Oberweis
Asset Management

MICRO-CAP GROWTH MARKET COMMENTARY

4Q 2022

The Quarter in Review

The Oberweis Micro-Cap Growth Composite posted an exceptional year on a relative basis, returning –9.10% (-10.10% net of fees) versus –29.76% for the Russell Microcap Growth Index, an outperformance of 2,066 basis points (1,966 basis points net of fees). We are particularly pleased with our downside protection earlier in the year and our upside capture during the fourth quarter, when we returned +12.18% (11.91% net of fees) versus +2.69% for the benchmark, a delta of 949 basis points (922 basis points net of fees).

Year-end also marked the eighth anniversary of our track record since our leadership, philosophy, and process change, and the results have been extraordinary; in that time, the composite returned 17.39% (16.38% net of fees) annualized versus 2.93% for the benchmark, a difference of 1,446 basis points (1,345 basis points net of fees). Risk-adjusted performance during this timeframe is also highly favorable[1].

2022 was the third-worst year in history for small-cap growth stocks, and micro-cap stocks fared even worse within the small-cap growth universe. Our relative outperformance was driven again by our steadfast focus on investing in micro-cap companies where we believe underappreciated fundamental change is leading to greater-than-expected earnings growth. The vast majority of our investments are in companies with strong balance sheets, positive cash flow, and real earnings where we believe there exists a strong probability of upside surprises in the future. Importantly, valuation has always been an emphasis of our process, and that has served us well as the "unprofitable high-growth" bubble we repeatedly warned about burst spectacularly. Those non-earners and the most expensive quintile of stocks in the Russell 2000 Growth Index performed the worst in 2022[2]. In our view, that painful unwind is likely to continue in 2023 as the exposure to non-earners in the Russell 2000 Growth Index remains at elevated levels.

Although the Fed was clearly signaling its intent to become more hawkish in 2022 to curb excessive inflation, we were surprised by aggressiveness as the year unfolded; in fact, the Fed has executed its steepest hike cycle since the 1980's. The abrupt policy change (it's easy to forget the Fed was buying bonds under QE as recently as last spring) threw a heavy wet blanket over capital markets as liquidity was withdrawn at a rapid rate. Frankly, we applaud the move because we hope it brings us back to a more rational risk and return trade-off in the marketplace. A zero interest rate free-for-all is not an optimal environment for fundamental, bottom-up investors like us, as valuations essentially become an irrelevant consideration. The carnage over the last year suggests many others got caught in valuation fantasyland when the music stopped.

Of course, investors are now left to ponder a number of difficult questions: How effective will tight monetary policy be in normalizing inflation? How far is the Fed prepared to go? Will they be willing to put the economy in recession to break inflation? The outcome is unclear because we see the causes of inflation split into two distinct components: residual Covid-related supply chain disruptions and more permanent structural changes related to labor market tightness and a move away from globalization.

On the positive side, we saw supply chain issues ease in the second half of 2022 – a trend we expect will continue – allowing the Fed to make some headway in its inflation fight. Transportation costs and commodity prices have fallen, and companies we follow are seeing inventory challenges quickly abate. We are even hearing some companies talk of "inventory correction" as demand falters.

[1] Please contact our sales team for more information regarding risk-adjusted performance.

[2] Non-earners underperformed the lowest P/E quintile in the Russell 2000 Growth Index in 2022 by 3,201 basis points. The highest P/E quintile underperformed the lowest P/E quintile by 2,022 basis points.

AVERAGE ANNUAL TOTAL RETURNS ***(as of December 31, 2022)***

	QTD	1 Yr	3 Yr	5 Yr	10 Yr	Since Inception 1/1/1996
Micro-Cap Growth (gross of fees)	**12.18%**	**-9.10%**	**22.82%**	**15.35%**	**18.91%**	**12.89%**
Micro-Cap Growth (net of fees)	**11.91%**	**-10.10%**	**21.79%**	**14.33%**	**17.89%**	**11.89%**
Russell Microcap Growth Index	2.69%	-29.76%	-0.24%	1.00%	7.22%	N/A

Past performance is not necessarily indicative of future results. Performance is historical and includes the reinvestment of dividends and other income. Unusually high returns may not be sustainable. The strategy invests in rapidly growing smaller and medium-sized companies that may offer greater return potential. However, these investments often involve greater risks and volatility. Foreign investments involve greater risks than U.S. investments, including political and economic risks and the risk of currency fluctuations. Advisory fees are disclosed in Part II of Form ADV.

