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Decade of Growth: Reflecting on Periods of Underperformance

"A single year's performance is of minor importance and, good or bad, should never be taken seriously." – Warren Buffett

The Needham Funds' mission is to create wealth for long-term investors. Historically, this mission has been successful; a $10,000 investment in the Needham Aggressive Growth Fund since its 2001 inception would have grown to $128,238 as of September 30, 2024. $10,000 invested in the Russell 2000 Growth during the same period would have grown to only $61,421. However, market and stock price movements are unpredictable in the short-term.

Over the last ten years, the Needham Aggressive Growth Fund underperformed the Russell 2000 Growth for 30% of the quarters. Periods of underperformance have felt miserable for me as a Portfolio Manager, and certainly for our investors. We are in such a period now.

The three previous periods of underperformance in the last ten years lasted from six to 21 months. We do not know how long this current period of underperformance will continue, and future results may differ from past results, and there are certainly risks we cannot predict, including geopolitical concerns, wars, an incoming United States President and new administration, and more. However, we believe this current period may provide another constructive opportunity to invest.

Let's look at the reasons:

1. We have a repeatable investment process that has produced positive results over time, Hidden to Quality Compounders.[1]
2. I believe we are near an industrial trough, which is consistent with our long-term investment theme of manufacturing reshoring. I'm optimistic for the Fund's technology infrastructure, industrial and skilled labor holdings.
3. Historically, some of the stocks that contributed to underperformance have gone on to be major contributors to the Fund's periods of outperformance.

Let's look at the periods of underperformance and the returns since the underperformance has ended. To provide perspective, the Needham Aggressive Growth Fund (NEAIX) returned 15.37% annualized during the 10-year period ending September 30, 2024, while the Russell 2000 Growth returned 8.95% annualized, resulting in the Fund's annualized alpha of 7.43%.

Period of Underperformance	NEAIX Performance*	Russell 2000 Growth*	Alpha*
Jan. – Sept. 2015 (9 months)	-11.29%	-5.47%	-0.82%
Jan. 2017 – Sept. 2018 (21 months)	7.48%	21.90%	-11.66%
Jan. – June 2022 (6 months)	-31.32%	-29.45%	-0.98%

*Indicates annualized performance.

The investment results after these periods of underperformance were very strong (below). Historically, capturing returns following a period of underperformance required patience and a long-term view.

Period after Underperformance	NEAIX Performance*	Russell 2000 Growth*	Alpha*
Oct. 2015 – Sept. 2024	17.38%	9.51%	9.03%
Oct. 2018 – Sept. 2024	19.51%	5.50%	14.39%
July 2022 – Sept. 2024	26.69%	16.22%	11.71%

*Indicates annualized performance.

Underperformance Period #1: January 1, 2015 - September 30, 2015 (3 Quarters)

The Fund returned -11.29% versus the Russell 2000 Growth's -5.47%. This period was dominated by international monetary authorities' attempts to stimulate their economies and the United States' Federal Reserve debate about whether to increase interest rates from 0.00-0.25%. Ultimately, the Fed did not raise rates in the period. The 3rd quarter of 2015 was particularly difficult; the Fund declined -13.67% versus the Russell 2000 Growth's decline of -13.06%.

In 3Q15, the ETF Flash Crash illustrated the risk in seemingly safe financial products. On August 24, 2015, the S&P 500 opened down -6%, which led to delayed openings and difficulty pricing ETFs. During the day, the Guggenheim S&P 500 Equal Weighted ETF traded at a high of $76 and a low of $44; something was wrong with the plumbing on Wall Street. The S&P 500 ended down 5% on the day. We prefer simplicity in our investment strategy, such as common stocks, without leverage, owned for the long-term.

What internal factors led to underperformance in Period #1?

The Fund's underperformance was stock-specific - its top detractors were both top 10 positions throughout 2015.

