



APRIL 2024

EXECUTIVE SUMMARY

The field of Genomics is the equivalent of this century's gold rush, and the life science sector is providing the picks and shovels. Ironically, one firm in the industry literally traces its roots back to the California gold rush. VWR started as a chemical company in San Francisco in 1852. It was acquired by Avantor in 2017 and remains at the forefront of the industry as a leading provider of mission-critical lab products and services today.

We view the stock as a backdoor play on surging demand for Artificial Intelligence and GLP-1 weight loss drugs, given end-market exposure to Biopharma/Healthcare (60%) and Semiconductors/Advanced Tech (25%). This "self-help" story provides investors with diversified "picks and shovels" exposure to the secular growth of Life Sciences at a discount.

Life Science Tools and Diagnostics is a wonderful industry, with resilient revenues underpinned by several long-term secular trends. It benefits from sticky relationships with products deeply embedded into customer workflows. It enjoys high switching costs as changing distributors can be both expensive and time-consuming, and it generates predictable, recurring revenues on a fixed-cost base, providing a natural tailwind to margins.

Unfortunately, at least for value investors, those wonderful characteristics are typically reflected in the price. So, before last year, we hadn't spent much time studying the sector. Fortunately for us, sometimes great businesses hit a bump in the road, creating a compelling entry point. This is a classic Broyhill set-up.

After leveraging up for acquisitions under private equity ownership, Avantor went public in 2019, just in time for a venture-backed biotech bonanza. Endless pools of capital, combined with vaccine testing and development, created windfall profits across the industry. At the same time, supply chain constraints prompted customers to overstock inventory, further inflating demand. But after two years of printing money, every one of those trends went into reverse. Supply chains improved, leaving customer inventories bloated while venture funding and biopharma budgets dried up.

As a result, the sector trailed the market by nearly 30% last year as negative earnings revisions drove the worst underperformance in decades. While many value investors argue that the sector never approached trough multiples, we believe that view is misguided. We think the bigger problem is the lack of visibility. These companies grew accustomed to predictable revenues with little economic sensitivity. They were not accustomed to semiconductor-like inventory cycles. That's the advantage of a generalist like Broyhill. We've invested across enough similar setups to know that waiting around for tangible evidence of a recovery is a sure way to miss the recovery.

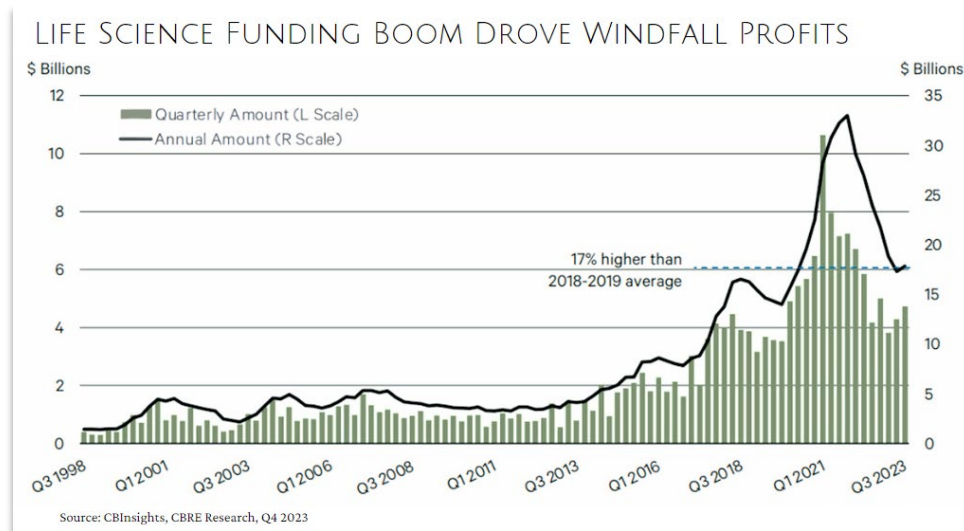
Our thesis boils down to a few key points: We expect orders to bottom in the first half and recover in the second half as comps get easier and inventory destocking runs its course. When orders do inflect, we expect a sharp turn in top-line growth for several quarters as demand snaps back. As destocking runs its course and demand normalizes, increased operating leverage on higher volumes should drive outsized margin gains. Beyond the near-term recovery, we see a long runway of mid-to-high single-digit top-line growth. Combined with 50bps – 100bps of annual margin expansion, we see potential for consistent, long-term double-digit earnings growth. Estimates are still too low in the out years as analysts and management teams are too scared to forecast any recovery. Upside surprises should drive earnings revisions for several quarters, propelling shares higher on the back of an upgrade cycle, likely to match the prior downgrade cycle in both magnitude and duration.

WHY DOES THE OPPORTUNITY EXIST?

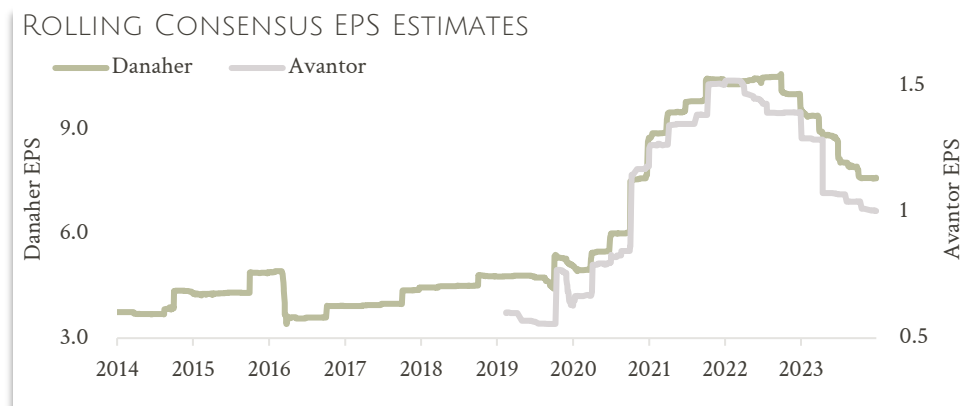
The Life Science Tools and Diagnostics industry benefits from many attractive characteristics. Unfortunately, at least for value investors, those wonderful characteristics are typically reflected in the price. So, prior to last year, we hadn't spent much time studying the space.

Fortunately, sometimes great businesses occasionally hit a bump in the road, creating a “temporary dislocation” and a compelling entry point. **The Tools sector has historically been a resilient and predictable business, underpinned by several long-term secular trends. Those closely held beliefs were shattered during the pandemic.**

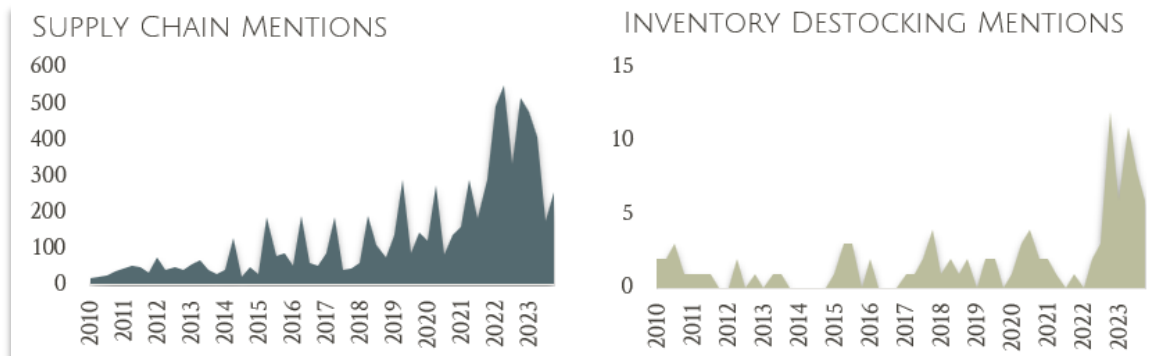
Supply chain constraints initially led to over-ordering to secure necessary inventory, artificially inflating growth rates as customers bought more inventory than needed. Meanwhile, the biotech sector went wild compliments of a surge in funding, further inflating near-term growth rates. The same dynamics – vaccine testing and development, pandemic-related programs, supply chain challenges, and seemingly endless pools of capital - encouraged big pharma to join the party.