Oberweis Asset Management, Inc. ("OAM") is an independent investment management firm that is not affiliated with any parent organization. The composite returns are comprised of all fully discretionary accounts with a minimum value of $5 million. Performance results, from 1-1-96 until 12-31-03 and 9-1-11 to present were derived solely from the performance of the Oberweis Micro-Cap Fund, a registered, open-end mutual fund, for which OAM serves as investment adviser. Prior to November 4, 2001, James D. Oberweis was the sole portfolio manager for the Micro-Cap Fund during the period of the performance results noted. Accounts are dollar-weighted within the composite and reported in U.S. dollars.

The Russell Microcap Growth Index measures the performance of those Russell Micro Cap companies with higher price-to-book ratios and higher forecasted growth values. The performance data includes reinvested dividends. The Russell Microcap Index is represented by the smallest 1,000 securities in the small cap Russell 2000 Index plus the next 1,000 securities. Each index is an unmanaged group of stocks, whose performance does not reflect the deduction of fees, expenses or taxes.

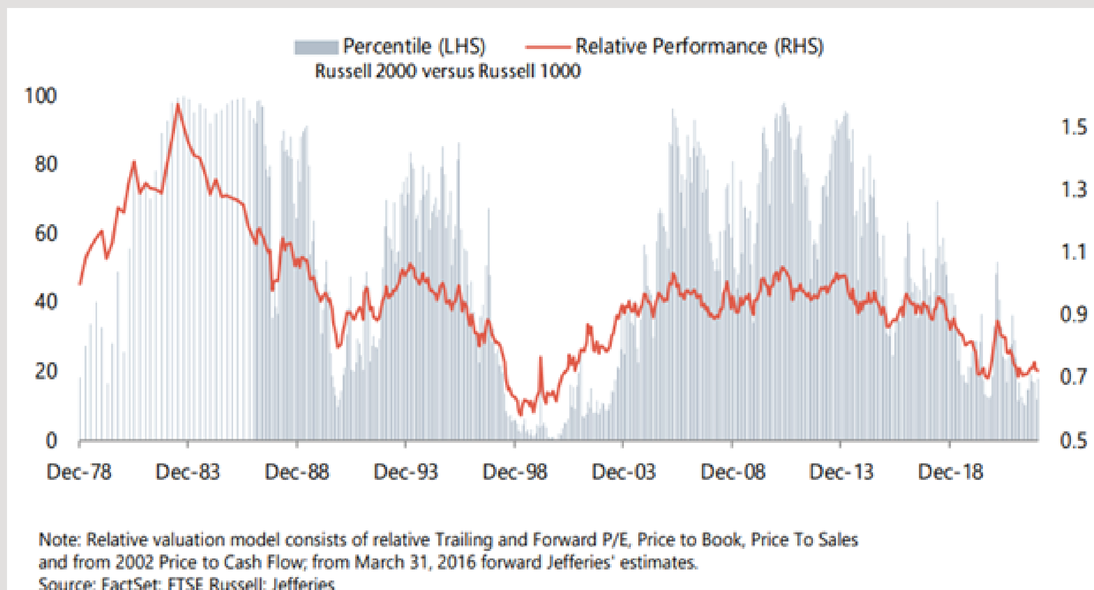
The Quarter in Review (continued)

Unfortunately, the structural causes of inflation are sticky and may be more immune to tight monetary policy. Labor market supply is constrained as baby boomers retire in record numbers and restrictive immigration policies dampen the inflow of qualified labor participants. Revived nationalism in China, the U.S., and other countries is also causing a shift away from globalization. While it's noble (and likely necessary) that the government promotes policies aimed at increasing U.S. manufacturing, onshoring will surely come at a higher cost. One risk to the "Fed pivot" expectation is that inflation reduction stalls as these pesky structural challenges result in diminishing marginal progress. The good news is that, according to research by Jefferies, "this is the ideal inflationary backdrop for small caps."