PDF Solutions, Inc. (PDFS) was the top detractor with troubles at two major customers. In mid-2014, Samsung (005930-KR) terminated its major contract with PDF, and in 2015, GlobalFoundries, Inc. (GFS) reported disappointing results, negatively impacting GainShare royalty revenue for PDF. Despite these challenges, PDF was investing heavily in its Exensio big data analytics product and beginning to see early signs of success. Since that September 30, 2015 low of $10, PDF has rebounded to close at $32 on September 30, 2024.

FormFactor, Inc.'s (FORM) semiconductor customers suffered from a weak personal computer market. We believed FormFactor was well-positioned with advanced technology that the industry needed. FormFactor has risen from that $7 per share low to near $46 on September 30, 2024.

What has happened since September 30, 2015?

In retrospect, September 30, 2015 was a great time to have bought the Fund. From September 30, 2015 - September 30, 2024, the Fund returned an annualized 17.38%, versus 9.51% for the Russell 2000 Growth, delivering 9.03% of annualized Alpha.

The top 10 contributors between September 30, 2015 and September 30, 2024 were responsible for 75% of our returns over the period. Multi-baggers during this period include Nova Ltd. (NVMI) at 21x, Super Micro Computer, Inc. (SMCI) at 15x, and Entegris, Inc. (ENTG) at 8x. Going back even further, in 2009 we first invested in Super Micro at under $1 per share and Nova at $2 per share.

Underperformance Period #2: January 1, 2017 - September 30, 2018 (7 Quarters)

This was a long one. During this period, the Fund returned 7.48% versus the Russell 2000 Growth's 21.90%. 2017, as a whole, was a strong year for the market; the Russell 2000 Growth appreciated 22.17% versus the Fund's 9.36%. Market strength continued for the first three quarters of 2018 and, again, the Fund trailed. The period started with optimism about President-elect Trump's plans for pro-growth tax reform. In 2018, the Fed raised rates twice, ending at 1.75-2.00%, with additional rate hikes expected in the 4th quarter.

The first rate hike in February 2018 led to a blow-up in the $1.5 trillion speculated in "risk parity trades." Once again, we emphasize the simplicity and repeatability of our strategy of investing in common stocks at reasonable prices, without leverage, and with a long-term horizon.

What internal factors led to underperformance in Period #2?

The Fund suffered some from its underexposure to Healthcare, which was a strong sector during the period. Most importantly, the Fund underperformed due to specific stocks. The leading detractor was again PDF Solutions, as it continued its business model transition toward SaaS data analytics for semiconductor manufacturing. Global Foundries announced a strategic shift away from investment in leading-edge manufacturing. PDF fell from $23 to $9 per share but set the stage for its outperformance since then. The Fund bought stock throughout 2017 and 2018.

What has happened since October 1, 2018?

From October 1, 2018 - September 30, 2024, the Fund returned an annualized 19.51%, versus 5.50% for the Russell 2000 Growth, delivering 14.39% of annualized Alpha.

The top 10 contributors were responsible for 90% of the Fund's returns since October 1, 2018. Between October 1, 2018 and September 30, 2024, Entegris was the top contributor and rose from $29 to $113 per share as its investments in advanced chemistries and filtration benefitted from the needs of advanced semiconductor manufacturing. PDF Solutions was the second leading contributor as it began to see results from its 2015-2018 investments. Super Micro was the third leading contributor and was an 18-bagger.

Underperformance Period #3: January 1 - June 30, 2022 (2 Quarters)

The Fund returned -31.32% versus the Russell 2000 Growth's -29.45%. The first half of 2022 was a nightmare, the worst first half for markets in 50 years. The big story was inflation. In June 2021, the consumer price index rose 9.1% year-over year, the highest rate in over 40 years. The Federal Reserve was behind the curve in raising interest rates, thinking inflation was "transitory." In March 2022, the Fed increased interest rates for the first time since 2015.

Additionally, in February, Russia assaulted Ukraine. It laid bare our assumptions about geopolitical stability and international economic cooperation.

What internal factors led to underperformance in Period #3?

Information technology stocks underperformed, and value and dividend yield stocks outperformed. This was exactly the wrong allocation for us, even with our valuation sensitivity. However, the Fund does not make portfolio decisions based on sector allocations. The Fund selects investments from the bottom up based on our investment process. The rising interest rate environment hurt a couple of our portfolio companies, as did company specific issues.

