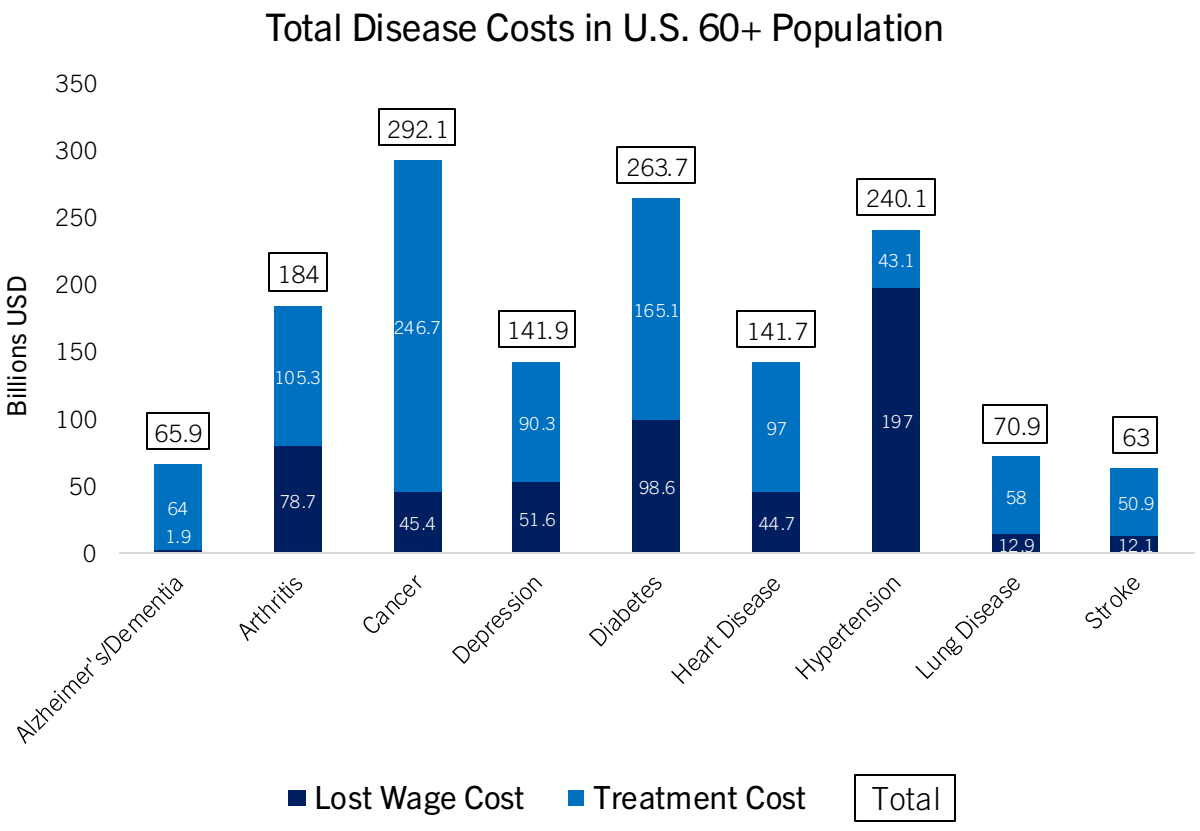
Investment Theme

Ageing Populations

As global population continues to grow a rapid rate, so does the number of ageing and elderly members of society. However, recent studies are showing that this demographic is growing at a disproportionate rate to that of younger generations. The World Health Organization reports that between 2015 and 2060, the percentage of the world over the age of 60 will nearly double from 12% to 22%. Additionally, an all time high of 18% of the U.S. population is over the age of 65 as per a recent Morgan Stanley report.

Unfortunately, in the United States alone, surveys have indicated that almost 95% of people aged 60 and over have at least one chronic condition. These conditions like cancer, diabetes, Alzheimer's, and others force millions of people to pay trillions each year to keep themselves not just healthy, but alive.

