Oberweis
Asset Management

MICRO-CAP GROWTH STRATEGY

1Q 2019

The Quarter in Review

The Oberweis Micro-Cap Composite returned 21.61% (21.36% net of fees) in the first quarter of 2019 compared to 16.00% for the Russell Microcap Growth Index, an outperformance of 561 basis points (536 basis points net of fees). Against the Russell 2000 Growth Index, which returned 17.14%, the Composite gained 447 basis points (422 basis points net of fees).

Strong performance was generated despite mixed factor-level conditions during the quarter. We faced modest headwinds as lower-quality, low-ROE companies (specifically the bottom two ROE quintiles within the Russell 2000 Growth) significantly outperformed during the quarter, a cohort we are under-weight. Stocks with market capitalizations under $1 billion also underperformed. Helping our cause was a strong style bias toward growth in the quarter[1], as investors gravitated to companies that are capable of generating sales and earnings growth in the face of an anticipated small-cap "earnings recession" (based on consensus estimates) in the first half of 2019.

The strength follows the extreme volatility and weakness endured during the fourth quarter of 2018, when micro- and small-cap stocks fell so precipitously they technically entered a bear market[2]. We noted in our year-end commentary that fear was palpable as we exited 2018 and that the resulting decline in equity valuations represented the most compelling investment opportunity in our market segment since late 2011. Interestingly, that was the last time markets discounted an "earnings recession," and it was also the last time cyclical stocks were as cheap relative to defensive-oriented issues.

A lot can change in the course of a quarter. As stocks and Santa simultaneously tumbled down the chimney on Christmas Eve, the laundry list of concerns that led to extreme negative sentiment readings was quite long. One of the biggest centered on U.S. monetary policy, as the Federal Reserve under new Chairman Jerome Powell had moved to a hawkish stance. While Fed Funds futures in early December predicted four rate hikes in 2019 (on top of four hikes in 2018), a mere three months hence they signal better than even odds of a rate cut late this year or early in 2020, a pretty dramatic reversal. This policy shift by the Fed includes the suspension of its balance sheet reduction strategy – at least for the time being. Muted and persistent inflation readings below its 2% target appear to provide the Fed with appropriate cover.

Investors were also worried the stock market decline itself could portend a recession, a connection we noted wasn't necessarily supported by the data[3]. Admittedly, economic readings globally have softened a bit to start the year, likely driven in part by uncertainty related to continued trade negotiations and tensions between the U.S. and China. U.S. real GDP growth decelerated to 2.2% in the fourth quarter and the Atlanta Fed projects similarly tepid growth of 2.3% in the first quarter of 2019. In March, the Manufacturing Purchasing Managers Index fell below 50 in Germany, France, Italy, Japan, Korea, and Taiwan, but was countered by expansionary readings in the U.S., China, the UK, and Brazil. Despite the lackluster economic data, we continue to find a typical number of new investment ideas where companies have reported significant positive earnings surprises driven by transformative changes that appear to be misunderstood or under-estimated by the consensus.

Much has also been made since last fall in the financial media about a yield curve inversion as a predictor of economic recession and stock market turbulence. Again, we believe the historical data are mixed. While it's true that parts of the yield curve are currently inverted, we consider the 10-year/2-year yield spread to be more meaningful, and that reading remains above zero. Certainly a flattening yield curve flashes a yellow caution sign in terms of future economic growth prospects, but we believe the leap to gloom and doom is likely over-stated.

Despite the first quarter equity surge, the consensus hasn't really jumped on the bandwagon and seems biased toward skepticism. In our experience, market tops tend to occur when valuations are high and sentiment is over-flowing with optimism. While there are real risks to consider, we wonder if investors are again being too cautious, letting short-term focus and risk asymmetry distract from long-term compounding returns in equities. Certainly since the financial crisis, many investors have consistently been too fearful, missing out on above-average opportunities (like late 2018) to invest in stocks. Equity outflows in the fourth quarter were the worst experienced since the housing market imploded, and that trend continued throughout the first quarter of 2019. As of today, bearish views on equities still have much to prove given a more dovish Fed. Nonetheless, the current State Street North American Investor Confidence Index (which measures investor confidence or risk appetite by analyzing the actual buying and selling patterns of institutional investors in North America) hit an all-time low in a dataset that dates to 1998 and includes two bubbles. Such pessimism suggests muted investor expectations, a positive for our relative-to-expectations approach. While our asset class and strategy-level valuations are not as cheap as they were at the beginning of the year, many individual secular growth ideas continue to be attractive.