The result was a rapid reset in expectations as investors scrambled to raise estimates to keep up with accelerating growth, fueling a rise in valuations to all-time highs as long-term growth estimates marched higher with every earnings report.

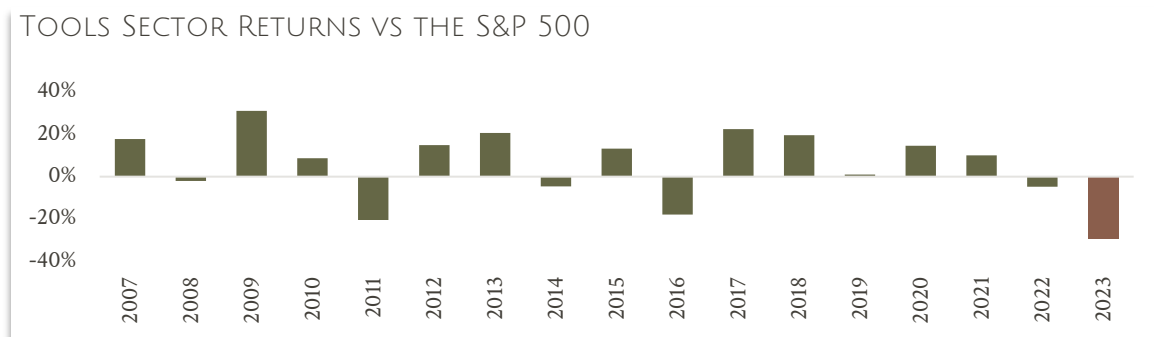


Unfortunately, two years of furious upside surprises were followed by downside surprises of equal magnitude as every one of those trends went into reverse, creating a boom-and-bust cycle unlike anything investors (or management teams) in the sector had ever imagined. The previously unimaginable funding boom, which fueled outsized spending and unsustainable growth evaporated, and biopharma budgets dried up. And as supply chains improved, customers were left flush with inventory.



Source: Bloomberg (A, AVTR, BRKR, DHRM MTD, RVTY, TMO, WAT)

As a result, last year marked the sector's most dramatic underperformance in thirty years. Life Sciences trailed the market by nearly 30% as management teams slashed guidance, driving years of negative earnings revisions and the worst underperformance in decades.



Source: Bloomberg, Goldman Sachs

While many value investors argue that the sector never approached trough multiples, we believe that view was misguided by consensus estimates, which remained far too low. On our numbers, the space looked outright cheap.

We think the bigger problem is visibility or the lack thereof. Both company management teams and investors in the sector grew accustomed to decades of predictable, recurring revenues driven by secular tailwinds with little economic sensitivity. They were not accustomed to semiconductor-like inventory cycles.

Therein lies the advantage of a generalist like Broyhill. While most investors sat around waiting for tangible evidence of a recovery, we began building our position, knowing too well that by the time said recovery became obvious, it would be too late. We have seen this movie before. Avantor is a fitting example of a classic Broyhill set-up with several features of previously successful investments.

BUSINESS DESCRIPTION

Avantor is a global provider of mission-critical lab products and services to several large industries—biopharma, healthcare, academia, advanced technologies, applied materials, and the government—and plays a critical role in the life sciences value chain, connecting fragmented customers and suppliers.

The company's legacy began in 1904 with the J.T. Baker Chemical Company. Eight decades later, Procter & Gamble acquired J.T. Baker and subsequently sold it in 1995 before New Mountain Capital purchased the business from Covidien in 2010. Since then, the company has made a series of acquisitions, capped off by the 2016 purchase of NuSil, a leading supplier of high-purity silicone products, and one year later, the acquisition of VWR, a global manufacturer and distributor of laboratory products. The company returned to the public markets through an IPO in May 2019 with a market capitalization of \$7.6 billion. A former executive provided some helpful context in thinking about how these pieces fit together.

Most of these companies make, manufacture, and sell their own products. Avantor has two main buckets of business. One is the distribution business through VWR. Avantor itself was a relatively low-margin chemical business back in the day, and it bought a larger company, VWR. VWR was one of the older, more established, sizable distribution companies selling other people's products. The other increasingly important bucket for Avantor is a very profitable business, supplying hardware, consumables, and solutions to the people who manufacture biopharmaceuticals. It's an unbelievably lucrative business. What Avantor did very well is they looked at pieces of the value chain - especially the consumables side, a lot of the liquids and buffers and all that good stuff needed in huge quantities when you're manufacturing biopharmaceuticals - and they found a way to be a player there with products sold at profit levels significantly below what Cytiva, Merck, or Thermo Fisher would sell their main products, but at significantly higher profit than what the old Avantor was selling at. So that's a very good part of the Avantor business model that can compete in that space without getting too much of a competitive reaction. - Former Executive Vice President APAC at Avantor



Today, customers rely on Avantor for products and services that are spec'd to their research, development, and production processes. The word "rely" here is not an exaggeration, as noted in conversations with several industry experts.

We have to use them because they are so big. They are the inventors of vendor-managed inventory. You can't avoid them. In biological drug manufacturing, you might use 500 different raw materials, chemicals, consumables, etc. You have to buy from Avantor because they're too big to avoid them. And for certain materials, you can only buy from Avantor. So, you have to use them. - Vice President of Quality Biologics and Steriles at Merck AG

We have been in the industry for a long time. It's human nature to do what you know rather than what you don't. Avantor has such a big presence in production and distribution that we don't deviate . . . it would be very hard for people to go away from Avantor. - Director of Supply Chain & CMC Project Management at Passage Bio

OPERATING SEGMENTS

Avantor's products can be classified into three main groups, along with value-added services and a diversified portfolio of branded private-label and internally manufactured products.

- **Materials & Consumables:** Ultra-high-purity chemicals and reagents, lab products and supplies, highly specialized formulated silicone materials, customized excipients, customized single-use assemblies, process chromatography resins and columns, analytical sample prep kits, education, microbiology, and clinical trial kits, peristaltic pumps, and fluid handling tips.



- **Equipment & Instrumentation:** Filtration systems, virus inactivation systems, incubators, analytical instruments, evaporators, ultra-low-temperature freezers, biological safety cabinets, and critical environment supplies.