Let's look at our top detractors. All three were top 10 positions on June 30, 2022:

Aspen Aerogels, Inc. (ASPN) cost us the most as it fell over 80%. Aspen needed capital to add capacity to provide its PyroThin aerogel to the electric vehicle market. The stock market did not care about the company's wins at General Motors and other EV makers.

Vicor Corp. (VICR) fell from $127 to $55 in the period. The company was capacity constrained and was expanding a manufacturing plant in Andover, MA. The new plant was completely funded internally, but its delay held back revenue.

Entegris fell from $139 to $92. In December 2021, it announced a $6.5 billion acquisition of CMC Materials and used debt. The rising rate environment hurt the stock.

What has happened since June 30, 2022?

From June 30, 2022 - September 30, 2024, the Fund returned an annualized 26.69% versus 16.22% for the Russell 2000 Growth, delivering 11.71% of annualized Alpha.

The Fund's top 10 contributors since June 30, 2022 were responsible for over 80% of the Fund's returns. Our bottom 10 detractors averaged just 8% of assets and were early stage Hidden Compounders.

Super Micro was the top contributor, appreciating 10x in just 2 ¼ years since June 30, 2022. This contribution includes all of Super Micro's troubles as of September 30th, 2024. Vertiv Holdings Co. (VRT) was the second- leading contributor and appreciated over 11x as it recovered from inflation challenges.

Looking forward into 2025 -Why are we optimistic?

The Fund underperformed in the second and third quarters of 2024 and is trailing in the fourth quarter. The underperformance is mostly similar to previous periods, attributed to specific company performance due to idiosyncratic situations. However, the Fund was also underweight in outperforming sectors, such as Consumer and Financials. November was a very positive month for the markets and a little bit less so for the Fund. The markets reacted positively to the economic prospects from the U.S. election, with the thought there will be lower regulatory constraints on corporate investment, growth and M&A.

As previously mentioned, the Fund maintains a portfolio of companies aligned with our demonstrated methodology, Hidden to Quality Compounders. This process strengthens our confidence as we approach 2025. Our focus includes broadly defined infrastructure initiatives, such as reshoring U.S. manufacturing, expanding the U.S. power grid, developing data centers, advancing autonomous driving and more.

Additionally, the Fund's annualized turnover as of September 30 was just 8%. We look to invest in companies over a long period. For the past ten years, more than half of the Fund's outperformance came from multi-baggers that were held for a long time.

We should note that all this opportunity does not come without some risks. As we look ahead, the global political theatre is the most unstable in decades, with war in Eastern Europe and Middle East and the threat of an invasion of Taiwan by China. Additionally, inflation remains above the Fed's target rate of 2%, and with a new incoming administration, it remains to be seen how economic and trade policies will affect reaching that goal.

Conclusion

We are excited about the future of technology and the opportunity for industrials. We continue to believe that the U.S. needs infrastructure, including data centers and semiconductor manufacturing plants. These are multi-year trends, and we've added new investments that could benefit.

Here, we outlined some previous periods of underperformance by the Needham Aggressive Growth Fund that led to periods of strong outperformance. Again, it is important to note that past performance does not guarantee future results. Over the last decade, capturing the returns following a period of underperformance required staying invested. As we don't know when one period ends and another will begin, we believe that staying invested in a portfolio of attractively-valued common stocks with low turnover is a great way to create wealth over the long-term.

[1] https://www.needhamfunds.com/gf_commentary/maintaining-conviction-during-volatile-markets/

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Portfolio holdings are subject to change and may be long or short. Needham Aggressive Growth Fund’s ownership as a percentage of net assets in the stated securities as of September 30, 2024: PDFS: 4.30%, 005930-KR: 0.00%, GFS: 0.00%, FORM: 1.25%, NVMI: 1.59%, SMCI: 3.62%, ENTG: 0.86%, ASPN: 4.21%, VICR: 2.57% and VRT: 3.06%.

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