With the current and continuous increase in need for medications and treatment for these diseases, consumers are needing health insurance more every year. Additionally, with the prevalence of such diseases, large healthcare companies are realising the value of investing into R&D for improved treatments and medications. Together, both these factors are contributing to a strong outlook on companies that capitalize on the market around these ageing patients. For more information, see outlook



Risks

Digitization Issues and Cybersecurity

Healthcare has never been more interconnected to technology. Whether it be installing and updating software, AI onboarding, the rise of telehealth, or the conversion from paper records to digital, healthcare is now forever linked and dependent on technology. With that fact, comes a newfound importance for digital security and new personnel who are not just nurses and doctors, but MRI mechanics, telehealth coordinators, and software engineers. A 2020 report published by Herjavec Group, a cybersecurity firm, reported that 93% of healthcare organizations had experienced a data breach in the previous 3 years. With approximately 88% of office-based physicians using electronic medical and health records, better security is needed to protect the privacy of millions of patients. These breaches are not only damaging to patient livelihoods, but also have the capacity to severely cripple healthcare institutions. One attack shutting down a telehealth site could prevent doctors from communicating with patients, block prescriptions from being filled, and erase essential health records.

Litigation

As the non-pharmaceutical sector continues to develop, companies are working to seamlessly adapt around global innovations. Unfortunately, flaws in these companies and their transitions are also being revealed, leading to lawsuits within the healthcare. For example, in 2023, three separate lawsuits were filed against health insurance companies along the east coast of the United States, concerning those insurers breach of good faith due their usage of Artificial Intelligence tools [28]. The annual cost of healthcare litigation in the U.S. amounts to an astounding $55.6 billion.

Struggles Actualizing R&D

Last year, U.S. healthcare spending rose 7.5% to 4.8 trillion beating the country's 6.2% GDP growth. Eli Lilly and Novo Nordisk's stocks have risen 73% and 47.7% respectively in the past year. This unprecedented growth has led to massive public expectations for healthcare sector growth. Unfortunately, healthcare research often takes decades meaning that such growth may be difficult. However, with extensive research into CRISPR, RNA, GLP-1 and other areas within the biotech industry, there is certainly still great potential.

Perhaps the largest risk companies face this year is not delivering on abnormally high expectations from already excited shareholders. Research has and is being done, but converting R&D into actual drugs, products, equipment, and tools is no small process. The average drug has a less than 10% rate of getting FDA approval after starting from clinical trials. While closer to 20% of gene therapies get FDA approval from Phase 1, this still means the vast majority of time and money spent developing these therapies and pharmaceuticals lead to no revenue.

Risks

Political Risks

Unlike many other sectors, non-pharmaceuticals can be seen as a safe-haven during periods of uncertainty. 2024, a year marked by numerous elections and significant political uncertainty, presents a challenging environment for markets. The heightened volatility and unpredictable outcomes associated with election cycles often lead investors to seek refuge in more stable, less cyclical sectors. Non-pharma, with its acyclic nature, stands out as a particularly defensive option in such times. By providing a stable option to investors during what is likely to be an unpredictable year for markets, non-pharma offers a safe bet this year specifically.

Historically, government policies have created monumental changes within the healthcare industry and will continue to do so. In 2010, the Affordable Care Act (ACA) created a government healthcare initiative in a largely private market. In 2022, the Inflation Reduction Act (IRA) helped lower the price of prescription drugs across the United States. In May, the European Council released new rules designed to extend the transition period for medical diagnosis devices and integrate a European database of medical devices [33]. While these policies have helped patients, the ACA also led to private insurance companies losing clients, the IRA slashed pharma profits, and the European Council has now forced medical device companies to change their models and integrate a whole new system. Simply put, policies helping patients may often have inverse effects on corporations.