- **Services & Specialty Procurement:** Onsite lab and production, clinical, equipment, procurement and sourcing, biopharmaceutical material scale-up and development services, DNA extraction, bioreactor servicing, clinical and biorepository services, and compound management

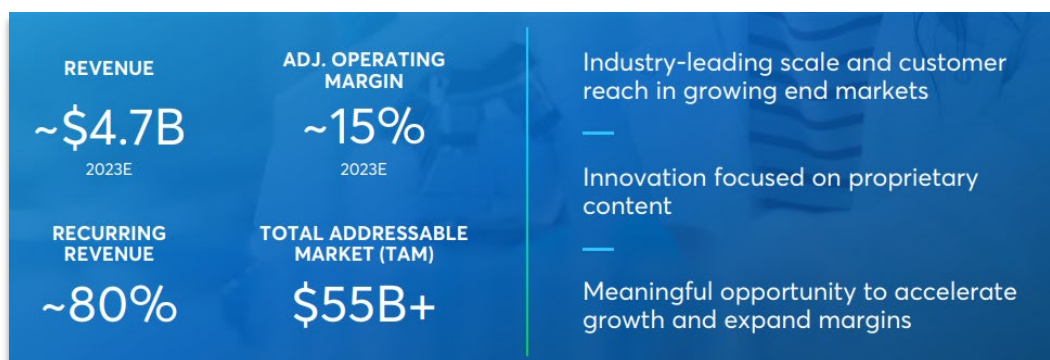
Management recently announced a new operating model that became effective on January 1st, 2024. The new structure will shift from a regional orientation to a more logical division by product group and end market. **With the change, Avantor will now report on two distinct operating segments (instead of geographies): Laboratory Solutions and Bioscience Production.**

We think this change is much more than optics. It should sharpen management's focus and accountability, unlock greater operational efficiencies, and enable more disciplined capital allocation. It should also align better with customers, driving innovation and increasing proprietary offerings, accelerating growth and margin expansion. **And, importantly, it should help investors better understand each segment's key drivers and long-term potential, which should ultimately be reflected in the stock's valuation.**

LABORATORY SOLUTIONS

The Stable Cash Cow. Avantor's Lab Solutions group is the foundation of the business, generating two-thirds of sales with ~15% operating margins, with accelerating growth and expanding profitability. The segment should grow at a steady mid-single-digit rate, with more than 80% of sales in consumables within the \$55 billion addressable market. The business is deeply embedded in customers' laboratory ecosystems, supporting scientific discoveries in regulated environments with high-quality standards.

Avantor is the number one or two player in the industry counting 100% of the top twenty pharmaceutical firms as customers. From an investment perspective, we see the key driver here as the company's continued shift to proprietary products, which generate 1.5x – 2.0x the gross margin of third-party solutions.



Source: Avantor Investor Relations

An industry-leading partner for labs



Source: Avantor Investor Relations

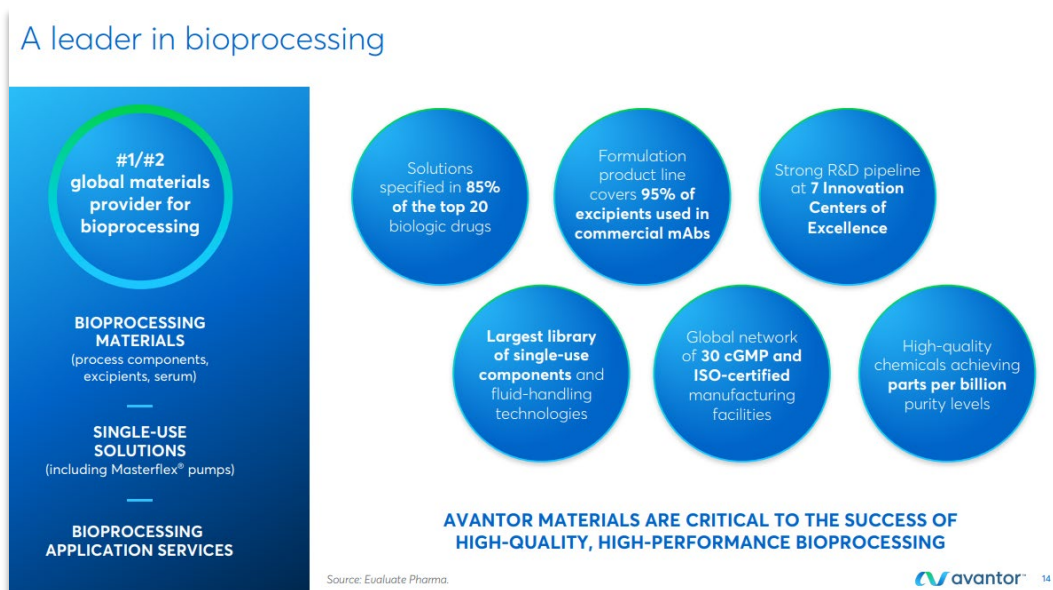
BIOSCIENCE PRODUCTION

The Key Growth Driver. Avantor's Bioscience Production group, which generates one-third of sales with 26% operating margins, is a leading provider of mission-critical, high-purity, custom materials and solutions. We expect this segment, which provides essential functionality to products in demanding environments, to be the key growth driver for the firm, growing at a high-single-digit rate or better within a \$30 billion addressable market.

Avantor is the number one or two global materials provider in bioprocessing, the number one provider of high-purity silicon formulations for healthcare applications, and counts 80% of the top semiconductor companies and defense contractors as customers. As one might imagine, regulatory and quality expertise is demanding in these highly regulated markets, driving recurring revenue.



Source: Avantor Investor Relations



Source: Avantor Investor Relations

INDUSTRY OVERVIEW

The Life Science and Tools industry manufactures and distributes a wide assortment of products to a variety of industries, from pharmaceuticals and chemicals to industrials and material sciences. With applications ranging from research and development to quality control, the solutions serve a diverse customer base across several end markets, with sales balanced across the US, Europe, and Asia Pacific. The industry features a mix of large multinationals and smaller, specialized players who often hold significant market share in their niches. Competition is driven by innovation and product differentiation. Partnerships and acquisitions expand geographic presence and product portfolios. Market share shifts tend to move slowly as many products and services are specialized, reducing substitution risk.

As the sector has matured into more of a service industry, companies have increasingly leveraged large installed bases to drive recurring revenue. As a result, the importance of individual product cycles has dwindled. While innovation remains a critical component of success within this research-intensive industry, each company's long-term organic growth has increasingly tilted away from individual products in favor of end-market positioning. Life science companies serve four major end markets: Biopharma, Clinical and Diagnostics, Industrial and Applied Sciences, and Academic and Government.

In recent years, the product mix has steadily shifted from slower-growth, cyclical end markets (industrial) towards faster-growing (biopharma) end markets, with large consolidators broadly diversified across products and markets. Since 2008, biopharma exposure has grown from less than a third to nearly one-half of sales, while consumables and services have increased to nearly two-thirds of sales. For reference, biopharma and consumables represent 60% and 85% of sales, respectively, at Avantor.

Company	Ticker	End Market					Product Type		Geography			
		Academic & Gov't	Pharma & Biotech	Dx & Clinical	Industrial & Applied	Other	Capital Equipment	Consumables / Services	US / Americas	EMEA / Europe	APAC / ROW	China
Agilent	A	8%	37%	14%	41%	0%	42%	58%	39%	25%	36%	20%
Avantor	AVTR	10%	55%	10%	25%	0%	13%	87%	58%	35%	7%	3%
Bruker	BRKR	39%	16%	10%	35%	0%	70%	30%	28%	33%	39%	15%
Danaher	DHR	6%	35%	49%	10%	0%	23%	77%	45%	22%	33%	12%
Mettler-Toledo	MTD	5%	40%	0%	50%	5%	67%	33%	42%	27%	31%	21%
Repligen	RGEN	0%	96%	0%	0%	4%	25%	75%	43%	37%	20%	10%
Revvity	RVTY	8%	43%	50%	0%	0%	19%	81%	44%	27%	30%	17%
Thermo Fisher Sci.	TMO	15%	58%	14%	13%	0%	18%	82%	55%	24%	21%	9%
Waters	WAT	11%	57%	0%	32%	0%	48%	52%	36%	24%	40%	20%
Mean		11%	48%	16%	23%	1%	36%	64%	43%	28%	29%	14%

Source: J.P. Morgan

THE ECONOMICS OF TOOLS

The foundation of the industry model is the razor-and-blade nature of life science tools, which lends itself to an attractive mix of annuity-like, recurring revenues. The analytical instruments the companies provide create a large installed base that requires ongoing supplies in the form of consumables (biochemical reagents, research kits, labware, etc.), creating a captive ecosystem that only functions with each company's branded products. This installed base leads to deep connectivity with customers as the life span of instruments ranges from five to twelve years or longer, requiring a steady flow of consumables and additional subscription-like revenue streams from software and services.

