GRANAHAN INVESTMENT MANAGEMENT INC

MICROCAP GROWTH

Portfolio Comments
December 31, 2023

Distinguishing Features

GIM builds the Microcap Growth portfolio from the bottom-up; sector weightings are secondary to stock selection. Microcap Growth strategy maintained an overweight in Health Care and Technology. The portfolio is equal weight to the benchmark in Consumer Discretionary and Telecommunications, and we are underweight in all other sectors. The portfolio has no exposure to Utilities, Energy, or Real Estate.

Market Environment

Despite stock markets being up in 2023, smaller companies struggled as valuations and earnings were significantly impacted by higher interest rates and inflation. It is important to note that the S&P 500 and the Russell 2000, on an equally weighted basis, both hit lows in October from their peaks in 2021. This suggests we have been in a bear market for most stocks for two years despite strong performance coming from some of the largest market cap stocks. While there are plenty of macro uncertainties still in the mix, we see noteworthy positives. In the middle of December, the Fed signaled a more dovish stance on interest rates and lower inflation data points have also been encouraging.

Performance Discussion

For the fourth quarter, the Granahan Microcap Growth strategy returned +15.0, trailing the Russell Microcap Growth Index return of +15.6%. For the full year, the strategy returned +8.9%, nearly in line with the benchmark's +9.1% return.

In terms of Lifecycles in the fourth quarter, Pioneers strongly outperformed the index while Special Situation and Core Growth names lagged. For the full year, both Pioneers and Special Situation names outperformed the index while Core Growth lagged.

TOP CONTRIBUTORS	
4Q – 2023	**2023**
1. EverQuote (Communication Svcs, Pioneer)	**1. LifeMD** (Heath Care, Special Situation)
2. MaxCyte (Health Care, Pioneer)	**2. Harvard Bioscience** (Health Care, Special Situation)
3. 908 Devices (Health Care, Pioneer)	**3. SI-BONE** (Health Care, Pioneer)
4. Edgewise Therapeutics (Health Care, Pioneer)	4. **Veeco Instruments** (Technology, Special Situation)
5. SoundThinking (Technology, Special Situation)	**5. Green Brick Partners** (Consumer Disc, Core Growth)

TOP DETRACTORS	
4Q – 2023	**2023**
1. Beauty Health (Consumer Disc, Core Growth)	**1. Chicken Soup for the Soul** (Consumer Disc, Pioneer)
2. Health Catalyst (Health Care, Core Growth)	**2. Beauty Health** (Consumer Disc, Core Growth)
3. **Bluebird bio** (Health Care, Special Situation)	3. **Bluebird bio** (Health Care, Special Situation)
4. **Prothena Corp** (Health Care, Pioneer)	**4. SoundThinking** (Technology, Pioneer)
5. Mesa Laboratories (Health Care, Special Situation)	**5. Airgain** (Technology, Special Situation)

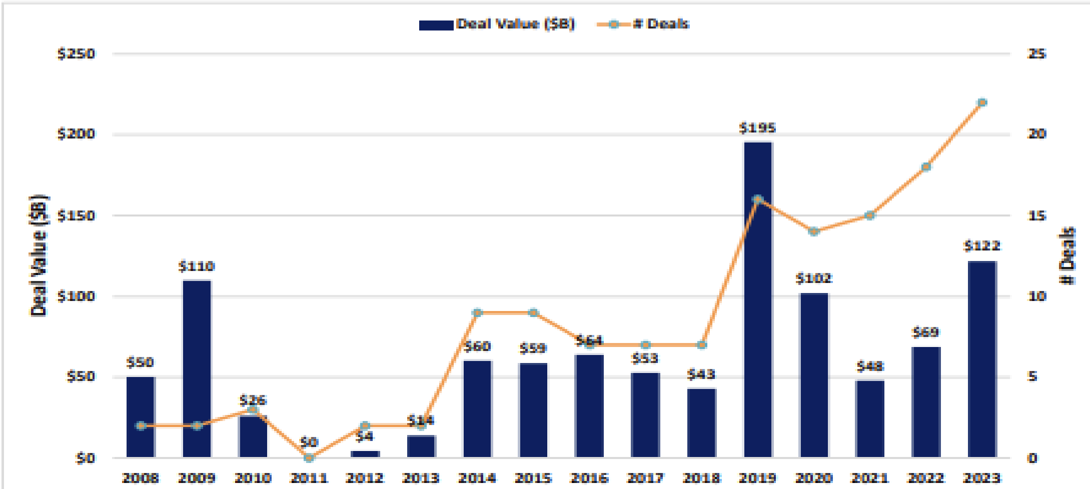
Positioning
During the past couple of years, rising interest rates negatively impacted long-duration assets, particularly many of the portfolio's healthcare stocks. While the sector was among the weakest performers in the Russell Microcap Growth during 2021, 2022, and through 3Q 2023, it was one of the best sectors in 4Q23 as several developments drove strong absolute performance. Moreover, there have been exciting developments within the industry recently that bode well for improved stock performance during 2024 and beyond.

