

August 2017

**Dear Shareholders, Friends of Needham and Prospective Shareholders,**

We are pleased to report results for the second quarter and first half of 2017 for the Needham Growth Fund, Needham Aggressive Growth Fund, and Needham Small Cap Growth Fund. Our mission is to create wealth for long-term investors.

**Needham Funds' Second Quarter and Semiannual Review**

In the second quarter, the Needham Growth Fund Retail and Institutional classes returned 2.24% and 2.35%, respectively; the Needham Aggressive Growth Fund Retail and Institutional classes returned (0.44)% and (0.26)%, respectively; and the Needham Small Cap Growth Fund Retail and Institutional classes returned 5.43% and 5.55%, respectively. During the same period, the Russell 2000 Total Return Index returned 2.46% and the S&P 500 Total Return Index returned 3.09%.

For the half year, the Needham Growth Fund Retail and Institutional classes returned 4.03% and 4.29%, respectively; the Needham Aggressive Growth Fund Retail and Institutional classes returned 1.17% and 1.48%, respectively; and the Needham Small Cap Growth Fund Retail and Institutional classes returned 7.02 and 7.28%, respectively. For the half year, the Russell 2000 Total Return Index returned 4.99% and the S&P 500 Total Return Index returned 9.34%.

**Availability of a New Institutional Share Class**

Needham Funds' Institutional share class is available for sale. The purpose of this Institutional class is to offer a lower cost option to our investors who have a substantial amount invested in The Needham Funds. Highlights, as detailed in the [prospectus<sup>1</sup>](#), are:

- \$100,000 investment minimum (aggregation permitted);
- No 12b-1 fees;
- An expense ratio capped at 1.40% (not including shorting and interest/dividend expenses); and
- Tax-free conversions from the retail shares.

Institutional shares are currently available on Fidelity, Schwab, Pershing, Raymond James, Wells Fargo, and LPL platforms, and are also available for direct shareholders of Needham Funds. We are working to broaden distribution of these lower cost shares and encourage you to contact your financial advisor or intermediary about when you might find them available.

The institutional ticker symbols are Needham Growth Fund (NEEIX), Needham Aggressive Growth Fund (NEAIX), and Needham Small Cap Growth Fund (NESIX). The Needham Funds Retail share fund class is available as before under the ticker symbols NEEGX, NEAGX, and NESGX.

**First Half 2017**

In January, the market rallied on President Trump's inauguration and proposals of pro-growth tax reform, infrastructure spending, and a reduced regulatory burden. In February, President Trump promised a "phenomenal tax plan" and to streamline the new drug regulatory process. The markets rallied; however, failure to pass the first attempt to repeal the Affordable Care Act and introduce new healthcare legislation brought worries that tax reform would be delayed. Still, the averages rallied for each month of the quarter. For the quarter, all three Funds were positive, but trailed the averages.

---

<sup>1</sup> Prospectus is available at <http://www.needhamfunds.com/literature.html>

In April, the market was positive and so were the Needham Funds. The preliminary GDP showed just 0.7% economic growth, although that was later revised to a still low 1.2%. The Atlanta Fed's GDPNow shows preliminary second quarter GDP growth at a slightly higher 2.5%, making the first half of 2017 consistent with the growth of the last 8 years.

In May, the market was mixed, and the Needham Growth Fund and Needham Small Cap Growth Fund outperformed. During the month, we witnessed the firing of FBI Director James Comey and North Korea's third missile launch.

June saw the market up and the Needham Small Cap Growth Fund outperforming the indices. There was a sell-off in the FANG stocks (Facebook, Amazon, Netflix, Google/Alphabet), which lasted about one week.

Market volatility is currently low as the VIX is close to its lowest on record. We imagine that volatility could increase from this low level.

### **John Barr's Second Quarter Commentary — On the Road**

***"The big money is not in the buying and the selling, but in the waiting."- Charlie Munger***

As Charlie Munger, Vice Chairman of Berkshire Hathaway, said, "The big money is not in the buying and the selling, but in the waiting." He also said, "Understanding both the power of compound interest and the difficulty of getting it is the heart and soul of understanding a lot of things." Waiting with the right investments is the key to producing compound returns.

At the end of June, the trailing 12-month turnover for the Needham Aggressive Growth Fund was 3% and for the Needham Growth Fund was 5%. So if there's limited trading in my Funds, what do I, the portfolio manager, do on a daily basis? From [Poor Charlie's Almanack](#): "The only way to win is to work, work, work, work and hope to have a few insights." Having the patience to wait means having confidence in an investment. Each day is an opportunity to learn more about the companies in the Needham Funds and research candidates for future investment. That means reading a lot of SEC filings, earnings call transcripts, blogs and websites. It means traveling to meet with companies at their headquarters, attending industry conferences, and talking to people outside of Wall Street. It means crafting a thesis on whether or not a company has a strong strategic position and if it can earn a superior return on invested capital over the long term.

In the second quarter, I was on the road. I'd like to highlight a few of my recent trips.