Recurring revenue streams generate about two-thirds of industry sales, although the mix varies widely across the industry. Consumables are also sold at higher margins than instruments, a function of strong pricing power and lack of substitutes. Given that investors tend to reward more durable revenue streams with higher multiples, those companies with a greater share of recurring revenues have historically traded at a premium.

Highly regulated end markets create additional barriers to entry, given the sensitive nature of the research, analysis, and tests. These companies work in close partnership with their customers to develop, customize, and refine specific processes that strengthen relationships and further entrench their instruments into customer workflows. The critical nature of these processes makes the risk of swapping instruments significant, resulting in high switching costs and barriers to entry, so voluntary changes are few and far between. We have seen few industries with switching costs this extreme, a theme that was echoed consistently throughout our diligence process.

Pharma companies are very risk-averse, and they make huge margins. If the safety and quality is there, they won't change things just for price. Nobody cares about price. As long as you maintain quality, good delivery, and stay in the game, they will not be moving from you. - Former Executive Vice President APAC at Avantor

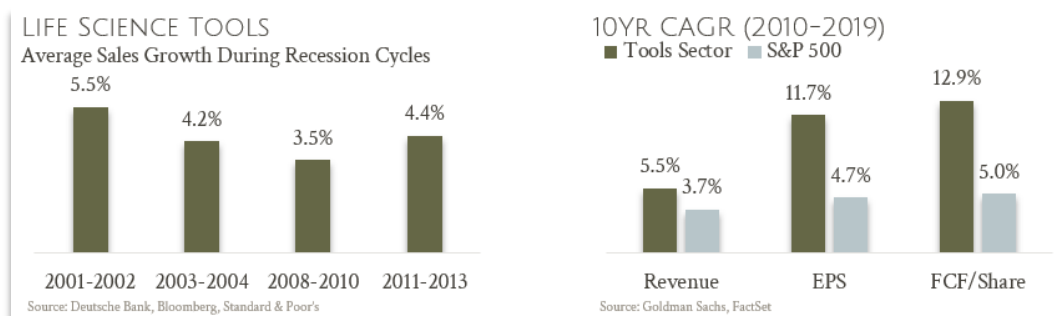
We have very rarely switched for a drug which is approved. Once you have the approval status, you cannot switch anymore. What happens is the following. You manufacture your drug. You go through clinical trials. Once you make the Phase III clinical trials, the way you manufacture the batches is locked in. It's basically carved in stone. You cannot change it. You have to tell the regulators where every little pipette tip came from. Every little salt needs to be provided to the regulators in the regulatory dossier - where it comes from, what the article code is, etc. And then if you want to change it, you need to get permission from the regulators to change that. And it's almost impossible to switch without a clinical trial. We're talking two to three years lead time before we can even switch. Financials are not in any way a consideration. It's about supply reliability and quality. Those are the big-ticket items. We're definitely not looking at switching for saving costs. I have never had a single experience in my entire thirty-year career where we switched for cost. - Vice President of Quality Biologics and Steriles at Merck

There's nothing unique about the chemical itself. It's not like they're the only supplier or they have some special chemical that no one else has. It's basic stuff. The part that's interesting is not the chemical. It's their manufacturing process because each of these chemicals could destroy a whole city. If something goes wrong, there's a mini-nuclear exposure can happen. I wouldn't live anywhere close. But because these guys have so much experience, you never hear that happen, ever. And that's why very few companies can make those chemicals at the scale that's required. The specs are very important because one little impurity can destroy that entire drug run, and that's millions of dollars of losses for pharma. In the worst case, you kill a patient because of some impurity. I would say that's their competitive advantage. Not the chemicals. It's all commodity. It's nothing unique. It's the experience, manufacturing scale, and the purity and the certification that they have. It's hard for a Chinese company to just set this up and for pharma to just say, I'll give you the business. It's not the chemical itself. It's the manufacturing process and the experience they've developed over years, along with the people, the processes, and the technologies. They've perfected it so that the nasty explosions don't happen. - Former Executive at Avantor

The leaders in the space have been long-time favorites of the “Compounder Bros” who salivate over these durable franchises with high barriers to entry, predictable revenues in rapidly growing end markets, and strong free cash flow generation. But unlike the many Silicon Valley darlings that have recently come to market, this combination of fundamentals does not require Nvidia-like top-line growth to generate attractive returns on capital.

The industry's "picks and shovels" model provides diversified exposure to all discoveries, resulting in durable organic demand growth resilient through economic cycles. Industry sales growth has remained positive through economic recessions. In a more normal operating environment, ongoing innovation drives regular replacement cycles and strong organic growth that has averaged ~ 5% annually for two decades. At the same time, strong pricing power has driven gross margin gains, enabled by intellectual property and the added benefit that these products don't comprise much of an end customer's spend (so cost is less scrutinized). This, in turn, has fueled consistent margin expansion, given high operating leverage from economies of scale. Historically, companies in the sector have generated 50bps - 100bps of annual operating margin expansion.

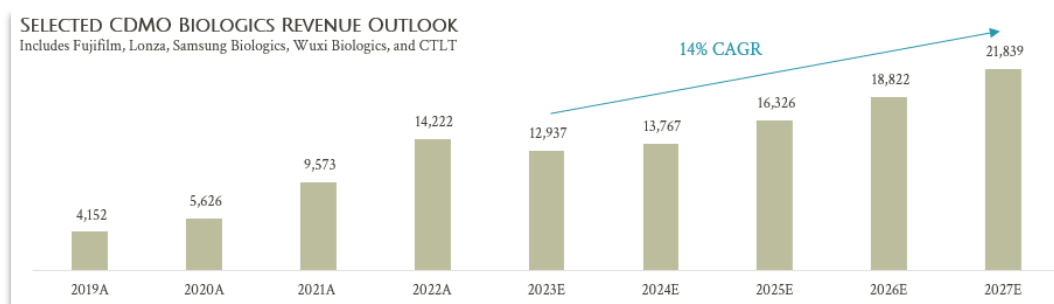
These dynamics have historically led to consistent free cash flow generation, providing companies with additional flexibility to deploy capital back into the business or pursue strategic acquisitions. Industry fragmentation creates an extremely favorable environment for scaled life sciences platforms. As such, top-line growth has been complemented by mergers and acquisitions as the ability to spread higher volumes over fixed costs encourages consolidation.



GROWTH DRIVERS

The Life Science Industry is positioned at the forefront of generational health and technological advancements. We believe the convergence of science with digital technologies is poised to unlock new growth avenues, enhance research efficiencies, and lead the development of novel therapies and diagnostics.

