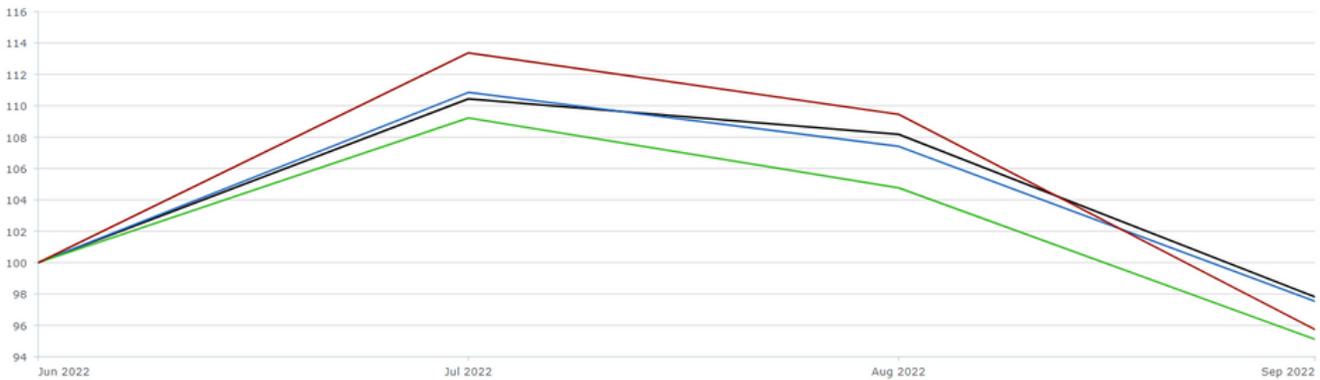


**MARKET REVIEW**

- In 3Q22, the S&P 500 returned -4.88%, the S&P 400 Index returned -2.46%, and the Russell 2000 Index returned -2.19%.
- In July, when investors believed the Federal Reserve might end its rate-raising cycle, the Russell 2000 returned 10.50% and the S&P 500 returned 9.22%. In late July, the Federal Reserve raised interest rates 75 basis points (bps). The markets were down moderately in August. In September, the markets gave back their July gains. The Federal Reserve raised rates another 75 bps in late September to 3.00%-3.25%. The Fed has indicated plans to increase rates to 4.25%-4.50% by year-end.



	RETURN
■ Needham Growth Institutional	(4.26)
■ S&P 500	(4.88)
■ S&P 400	(2.46)
■ Russell 2000	(2.19)

*Source: Zephyr Informais*
**MACRO OBSERVATIONS**

- 3Q22 was shocking in many ways. We continued to see atrocities from the Russian assault on civilians in Ukraine. European countries sought to end their dependence on Russian natural gas, which resulted in electricity price spikes. Countries and regions must shorten supply chains and become self-sufficient in energy and manufacturing.
- Year-over-year inflation was 8.5% in July 2022 and 8.3% in August. After June 2022, these are the highest levels since 1981.<sup>1</sup>
- Real gross domestic product (GDP) decreased by 0.6% in 2Q22 after declining by 1.6% in 1Q22.<sup>2</sup> A slow economy should rein in inflation. However, as Milton Friedman said, “Inflation is always and everywhere a monetary phenomenon, in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output.”<sup>3</sup> U.S. government spending over the last four years has led to an increase in the money supply.

**IMPACTS ON PORTFOLIO PERFORMANCE**

- The Fund’s Institutional (NEEIX) and Retail (NEEGX) classes returned -4.26% and -4.41%, respectively, in 3Q22, outperforming the S&P 500 and S&P 400, but underperforming the Russell 2000.
- Eight of the Fund’s top ten contributors were outside its top ten holdings. The top contributor was PDF Solutions, Inc. (PDFS). PDFS supplies data analytics Software-as-a-Service (SaaS) for the semiconductor manufacturing and design supply chain. PDFS reported strong revenue and bookings for its Analytics segment. PDFS also announced more details about its Exensio data analytics partnerships including with SAP SE (SAP). PDFS and SAP are working to connect factory data to the enterprise resource planning (ERP) data in SAP S/4HANA® to enable greater efficiencies in semiconductor manufacturing. This connection moves Exensio from engineering and manufacturing to a high value-added enterprise tool.

## IMPACTS ON PORTFOLIO PERFORMANCE (cont.)

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- Super Micro Computer, Inc. (SMCI), was the second largest contributor. Super Micro designs and manufactures servers and communications equipment for enterprise markets. Super Micro reported very strong earnings. It is gaining market share from Lenovo Group Limited (LNVGY-ADR), Hewlett Packard Enterprise Co. (HPE), Dell Technologies (DELL) and smaller competitors.
- The Fund's top detractor was long-time holding CarMax, Inc. (KMX). CarMax reported disappointing earnings due to a weakening consumer.
- FormFactor, Inc. (FORM) makes probe cards used to electrically test semiconductors, was the second leading detractor. It reported disappointing guidance. Intel (INTC) is one of its largest customers and continues to suffer from competition from Advanced MicroDevices, Inc. (AMD) and from its own engineering challenges.
- With 15% turnover, the Fund does not rotate into or out of sectors but invests in companies we believe can outperform over the long-term.