Economic Risks

While politics and economics often go hand in hand, there are many macro-economics factors that are generally of political control. For example, interest and inflation rates both greatly affect non-pharmaceutical companies' ability to pay back loans. These loans act as a source of capital for capital expenditures needed to finance expensive research and trials as detailed in the previous risk page. Jerome Powell, the Chairman of the U.S. Federal Reserve, recently discussed the Fed's plan to alter their policies and hinted at lowering interest rates [34]. Similarly, GDP has a strong influence on healthcare spending as the two are directly linked (see page 3). Other factors like changing socioeconomic development and unemployment may have more indirect, but still tangible effects on the sector as they can lead to changes in inflation, interest rates, GDP, etc. With non-pharmaceuticals making up such large percentages of different economies, economic success often causes or is caused by growth within the healthcare industry and vice versa.

Outlook For The Year

Integration of AI into the sector.

So far this year, the sector has been buoyed by the broader adaption of technology, including that of AI. In the coming year, AI is expected to play a pivotal role in streamlining administration, diagnosis, treatment and patient care. From providing predictive analytics to automatic electronic health records, AI can further enhance the precision and efficiency of healthcare delivery as a shortage of skilled workers and clinicians has driven many healthcare systems to adopt new technologies to help fill the gaps. It is likely that healthcare systems will adapt quickly to AI as a way to personalise patient interactions and treatment while taking pressures off clinicians for routine care and enabling them to focus on procedures that require real human interactions and expertise. It's not just providers who will benefit from AI's increasing presence, as it may help broaden access to care at a lower cost through retail environments, allowing patients to monitor their overall health and exercise patterns with smartphones and watches, increasing the focus on prevention.

AI-powered diagnostic tools are another one of the most promising applications in healthcare. Machine learning algorithms use AI to assist in analysing medical images like X-rays, MRIs, and CT scans with better precision than before. For example, AI has already demonstrated superior accuracy in detecting conditions such as cancers, fractures, and retinal diseases. In radiology and pathology, AI tools are also augmenting the capabilities of human specialists, helping to speed up diagnoses and reduce human error. This will lead to earlier detection of diseases, improve patient outcomes, and hopefully increase the efficiency of healthcare systems.

US$360 billion—annual potential savings from artificial intelligence (AI) for the US health care system over the next five years	1,500—the number of health care AI vendors, half of which have been formed in the past eight years
• Health care generates 19 terabytes of clinical data annually in the US	• Private equity has already acquired more digital health companies in H1 of 2024 than all of 2023.

Outlook for the year

Value based care advances.

As healthcare costs continue to skyrocket, healthcare providers and policymakers are continuing to explore ways to deliver care that focuses on providing value. Value based care is a model of healthcare that seeks to deliver quality care while simultaneously focusing on controlling costs. This approach is rooted in the belief that healthcare should focus on improving the overall health of the population rather than just treating individual illnesses or injuries. Under this model, providers are rewarded for achieving specific outcomes and quality metrics, such as reducing hospital readmissions, improving patient satisfaction, and controlling costs. In a research study conducted by Humana, they found that in 2022 value based care contractual arrangements saved 23.2% in medical costs compared to the alternative arrangements, showcasing the upside potential that VBC offers. Data platforms, crucial to the success of this model are expected to see increased interest, particularly those enhancing data aggregation, interoperability, and predictive capabilities. While many healthcare and healthcare insurance companies have been hampered with this so far, some could be poised to benefit from this long term.

Provider services and tech integration.

As of late, provider services have been experiencing slower growth rates, yet certain areas demonstrating success in risk bearing payment models remain attractive. The integration of technology and contemplation of software as a service (SaaS) models by provider services companies are trends to watch, as they aim to maximize revenue and operational efficiency. A prime example of this is the notable Virgin Pulse and Health Comp deal that took place last year. The merger combined a wellness company with a third party administrator, creating a relationship between employer and customers, with the focus on reducing healthcare costs. Such innovative mergers underscore the evolving landscape in provider services, where technology and strategic partnerships can be something that we will sure to be seeing more of.

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