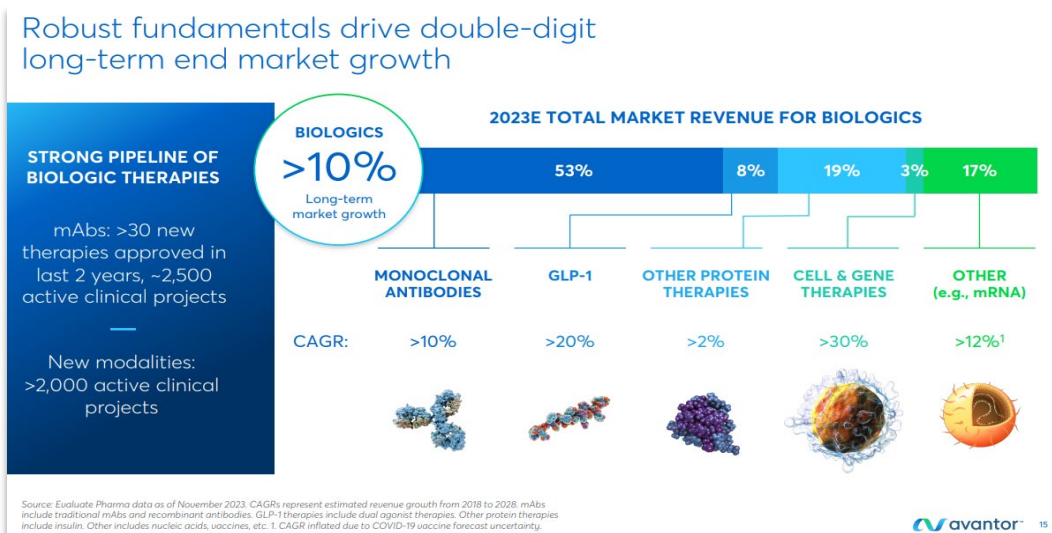
In the meantime, the industry is benefiting from several secular trends. Perhaps most notable is the shift from chemically synthesized to biologic-based therapeutics, a significant tailwind for the sector. Biologics are large and structurally complex, which complicates the development process. Relative to more traditional pharmaceuticals, the production of biologics and biosimilars is much more resource-intensive, requiring the use of advanced instrumentation and consumables supplied by the life science tools industry. The growth of cell and gene therapies and the rise of mRNA platforms highlighted by vaccine development have resulted in a step change in growth for these end markets.



Source: J.P. Morgan, Company Filings

Growth should continue to be propelled by several factors - increasing global demand for personalized medicine, rising prevalence of chronic diseases, advancements in genomics, proteomics, and the proliferation of precision medicine - all of which are likely to accelerate in the wake of the pandemic, driving sustained investment in healthcare infrastructure, diagnostic testing and biopharma research and development capabilities. We highlight several additional drivers of long-term demand below, although the list is far from exhaustive.

- **Favorable Demographic Trends.** Healthcare demand is increasing rapidly across the world, driven by aging populations, an increased prevalence of chronic diseases, and improved access to healthcare.
- **Strong Funding and Externalization of Drug Discovery.** Funding has increased across the sector as companies increase R&D outsourcing to access expertise, drive efficiencies, and focus on core competencies.
- **Scientific Innovation and New Therapies:** The accelerating pace of innovation is propelling investment in novel, complex research, such as biologics and therapeutic modalities. Advancements like CRISPR, next-generation sequencing (NGS), and synthetic biology are expanding capabilities and applications and driving growth.
- **Emergence of Biosimilars.** Biosimilars are rapidly emerging alongside small and large-molecule drugs. Biologics' share of new drug approvals has increased from about 10% to almost 40%. Looking forward, Bioprocess Technology Consulting expects demand for biologics and biosimilars to grow 13% and 9% annually, respectively.
- **Digital Transformation of Science.** The rapid adoption of new technologies is streamlining mission-critical operations, creating meaningful opportunities to differentiate through automation and optimization. KPMG expects the Digital Health Market to grow at nearly 30% annually this decade.
- **Encouraging Trends in Advanced Technologies & Applied Materials.** Advancements in artificial intelligence, machine learning, and autonomous cars are driving demand for increasingly complex chip designs, driving demand for ultra-high purity materials used in the semiconductor manufacturing processes.



Source: Avantior Investor Relations

INVESTMENT THESIS

The pandemic raised the profile of these sleepy compounders, but we believe the quality of moats in the sector remains greatly underappreciated. In fact, we suspect that the long-term impact of the pandemic will be sustained investment in healthcare infrastructure and research capabilities, accelerating historically attractive, long-term growth rates. While the last few years were clouded with short-term challenges, we do not believe the business models are structurally impaired. The combination of scale, resilient and recurring revenues, demonstrated operating leverage and strong cash flow generation make for a very attractive business model. To recap, we've summarized some of the most appealing characteristics of Avantor and peers below.

- **Sticky Customer Relationships.** Avantor's integrated workflow and ability to partner at every stage of the research, development, and commercialization process have led to deep, embedded customer relationships. Over 1,300 associates are co-located and work side-by-side with scientists, as roughly 90% of the content is spaced into customer products and processes. Avantor has an average relationship of over fifteen years with about a third of its customer base, despite average contract lengths of 3-5 years.
- **High Switching Costs.** Switching distributors can be expensive and time-consuming. For example, in the biopharma sector, it can take up to five years and nearly \$100 million to change deeply embedded distributors. As the cost of products is often a small percentage of the overall cost of a customer's workflow, there is also little incentive to change, resulting in very resilient relationships.
- **Recurring Revenues.** Materials, consumables and services, and specialty procurement offerings, making up ~85% of total revenues, are recurring. At the same time, proprietary formulations generate an average of ~15 years of revenue during the average relationship of top customers.
- **Durable, Defensive Model.** Avantor enjoys one of the sector's more stable growth profiles, with fewer product cycles and minimal share shifts. Greater exposure to biopharma and consumables reduces volatility relative to instrument replacement cycles and supports a less cyclical profile than the industry.
- **Natural Margin Expansion.** Fixed-cost leveraging provides a natural tailwind to operating margins. At the same time, improving execution, greater focus on pricing, and a continued mix shift to faster-growing proprietary products should accelerate margin expansion.
- **Depth And Breadth Offerings.** Avantor serves established leaders and emerging innovators in some of the most demanding and challenging areas of science with its comprehensive portfolio of products and services. Given the broad and diverse supplier and customer base, no single supplier or customer comprises more than 5% of net sales.
- **Regulatory Expertise.** Avantor's quality expertise is highly valued in areas like semiconductor manufacturing, where demands for precision are extraordinary. Customers rely on Avantor to navigate rigorous quality, performance, and reliability regulations, providing materials with purity levels as stringent as one part per trillion.
- **Customized Offerings to Address Our Customers' Evolving Needs.** Avantor works closely with customers to provide highly customized formulations across a variety of workflows. This ability to rapidly customize and innovate has led to significant product adoption as customers seek to improve productivity and establish new processes.