#### **Omaha**

I started this section with some wisdom from Charlie Munger. In early May, I attended the Berkshire Hathaway, Inc. (BRK.A and BRK.B) [annual meeting](#) and associated dinners in Omaha. The day of the meeting, I was up at 4:30am to get in line for a seat in the CenturyLink Center. It was amazing to see Warren Buffett and Charlie Munger answer shareholder questions all day long. Perhaps it's obvious, but I was struck by their steady optimism over long lifetimes of investing. They talk like businesspeople and company owners rather than stock traders.

A shareholder asked what dreams Buffet and Munger have. Ninety-three-year-old Munger answered, "Sometimes when I'm especially wistful, I think—oh to be 90 again." While Warren Buffet's quotes and life story are well known, Charlie Munger is just as interesting. There are two Munger biographies that I recommend, [Damn Right](#), by Janet Lowe (Wiley, 2007), and [Charlie Munger: The Complete Investor](#), by Tren Griffin (Columbia University Press, 2015). And the definitive work on Munger is [Poor Charlie's Almanack](#), compiled by Peter Kaufman and Charlie Munger (Walsworth, 2005).

I think Markel Corporation (MKL), a holding in both the Needham Growth Fund and Needham Aggressive Growth Fund, is like a mini Berkshire Hathaway, Inc.—it is a diverse financial holding company that underwrites specialty insurance products. Markel holds its one and only annual analyst and investor meeting the Sunday after the Berkshire meeting. The company started holding its meeting in Omaha in 1991—the company wanted to attract the Berkshire investors and there's no better way than going to Omaha the first weekend of May.

Markel applies the earnings and discretionary float from the insurance to: 1) acquire complementary insurance companies; 2) buy operating companies for Markel Ventures; and 3) invest in public equities and debt. Markel has a \$13 billion market cap and opportunities for growth. From its IPO in December 1986 at \$8.33, Markel has compounded at 16.6% and risen to \$975.86 per share as of June 30. [The Markel Style](#) defines the corporate culture which has produced these long-term results.

### **Chicago**

In June, I attended the [DIRTT Connex User Conference](#) in Chicago. DIRTT Environmental Solutions Ltd. (TSE:DRT) is a small cap holding of the Needham Aggressive Growth Fund. The company has an incredible computer-aided design system used to design building interiors, produce a bill of materials, and then send manufacturing files to DIRTT plants, where they produce the interiors. It saves significant time and waste on a construction site. I believe DIRTT may be the future of interior construction.

I also attended a meeting with the CEO of Oil-Dri Corporation of America (ODC), Dan Jafee. Dan meets with investors twice a year. Oil-Dri had just reported earnings and has continued to make progress with its lightweight cat litter and animal health products. Should lightweight cat litter increase its market share, Oil-Dri is positioned to benefit based on its majority share of the private label market. [We urge our cat owner friends and investors to try Oil-Dri's Cat's Pride Fresh & Light Ultimate Care cat litter!](#)

### **San Francisco**

In early July, I attended the annual [SEMICON West](#) manufacturing conference in San Francisco and met with many semiconductor equipment and services companies, including Needham Funds holdings: PDF Solutions, Inc. (PDFS), MKS Instruments, Inc. (MKS), Nova Measuring Instruments, Ltd. (NVMI), Applied Materials, Inc. (AMAT), Entegris, Inc. (ENTG) and Form Factor, Inc. (FORM). I believe these companies have years of growth ahead of them.

The debate in semiconductor industry circles revolves around the question of cyclical versus secular growth. It is always dangerous to say, "This time is different." I believe consensus is that the semiconductor equipment stocks will suffer in unison, owing to an over-build in capacity. Yet, NAND memory is replacing disk drives in storage systems. Given the growth in data storage and the early stage of this replacement cycle, we believe the NAND memory and equipment makers could see growth for a number of years. Nonetheless, the stocks will have days or weeks when the "top is in" argument will rule.

It was a good quarter of working, and waiting.

### **Needham Growth Fund (NEEGX/NEEIX)**

The Needham Growth Fund Retail class returned 2.24% and the Institutional class returned 2.35% in the second quarter. For the first six months of 2017, The Needham Growth Fund Retail class returned 4.03% and the Institutional class returned 4.29%.

For the second quarter and the half year, long-time holding and largest position Thermo Fisher Scientific Inc. (TMO) was the top contributor, returning 13.7% in the second quarter and 23.7% in the first half. Thermo Fisher develops instruments and consumables used in life science and other research-oriented industries. Thermo Fisher demonstrated solid growth and strong margins in its pharma and biotech markets.

Corium International, Inc. (CORI) was the Fund's second leading contributor for the quarter and third leading for the half year. Corium returned 78.5% in the second quarter and 83.5% year-to-date through June 30. Corium is developing a patch-based drug-delivery system and plans to address the Alzheimer's market with a patch-based donepezil drug.