Small cap healthcare is bursting with companies investing in potentially disruptive treatments for some of the most debilitating medical conditions. For example, **Stoke Therapeutics** is developing the first genetically-targeted treatment for a severe form of epilepsy known as Dravet syndrome. We see Stoke as a microcosm for the performance of the entire small-cap health care sector during the past few years, and it embodies our approach to investing in the sector. The stock had been bid up to unprecedented levels when growth investing was in favor, only to be severely punished when sentiment reversed in late 2021. It subsequently traded below cash at some points, suggesting the street assigned zero value to Stoke's technology and pipeline. Meanwhile, the company continued to accumulate promising data for its therapies presenting us with an opportunity to build our position. The stock has been a top performer during the recent rally, and we expect its technology will yield tremendous long-term shareholder value. That said, we remain highly cognizant of the risks for companies like Stoke and we manage our position sizes accordingly.

FDA drug approvals in 2023 were very strong with 60 approved applications, the highest level since 2018 and above the 5-year rolling average of 51. Importantly, many of these approvals were for novel technologies, including antibody drug conjugates (ADCs), cell & gene therapies, and even the first CRISPR-based gene editing therapy. The portfolio includes biotech companies that directly benefited from these approvals. For example, **ImmunoGen** received FDA approval for its ovarian cancer drug Elahere. The drug enjoyed rapid commercial uptake, underscoring the benefits of our investing approach, which seeks to identify products addressing major unmet needs.

We also hold stocks of companies that help bring these drugs through the clinical development process and into the commercial market. As novel therapies are approved, there are incremental services required to deliver treatments to patients. For example, **BioLife Solutions** focuses on specialized products that enable the development, manufacturing, and delivery of therapies. **MaxCyte** provides technology used by next generation biotechnology companies. The company's platform enables these companies to reprogram living human cells outside the body and transfer them back into a patient to help cure a disease. These companies provide products that are essential in maintaining cell viability critical for the effectiveness of therapies.

We were encouraged by increased healthcare M&A activity during the quarter, which implies strategic value and attractive valuations in the sector. In the biotech arena, M&A further accelerated in 2023 with over 20 announced deals for over $120 billion in deal value. As we head into 2024, SMID-cap biotech stocks trade near all-time lows, while large cap pharma holds plenty of cash to bolster their pipelines and address looming patent expirations through M&A and business development. In 4Q23, **ImmunoGen** received a takeover proposal from a large pharma company at a substantial premium.



Source: Company Reports, Jefferies Research.

Finally, we'd be remiss not to mention what is arguably the most disruptive force to have emerged in the history of health care…GLP-1 drugs. By now, names like Ozempic, Wegovy, Mounjaro have become widely recognized as mega-blockbusters poised to transform medicine, consumerism, and beyond. Wall Street even created a new disease modality known as "diabesity" to describe the myriad benefits of the drugs, including weight loss and glucose lowering. August 2023 marked an inflection when Novo Nordisk's Semaglutide (active ingredient in Ozempic & Wegovy) demonstrated improved cardiovascular outcomes, followed by a subsequent study showing benefits in kidney disease. The ensuing months saw a basket of "GLP-1 at-risk" stocks created by Goldman Sachs decline nearly 30%. This included everything from medical device stocks to restaurants. While we are carefully considering small-cap companies poised to benefit fundamentally from the GLP-1 wave, we are not chasing the countless companies seeking to cash-in with me-too versions of GLP-1s. Likewise, we will continue to delineate between companies at true fundamental risk from GLP-1s versus those being unduly punished as part of a Wall Street narrative. For example, **Chef's Warehouse** was down almost 40% given concern about the impact GLP-1s would have on its business. Chef is a premier distributor of specialty food products to independent restaurants. The company delivers quality products and service to over 30,000 locations. We believed the fears of how GLP-1s would impact restaurants and companies like Chef Warehouse were completely overblown, providing an attractive opportunity to increase our weighting given an attractive long-term growth outlook.

Outlook

Earnings for small cap companies, as measured by the Russell 2000, are estimated to increase almost 20% in 2024 following two years of declining EPS. According to both Lori Calvasina from RBC and Steve DeSanctis of Jefferies, balance sheets of Russell 2000 companies have near-record levels of cash. We believe our portfolio valuations are at extremely low levels, and a handful of our portfolio companies are trading at or near cash levels. While it is not possible to predict outcomes, this combination of low valuations and expected growth in earnings leaves us optimistic regarding the outlook for our portfolios.

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