We believe current recession expectations are already at levels typically seen during a recession, and micro-cap stocks in particular are largely discounting such an event. This can be seen in today's below-average P/E ratio for the stocks in our investable universe. While volatility is likely to remain high this year, we believe our focus on investing in companies generating significant positive earnings surprises should help us add value. In our experience, there are always companies experiencing positive and under-appreciated changes irrespective of macro-level factors. To start the year, we are optimistic about our current portfolio, where we believe we own companies with compelling fundamentals trading at attractive valuations. Additionally – while we are unsure of the timing of any economic bottom – the portfolio has historically performed well exiting periods of diminished expectations because the bar for earnings surprise is abnormally low. Whenever the Fed ultimately becomes incrementally less hawkish, we expect micro-cap stocks will lead the market.

Even more compelling, we also see significant evidence that small-cap stocks (and micro-caps as a subset) are highly attractive on a valuation basis relative to large caps. According to a Jefferies relative valuation model shown below, small caps are trading at the lowest relative valuation levels versus large caps since 2000. When the market eventually turns, we see small caps outperforming their large cap brethren, providing another tailwind to the portfolio.

JEFFERIES RELATIVE VALUATION MODEL: SMALL CAPS VS. LARGE CAPS



Note: Relative valuation model consists of relative Trailing and Forward P/E, Price to Book, Price To Sales and from 2002 Price to Cash Flow; from March 31, 2016 forward Jefferies' estimates.
Source: FactSet; FTSE Russell; Jefferies

Although above-average volatility will likely continue this year, our bottom-up strategy has always been focused on investing in businesses with idiosyncratic attributes that we believe will result in positive earnings surprise. These companies are often undergoing a significant change or event we believe is misunderstood or underestimated by other investors. While the earnings multiples paid for such companies can vary in the short-run, we believe a diversified portfolio of companies with better-than-expected earnings growth prospects is likely to outperform the market over the long-run.

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Portfolio Highlights

As of December 31, 2022, the portfolio was 96.4% invested in 79 different positions. The portfolio had its largest over-weightings in technology (33.0% average weighting during the quarter versus 16.0% for the Russell Microcap Growth Index), consumer discretionary (13.3% versus 9.1%), and energy (6.0% versus 4.8%). The portfolio was most underweight healthcare (11.6% versus 28.9%, primarily due to our significant biotech underweighting) and producer durables (19.6% versus 23.8%).

Overall performance in the fourth quarter was positively impacted by strong stock selection, particularly in technology (where our holdings returned 14.17% versus a 3.92% return for the benchmark's technology holdings), producer durables (18.16% versus 2.98%), and energy (24.70% versus 7.23%).

Organization Update

We are pleased to announce that Eric Hannemann, our new chief financial officer, and Tom Joyce, our new chief compliance officer, have been named Partners of Oberweis Asset Management, Inc. As we disclosed previously, Eric and Tom have assumed the responsibilities of our former colleague Pat Joyce, who retired on December 31, 2022.

Oberweis Asset Management's Investment Philosophy

We believe that investing in smaller companies driving revenue and earnings growth in excess of expectations results in superior investment performance over long periods of time. We believe that innovation is the key to economic growth and wealth creation and are committed to investing in companies at the forefront of innovation – smaller company stocks that offer the potential for extraordinary revenue and earnings growth.

The entrepreneurial spirit is alive and well at these companies. Many are nimble and uniquely address the needs of their customers with patented new products and services. Successful investing, however, demands more than finding companies with good growth prospects. We must also buy these stocks for our clients at prices that make sense. By paying careful attention to companies' valuations in relation to expected earnings growth rates, we seek to purchase stocks when they still have considerable appreciation potential.

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