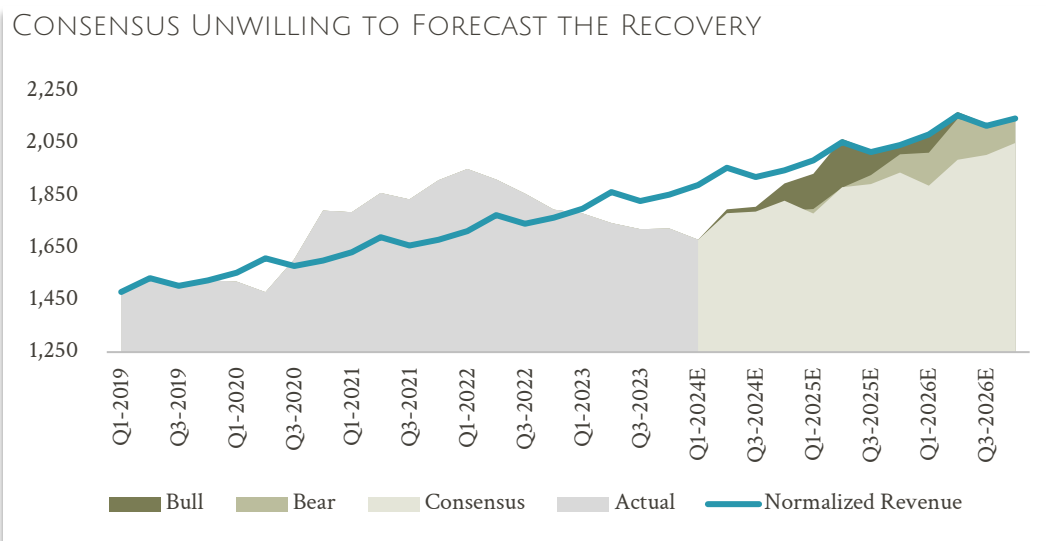
WHAT'S IT WORTH

We see a number of positive developments on the horizon. To start, we think the fundamentals have reached levels where downward momentum has stalled, and an upward inflection is only a matter of time. Comps are set to get much easier in the second half of 2024 as inventory destocking runs its course, setting up a durable recovery in the back half of this year. Accordingly, we expect the market to stabilize in 2024, rebound in 2025, and normalize in 2026, driving a material earnings revision cycle and outperformance. As growth expectations recover, investors should refocus on longer-term fundamentals, which look more promising today than ever. We think a meaningful inflection in orders will drive funds into the group from investors on the sidelines once those orders flow through to revenues. We also think those sidelined investors are likely to pay a pretty penny for the comfort of greater certainty.

Recent results and the market's subsequent response appear to support our thesis, as management's "prudent" guide assumes zero improvement in market conditions, despite repeated commentary by management and peers, pointing to sequential improvements in orders since the third quarter of last year. Consensus estimates for this year and the next have fallen with each earnings release. Suffice it to say, we think numbers today are sufficiently de-risked and, more likely, just outright overly conservative, setting up for an extended cycle of upside earnings revisions and positive surprises over the course of this year and likely into next. Notably, consensus estimates for research and development across the biopharma sector, a key demand driver for the Life Science industry, have already turned a corner, per the examples below.

- *AbbVie increased R&D expense by ~\$600 million in 2023 and expects to "substantially" raise that in 2024. The company has over 20 drugs currently in trials.*
- *Glaxo guided for R&D expense to increase broadly in line with sales growth in 2024, implying 5-7% growth, and has ~12 major product launches in 2024 and 2025, mostly centered around infectious diseases.*
- *Johnson & Johnson invested 21% of its fourth-quarter sales into R&D and reaffirmed that R&D will continue to be its main focus through 2030. The company invested the most it ever has into R&D for full-year 2023, topping \$15 billion and representing nearly 20% of sales.*
- *Merck plans to increase investment in its pipeline and start more late-stage trials in 2024. Research and development expenses in 2023 more than doubled.*
- *Novartis R&D expense increased ~7% in 2023, and management expects it to be stable in 2024 following successful cost and productivity actions taken place in 2023.*
- *Novo Nordisk grew R&D expense 37% year over year, representing a doubling of investment versus the past several years. Management expects to gradually increase its R&D cost ratio until 2025.*

When orders do inflect, we expect a sharp turn given pent-up underlying demand and the recurring nature of Avantor's product portfolio. During the recovery, we model top-line growth to accelerate above normalized levels for several quarters as demand snaps back. Meanwhile, the street continues to model declining sales through the first half of the year before penciling in a meager recovery of 3% in the second half, followed by an average of 5% growth next year. Bottom line: consensus is not modeling any acceleration in volumes from a snapback in demand. In contrast, our upside scenario assumes a rebound in orders in the second half of this year, with sales accelerating through next year, which would put revenues back on the pre-COVID trend by year-end 2025.



Source: Broyhill Estimates, Company Filings

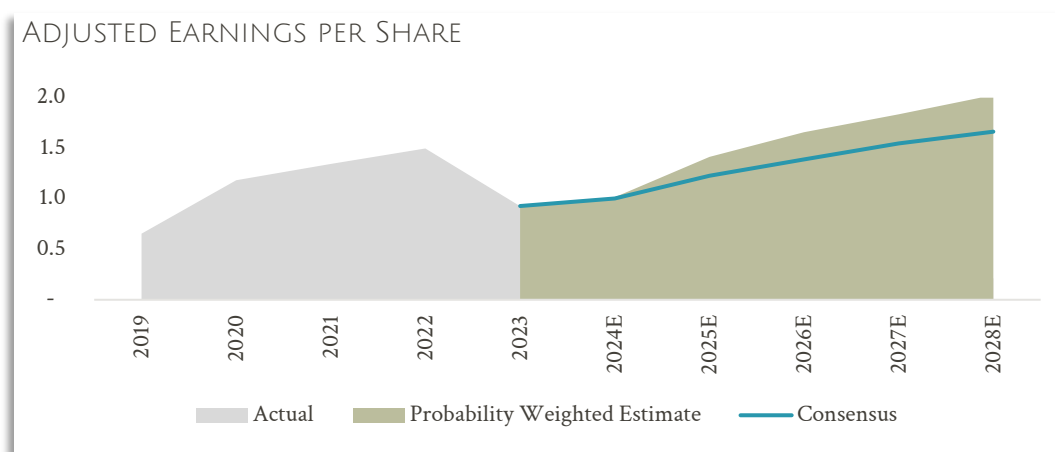
As destocking runs its course and demand normalizes, increased operating leverage on higher volumes should drive outsized margin gains as headwinds turn to tailwinds, led by a new \$300 million cost savings program which should assist in meeting near term financial targets should the demand recovery be delayed. While the consensus is not yet ready to credit management for margin expansion, after repeated disappointments, we believe the model's significant operating leverage could prove equally surprising to investors as the market recovers. Avantor has more than 40% exposure to bioprocessing, which appears to be bottoming, with less than 10% exposure to instruments, where risks of an elongated downturn are higher.

At the same time, a mix shift towards the company's large and growing portfolio of proprietary materials, solutions, and services – which generate 1.5x – 2.5x higher margins – should drive organic margin expansion. Various conversations with industry consultants highlighted this potential and pointed to similar transitions, providing Avantor with a proven model to execute.

Fisher was very similar to Avantor, but they moved a lot of their proprietary products into the distribution channel, and their margins went up. Avantor is low margin, but Fisher margins were almost the same, so there is potential. There's a model already out there to demonstrate that the business could be made more profitable. But I would say the key advantage of the lab business is the channel and the fact that they have these contractual relationships with pharma, which also bleeds into bioproduction as well. So that gives them an advantage that a Danaher or any of these companies may not have. - Former Strategy Consultant and Leader of Digital Initiatives at Avantor

Old Avantor is basically J.T. Baker. It's not complicated stuff. It's like salts and stuff like that. The research chemicals are mostly VWR. They're very high gross margin and high value because the end markets they are selling into. Avantor describes its manufacturing operations as scoop and pack. These chemicals are bought by a lot of other suppliers. When they arrive at Avantor, they are taken out of the packaging, and a large amount of QC testing is done to ensure the quality of the chemicals. That's the step where the margin increase comes. You're literally scooping it out of one container, testing it, and packing it in another container with a J.T. Baker logo and the quality-control paperwork that it didn't have in front of the door. When you have that paperwork, customers know J.T. Baker is a high-quality brand because of the testing they have gone through. Those products can be sold at a much higher margin than the biopharmaceutical manufacturing space. That chemical business is selling at something like a 40% - 50% gross margin. - Former Executive Vice President at Avantor

Bottom line: we expect EBITDA margins to reach 20% by year-end next year and expand 50 – 100 bps annually, leaving our out year estimates more than 20% higher than the street. Beyond the next couple of years, the long-term setup remains increasingly attractive, given record levels of new drug approvals, robust drug pipelines, and seemingly unlimited funding potential. While the pandemic introduced significant volatility into this historically predictable business model, we believe the more substantial and lasting impact on the sector will be accelerated investment in novel therapeutic and diagnostic platforms, potentially increasing historical organic growth rates.