## PORTFOLIO CHANGES

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- We'd like to highlight nLight, Inc. (LASR) as a new holding in the quarter. nLight manufactures fiber lasers for industrial and defense applications. It is adding manufacturing capacity in its Camas, WA facility and focusing on business outside of China. China now comprises 10% of its revenue, down from over 25% a few years ago.
- We took advantage of market weakness to add to many of the Fund's positions, including:
  - Photronics, Inc. (PLAB), which manufactures photomasks to fabricate semiconductors and flat-panel displays. Photronics announced a strong quarter ending July 31. However, it slightly reduced guidance and the stock fell as a power outage in Korea caused a large customer to defer some deliveries. We estimate Photronics is trading at 5 x earnings, excluding its \$6 per share cash position.
  - Veeco Instruments, Inc. (VECO) supplies equipment used to manufacture leading-edge semiconductors for high-performance computing, data storage, consumer and other applications. Veeco is a small-cap with unique products not offered by its larger peers.
- The Fund exited NeoPhotonics (formerly NPTN) through takeover by Lumentum Holdings, Inc. (LITE).

## LOOKING AHEAD & OPPORTUNITIES

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- Many of our largest portfolio holdings have made multi-year investments that position them to deliver growth and positive returns over the next few years. We believe if these investments succeed, they could provide a hedge against macroeconomic factors such as inflation.
- The Fund targets investments that we perceive to have significant, unrecognized growth opportunities. COVID-19 hastened the revolutionary development in technology and life sciences; the Fund is a long-term investor in companies that enable the research and manufacturing to bring these developments to market.

[1] <https://www.bls.gov/news.release/cpi.nr0.htm>

[2] [https://www.bea.gov/data/gdp/gross-domesticproduct#:~:text=Real%20gross%20domestic%20product%20\(GDP,second%E2%80%9D%20estimate%20released%20in%20August,](https://www.bea.gov/data/gdp/gross-domesticproduct#:~:text=Real%20gross%20domestic%20product%20(GDP,second%E2%80%9D%20estimate%20released%20in%20August,)

[3] [Milton Friedman, Asia Publishing House for the Council for Economic Education \(Bombay\), 1963.](#)

	3 MO	YTD	1YR	3YR	5YR	10YR	SINCE INCEPT.
Needham Growth Fund Inst Class**	-4.26%	-35.94%	-31.51%	9.14%	8.03%	10.02%	12.38%
After Taxes on Distributions	-4.26%	-35.94%	-32.52%	7.17%	5.69%	8.23%	10.96%
After Taxes on Distributions & Redemptions	-2.52%	-21.28%	-17.18%	7.26%	6.17%	7.94%	10.60%
Needham Growth Fund Retail Class	-4.41%	-36.19%	-31.84%	8.64%	7.50%	9.52%	11.89%
After Taxes on Distributions	-4.41%	-36.19%	-32.88%	6.63%	5.13%	7.71%	10.47%
After Taxes on Distributions and Redemptions	-2.61%	-21.42%	-17.32%	6.99%	5.77%	7.53%	10.15%
S&P 500 Index	-4.88%	-23.87%	-15.47%	8.16%	9.24%	11.70%	8.82%
S&P 400 Index	-2.46%	-21.52%	-15.25%	6.01%	5.82%	10.04%	10.57%
Russell 2000 Index	-2.19%	-25.10%	-23.50%	4.29%	3.55%	8.55%	7.83%

Average Annual Returns as of September 30, 2022. The Needham Growth Fund inception date is January 1, 1996.

\*\*Performance for any periods prior to the inception date of Institutional Class Shares are based on the historical performance of the Retail Class Shares adjusted to assume the expenses associated with Institutional Class Shares.

The Needham Growth Fund's Gross Expense Ratio is 1.78% for the Retail Class and 1.50% for the Institutional Class. The Needham Growth Fund's Net Expense Ratio is 1.78% for the Retail Class and 1.40% for the Institutional Class. The Net Expense Ratio reflects a contractual agreement by the Fund's investment adviser to waive its fee and/or reimburse the Fund through April 29, 2023 to the extent the Gross Expense Ratio exceeds 1.95% and 1.40% of the average daily net assets of Retail Class Shares and Institutional Class Shares (Expense Cap). The Expense Cap excludes taxes, interest, brokerage, dividends on short positions, fees and expenses of "acquired funds," extraordinary items and shareholder redemption fees but includes the management fee.

[Needham Growth Fund Fact Sheet Link](#) [Prospectus Link](#)

## Definitions and Disclosures

The information presented in this commentary is not intended as personalized investment advice and does not constitute a recommendation to buy or sell a particular security or other investments. This message is not an offer of the Needham Growth Fund, the Needham Aggressive Growth Fund or the Needham Small Cap Growth Fund (each a "Fund" and collectively, the "Funds"). Shares are sold only through the currently effective prospectus, which must precede or accompany this report. Please read the prospectus or summary prospectus and carefully consider the investment objectives, risks and charges and expenses of the Funds before you invest. To obtain a copy of the Fund's current prospectus, please visit [www.needhamfunds.com](http://www.needhamfunds.com) or contact the Fund's transfer agent, U.S. Bancorp Fund Services, LLC at 1-800-625-7071.

Investment returns and principal value will fluctuate, and when redeemed, shares may be worth more or less than their original cost. Performance data quoted represents past performance and does not guarantee future results. Current performance may be higher or lower than these results. Performance current to the most recent month-end may be obtained by calling our transfer agent at 1-800-625-7071. Total return figures include reinvestment of all dividends and capital gains.

All three of the Needham Funds have substantial exposure to small and micro capitalized companies. Funds holding smaller capitalized companies are subject to greater price fluctuation than those of larger companies. Portfolio holdings are subject to change. Needham Growth Fund's ownership as a percentage of net assets in the stated securities as of 9/30/22: PDFS: 8.31%, SAP: 0.00%, SMCI: 2.86%, LNVGY-ADR: 0.00%, HPE: 0.00%, DELL: 0.00%, KMX: 3.79%, FORM: 2.47%, INTC: 0.00%, AMD: 0.00%, LASR: 0.91%, PLAB: 2.45%, VECCO: 1.15%, NPTN: 0.00% and LITE: 0.00%.

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