Looking forward, we think the inflection point is linked to the U.S.-China trade issue. We believe recent economic weakness and the resulting impact on corporate earnings in early 2019 is tied to the uncertainty regarding the path forward with trade. Discussions we've had with management teams suggest caution pending more trade clarity and, hopefully, a favorable outcome. A "win-win" deal between the two countries should result in a re-acceleration in economic growth, boosted by some pent-up demand as tentative management teams reverse course. A negative outcome that leads to additional protectionist measures could very well tip the global economy into recession and throw a wet blanket on equities until the smoke clears. We still believe there is ample motivation for both countries to take the high road.

[1] The Russell 2000 Growth Index returned 17.14% during the quarter, 521 basis points better than the Russell 2000 Value Index.
[2] Using the commonly accepted definition that a bear market occurs when stocks decline 20%. During 4Q18, the Russell Microcap Growth Index declined 24.93% and the Russell 2000 Growth Index declined 21.65%.
[3] Small-cap bear market declines in excess of 20% in 1998, 2010, 2011, and 2015-2016 all occurred during non-recessionary economic environments.

Quarter in Review (continued)

While the winds of change can swirl in the near-term, our bottom-up investment strategy focuses specifically on investing in companies demonstrating better-than-expected earnings prospects driven by transformative change in the underlying business. While the P/E multiple afforded such opportunities by investors can oscillate from quarter to quarter, we believe that a diversified portfolio of such investments is likely to outperform the market over the intermediate- to long-term.

Portfolio Highlights

As of December 31, 2018, the portfolio was 100% invested in 68 different positions. The portfolio had its largest weightings in consumer discretionary (21.4% average weighting during the quarter versus 18.2% for the Russell 2000 Growth Index), technology (21.2% versus 16.0%), and producer durables (20.3% versus 15.6%). The portfolio was most underweight health care (18.7% versus 25.8%), financial services (5.0% versus 10.6%) and utilities (0.0% versus 1.8%).

In the fourth quarter the portfolio benefited from favorable stock selection in health care (where our holdings generated a return of -13.41% versus a -25.56% return for the benchmark's health care holdings) and energy (-19.08% versus -40.58%) . Performance was negatively impacted by stock selection in consumer discretionary (-30.76% versus -19.77%), producer durables (-29.45% versus -21.04%), and financial services (-40.11% versus -16.45%).

PORTFOLIO CHARACTERISTICS
(AS OF MARCH 31, 2019)

Number of Stocks	74
Weighted Market Capitalization (in millions)	$1,014
Median Market Capitalization (in millions)	$826
P/E Forward 4 Quarters (estimated)	12.9x
Long-Term Debt to Total Equity	9.7%
Return on Equity	6.2%
Cash Position	2.0%
Portfolio Turnover (2018)	116.0%

Source: Thomson Reuters Eikon

Key Benefits

The Micro-Cap Growth strategy seeks to capitalize on the exceptional growth potential of companies in the early stages of their life cycle. The strategy invests in very small companies which, at the time of purchase, have a market capitalization

less than $600 million or are within the range of companies represented in the Russell Micro-Cap Growth Index, whichever is greater. These companies often boast exciting products and/or services driving organic revenue and earnings growth. Our fundamental research process is specifically designed to uncover such opportunities.

The key benefits of the Micro-Cap Growth strategy are:

- Access to one of the least efficient segments of the equity market
- Potential for significant alpha over a full market cycle
- Combines empirically-proven Behavioral Finance principles with the very best of fundamental bottom-up research
- Disciplined and repeatable investment process managed by a passionate and experienced investment team
- Fundamental research process specifically designed to efficiently discover micro-cap companies that are misunderstood by traditional Wall Street research analysts
- Exposure to micro-cap companies offering the potential for earnings growth that differs from consensus expectations
- Diversified portfolio with a focus on risk management

Minimum Account Size: $5 million for Institutional Account Management

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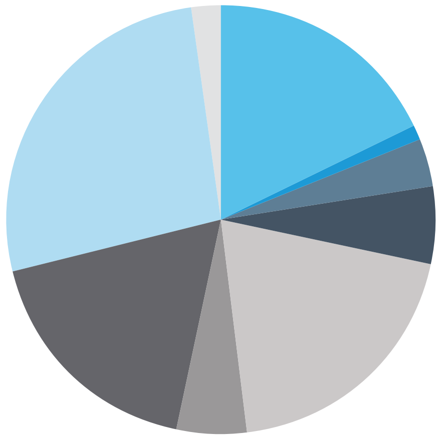
TOP TEN HOLDINGS *(as of March 31, 2019)*

	Company		Line of Business
1	Quantenna Communications, Inc.	2.9%	Develops wireless communication solutions
2	DMC Global, Inc.	2.9%	Global technology company that offers collaboration, research, development, and other services
3	Tandem Diabetes Care, Inc.	2.7%	Develops pump systems for diabetes patients
4	Vericel Corp.	2.5%	Develops cell therapy products for the treatment of patients in the sports medicine and burn care markets
5	Mitek Systems, Inc.	2.4%	Develops software solutions for mobile image capture and identity verification
6	Career Education Corp.	2.3%	Provides for-profit secondary education in the U.S.
7	Rosetta Stone, Inc.	2.3%	Provides cloud-based language and literacy educational products
8	CareDx, Inc.	2.2%	Develops diagnostic tests for transplant patients
9	Knowles Corp.	2.2%	Designs and manufactures advanced acoustic components used in consumer electronics
10	Mesa Air Group, Inc.	2.1%	Operates a regional airline