Source: Broyhill Estimates, Company Filings

Organic growth for the sector averaged ~ 5% in the five years leading up to the pandemic before supply chains went haywire. We think that's a low starting point for Avantor's normalized revenue growth on a go-forward basis, given its broad exposure to secular trends, durability afforded by high recurring revenues, and attractive end markets with ~ 85% of sales derived from consumables and services.

Management is committed to optimizing the business' organizational structure as well as its capital structure. At the same time, robust free cash flow conversion is set to deleverage the balance sheet in line with targets, ultimately accruing increasing value to shareholders and freeing up capital to pursue M&A longer-term, which has historically contributed 1% - 2% of annual revenue growth, targeting enhanced workflow solutions, increased technical capabilities and extended global reach.

Historically, investors have been more than happy to pay up for these exceptional businesses, given their consistent top-line growth in an industry with a long runway of secular growth. Against this backdrop, we think Avantor's valuation remains compelling. As growth expectations recover, the market should refocus on longer-term fundamentals, which look more promising today than ever. We think a meaningful inflection in orders will drive funds into the group from investors on the sidelines once those orders flow through to revenues. We also think those sidelined investors are likely to pay a pretty penny for the comfort of greater certainty.

Peers like Thermo Fisher and Danaher trade at 22x and 24x forward EBITDA today. With Avantor still valued at a significant discount to these better-known peers, we see room for the gap to narrow as margins improve and leverage declines with execution. Even assuming shares trade at a 25% - 30% discount to peers (6x - 7x turns), we see room for shares to double over the next few years.

BOTTOM LINE

"I feel strongly that attempting to achieve a superior long-term record by stringing together a run of top-decile years is unlikely to succeed. Rather, striving to do a little better than average every year -- and through discipline to have highly superior relative results in bad times is less likely to produce extreme volatility, less likely to produce huge losses that can't be recouped, and, most importantly, more likely to work (given the fact that all of us are only human).

– Howard Marks

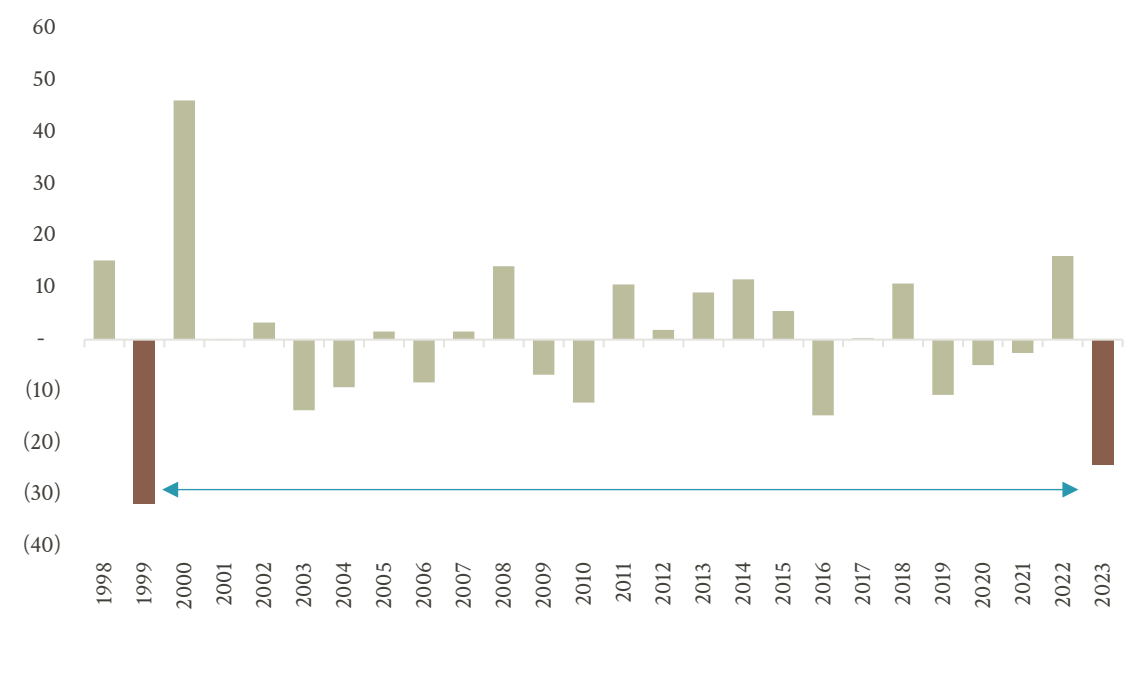
The above quote, from Oaktree's Howard Marks, perfectly encapsulates Broyhill's investment philosophy. It's also one of the most underappreciated drivers of superior long-term performance.

Investors often confuse maximizing returns with minimizing boredom. These two things are not mutually exclusive. As we've said in the past, people stay away from boredom for fear of being bored. But at the right price, boredom is as exciting as it gets. We think the price is right for boredom today.

Defensive sectors like healthcare are trading at a material discount to the rest of the market. We think the setup here, sitting squarely at the intersection of growth and value, is particularly attractive. Last year, the sector suffered its most dramatic underperformance in a quarter century, as companies across the industry were pummeled by Ozempic-fueled losses, vanishing biotech funding, shrinking pharmaceutical research budgets, and ongoing supply chain kinks and cost pressures. As a result, many high-quality businesses in the industry are trading at historically low multiples on depressed earnings. Yet, technological change, demographic tailwinds, and rising demand represent structural tailwinds that should serve the industry for decades.

HEALTHCARE LAGGED BROADER MARKET IN 2023

Widest Underperformance since 1999



Source: Bloomberg

As negative earnings revisions piled up, “overweight” institutional investors (pun intended) unwound positions, and retail investors fled, resulting in more outflows than any sector other than energy last year. Management teams were equally surprised by the extraordinary events of the past several years, in contrast to what have historically been very predictable businesses.

Lack of visibility is not something executive leadership or institutional portfolio managers are particularly accustomed to in the healthcare industry. But in just the last few years, they were forced to manage through hospital procedure volumes disrupted by a global pandemic, followed by supply chain problems and staffing challenges, which ultimately led to cost inflation and an inventory cycle on par with the semiconductor industry.

Unlike the broader market, which has already discounted the Fed’s Triple Lindy, we expect these businesses to report improving comps, accelerating top-line growth, and better operating leverage with self-help initiatives, driving significant margin expansion. Given the magnitude of the dislocation, we think management teams and investors in the sector will once again be caught offside as upward revisions to estimates drive shares considerably higher as the cycle finds a bottom.

Should the much-awaited “soft landing” fail to materialize, or worse, recession warnings prove prescient, we would expect an even more powerful rotation back to the safety of these high-quality, recession-resilient businesses.