Top 10 holdings as a percentage of Total Net Assets. Portfolio Holdings are subject to change at any time. References to specific securities should not be construed as a recommendation to buy or sell and should not be assumed profitable. Source: Thomson Reuters Eikon

SECTOR WEIGHTINGS *(as of March 31, 2019)*

Consumer Discretionary	17.8%
Consumer Staples	1.3%
Energy	3.6%
Financial Services	5.7%
Health Care	19.7%
Materials & Processing	5.3%
Producer Durables	17.9%
Technology	26.7%
Utilities	0.0%
Cash	2.0%
Total	100.0%



Sector weightings as a percentage of Total Net Assets. Source: Thomson Reuters Eikon

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1Q 2019

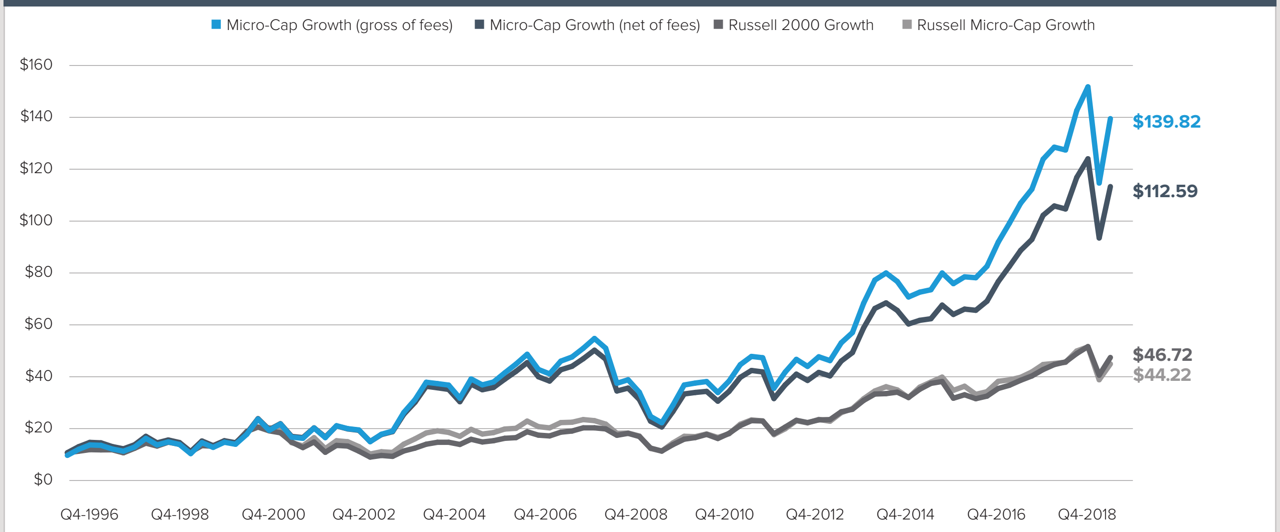
AVERAGE ANNUAL TOTAL RETURNS ***(as of March 31, 2019)***	QTD	1 Yr	3 Yr	5 Yr	10 Yr	Since Inception 1/1/1996
Micro-Cap Growth (gross of fees)	**21.61%**	**9.48%**	**21.23%**	**11.73%**	**20.01%**	**12.04%**
Micro-Cap Growth (net of fees)	**21.36%**	**8.31%**	**20.16%**	**10.69%**	**18.91%**	**10.99%**
Russell Microcap Growth Index	16.00%	-1.43%	10.81%	3.50%	14.77%	N/A
Russell 2000 Growth Index	17.14%	3.85%	14.87%	8.41%	16.52%	7.08%

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 2000 Index measures the performance of approximately 2,000 companies with small-market capitalizations. The Russell 2000 Growth Index measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted earnings growth rates. 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.

Advisory fees are disclosed in Part II of Form ADV. Performance is historical and includes the reinvestment of dividends and other income. Past performance is not necessarily indicative of future results.

GROWTH OF $10 MILLION — WITH INCOME INVESTED ***(January 1, 1996 – March 31, 2019)***



The Russell Microcap Growth Index began on 7/3/00, and the line graph for the Index begins at the same value as the Fund on that date.

Oberweis Asset Management, Inc.

Recognized as a leading small-cap stock specialist, Oberweis has been helping institutional investors manage their assets prudently and effectively for many years.

MEET THE TEAM