ABOUT BROYHILL

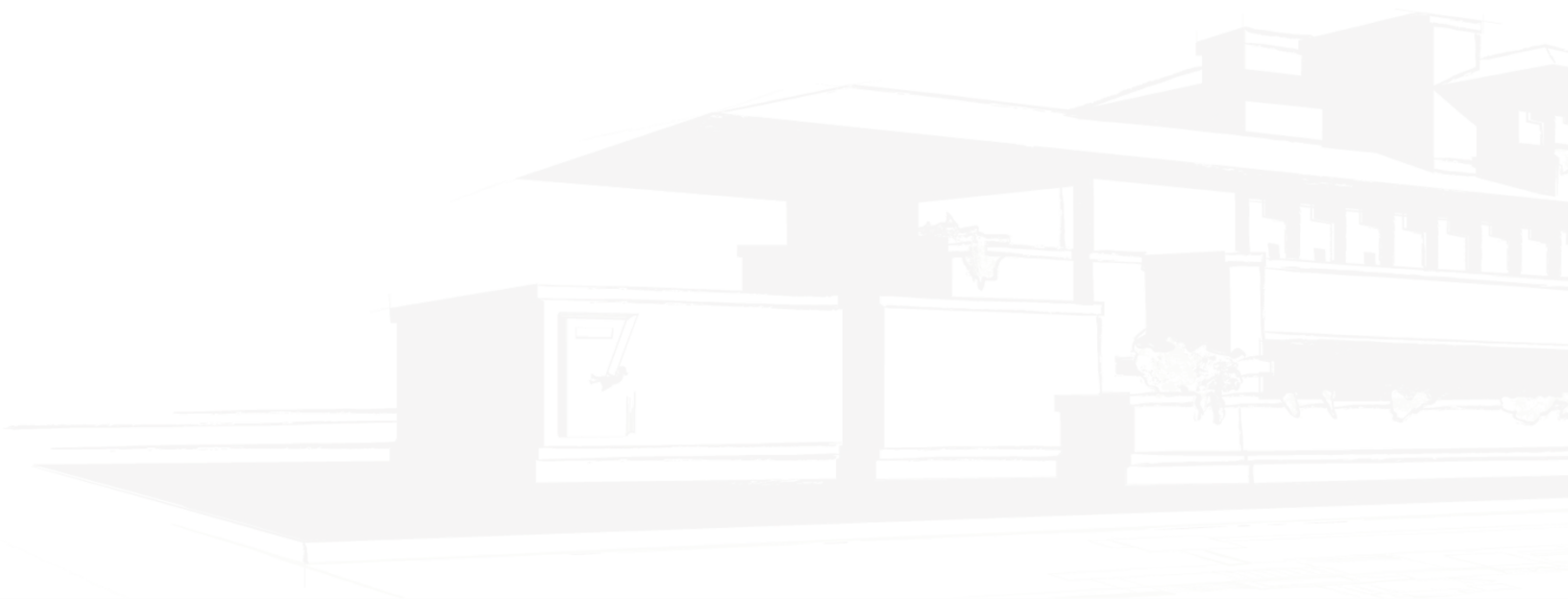
Broyhill Asset Management is a boutique investment firm, initially established as a family office in 1980 and guided by a disciplined value orientation. Founded in the foothills of North Carolina's Blue Ridge Mountains, we operate outside of the fray and invest with a rational, objective, long-term perspective.

FIND THIS INTERESTING?

Stay curious. [Click here](#) to subscribe.

FOR MORE INFORMATION:

ir@broyhillasset.com | 828.610.5360



DISCLOSURES

Broyhill Asset Management LLC ("Broyhill") is an investment adviser in North Carolina. Broyhill is registered with the Securities and Exchange Commission (SEC). Registration of an investment adviser does not imply any specific level of skill or training and does not constitute an endorsement of the firm by the Commission. Broyhill only transacts business in states in which it is properly registered or exempted from registration. A copy of Broyhill's current written disclosure brochure filed with the SEC, which discusses, among other things, Broyhill's business practices, services, and fees, is available through the SEC's website at www.adviserinfo.sec.gov.

The performance of the Broyhill Equity Portfolio illustrated here is representative of the fully invested strategies available through various TAMPs (Turnkey Asset Management Platforms). The majority of Broyhill's SMAs include a significant cash allocation, which has averaged 30% - 40% in recent years, and also utilize options to complement individual position sizing and to hedge the portfolio as appropriate for individual clients. As a result, we believe that the historical performance of our flagship strategy (which includes both options and a significant cash drag) is not representative of a pure equity allocation. As such, this data may be useful for an advisor evaluating Broyhill, although individual results may differ based on each account's investment objectives, the date of initial funding, the opportunity set available at the time, specific investment vehicles available to the accounts, and individual fee schedules. These historical performance figures are for our equity-only strategy.

Performance is calculated using time-weighted rates of returns, net of fees. Since these platforms report returns to Broyhill gross of fees, in order to report net returns, a 1.5% annual management fee has been subtracted from gross reported returns. This methodology has also been applied to the extracted attribution returns. Average position size is calculated from the average capital invested divided by the average portfolio capital in fully invested accounts.

The investment return and principal value of an investment will fluctuate. Therefore, an investor's account, when liquidated or redeemed, will almost always have a different value than that shown herein. Current performance may be lower or higher than the return data quoted herein.

Past performance is not indicative of future returns. This information should not be used as a general guide to investing or as a source of any specific investment recommendations and makes no implied or expressed recommendations concerning how an account should or would be handled, as appropriate investment strategies depend upon specific investment guidelines and objectives.

Information presented herein is subject to change without notice and should not be considered a solicitation to buy or sell any security. This document contains general information that is not suitable for everyone. The information contained herein should not be construed as personalized investment advice.

There is no guarantee that the views and opinions expressed in this document will come to pass. Investing in the stock market involves gains and losses and may not be suitable for all investors. No representations, expressed or implied, are made as to the accuracy or completeness of such statements, estimates, or projections or concerning any other materials herein.

Under no circumstances does the information contained within represent a recommendation to buy, hold, or sell any security, and it should not be assumed that the securities transactions or holdings discussed were or will prove to be profitable. There are risks associated with purchasing and selling securities and options thereon, including the risk that you could lose money.

Certain information contained herein constitutes “forward-looking statements,” which can be identified by the use of forward-looking terminology such as “may,” “will,” “should,” “expect,” “anticipate,” “project,” “estimate,” “intend,” “continue,” or “believe,” or the negatives thereof or other variations thereon or comparable terminology. Due to various risks and uncertainties, actual events, results, or actual performance may differ materially from those reflected or contemplated in such forward-looking statements. Nothing contained herein may be relied upon as a guarantee, promise, assurance, or representation of the future.

Market value information (including, without limitation, prices, exchange rates, accrued income, and bond ratings furnished herein) has been obtained from sources that Broyhill believes to be reliable and is for the exclusive use of the client. Market prices are obtained from standard market pricing services or, in the case of less liquid securities, from brokers and market makers. Broyhill makes no representations, warranty, or guarantee, express or implied, that any quoted value necessarily reflects the proceeds that may be received on the sale of a security. Changes in rates of exchange may have an adverse effect on the value of investments.

Indices represent unmanaged, broad-based baskets of assets. They are typically used as proxies for the overall market's performance. Index returns typically assume that dividends are reinvested and do not include the effect of management fees or expenses. You cannot invest directly in an index. Without prior written permission of the index owner, this information and any other index-related intellectual property may only be used for your internal use, may not be reproduced or redistributed in any form, and may not be used to create any financial instruments or products, or any indices. This information is provided on an "as is" basis, and the user of this information assumes the entire risk of any use made of this information. Neither the index owner nor any third party involved in or related to the computing or compiling of the data makes any express or implied warranties, representations, or guarantees concerning the index-related data, and in no event will the index owner or any third party have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) relating to any use of this information.

For additional information about other indices or strategies mentioned here, you may contact us at ir@broyhillasset.com.

No part of this material may be copied, photocopied, or duplicated in any form, by any means, or redistributed without Broyhill's prior written consent.