The largest detractor in the quarter and year-to-date was PDF Solutions, Inc. (PDFS), with almost the entire 27.3% decline occurring during the second quarter. In the March quarter, PDF's gainshare (royalty) revenue was below the estimates of the two Wall Street analysts following the company. However, we are invested in PDF for its new Design-for-Inspection service, which is sold to semiconductor design and manufacturing companies to determine whether leading-edge semiconductors can be manufactured with high yield. In 2017, PDF has made significant progress with DFI. During its July 27 conference call, PDF mentioned that John Chen of NVIDIA Corporation (NVDA) was the keynote speaker at PDF's User Meeting. This is the first confirmation that NVIDIA, a leader in computer graphics and artificial

intelligence industries with a \$98 billion market cap, is a Design-for Inspection customer. We took advantage of the weak stock price and added to our position.

In the first half, the Needham Growth Fund added new positions in Coupa Software Inc. (COUP), Clean Harbors, Inc. (CLH), comScore, Inc. (SCOR) and Markel (MKL). We also took advantage of price weaknesses and added to existing positions in KVH Industries, Inc. (KVHI), Oil-Dri Corporation of America (ODC), Pure Storage, Inc. Class A (PSTG), Amber Road, Inc. (AMBR), Photronics, Inc. (PLAB), and Agile Therapeutics, Inc. (AGRX).

The Needham Growth Fund sold its positions in Jabil Circuit, Inc. (JBL) and UltraClean Holdings, Inc. (UCTT) as both stocks hit our price targets. In the first quarter, we purchased Xactly Corp. (formerly XTLY), a sales compensation tracking and management company, and sold it in the second quarter as the company agreed to sell to Vista Equity. We are sorry to see Xactly go (as we believed it had years of growth ahead as a public company). We sold nearly 20% of the Fund's position in Express Scripts Holding Company (ESRX). We also sold over 15% of the Fund's positions in Thermo Fisher Scientific, MKS Instruments, and Nova Measuring Instruments (NVMI).

#### **Needham Aggressive Growth Fund (NEAGX/NEAIX)**

The Needham Aggressive Growth Fund Retail class lost 0.44% and the Institutional class lost 0.26% in the second quarter. For the first six months of 2017, The Needham Aggressive Growth Fund Retail class returned 1.17% and the Institutional class returned 1.48%.

Corium International was the top contributor for the second quarter and the fourth largest year-to-date as of June 30, 2017. Entegris Inc. (ENTG) was the second leading contributor for the half-year with a return of 22.6%. All of this gain came in the first quarter. Entegris supplies filters and chemicals used in advanced manufacturing processes. Semiconductor plants require the equivalent of capturing one contaminated drop of water in a day's worth of water flowing over Niagara Falls. Advanced manufacturing is necessary to make low power semiconductors, which are necessary to extend battery life in mobile phones. After several years of investment, Entegris reported a strong 2016, including December quarter results, with margins ahead of expectations.

Four investments were both top ten contributors for the second quarter and the half year: Nova Measuring Instruments, Norsat International (NSAT), Oil-Dri, and IPG Photonics (IPGP).

Nova Measuring Instruments returned 18.8% in the second quarter and 67.9% year-to-date at June 30. Nova Measuring develops and supplies optical critical dimension (OCD) metrology equipment to the semiconductor manufacturing industry. Metrology data is now being used to control manufacturing equipment. Nova Measuring is benefiting from success with advanced logic customers, such as Taiwan Semiconductor Manufacturing Co. Ltd. (2330.TW), and memory customers. It is also benefiting from the sale of high-margin software into their installed base. Nova Measuring reported a strong first quarter.

Norsat supplies communications equipment to commercial and government customers. It returned 44.3% through June 30, as it agreed to a takeover by Hytera Communications Corporation Ltd. (002583.SHE). Norsat was a two-year holding of the Fund and was a micro-cap company. We were very impressed with the management team of CEO Dr. Amiee Chan and CFO Arthur Chin.

Oil-Dri returned 13.4% in the second quarter and 10.0% for the first half. The company continues to make progress with its private label, lightweight cat litter and animal health products.

IPG Photonics returned 20% in the second quarter and 47% for the first half. IPG Photonics is the leading fiber laser company. It is a vertically integrated maker of laser systems used in industrial cutting and welding applications. IPG is replacing the legacy carbon dioxide lasers. The automotive market is early in the adoption of fiber lasers for welding. Fiber lasers use much less power so they're easier on the operating budgets of users. They are also easier to operate, as carbon dioxide lasers require very sophisticated set-up and support. IPG's manufacturing scale gives a significant cost advantage. The company has a return on trailing year capital of approximately 20%, and as a supplier ranging from components to systems has good reinvestment opportunities. IPG reported a strong first quarter and the stock rallied.

Cryoport, Inc. (CYRX) is a new position within the second quarter and was a top ten contributor returning 108.5%. Cryoport supplies coldchain logistics for biopharma, in vitro fertilization and animal health. It ships biological samples at temperatures down to -150C. It has been selected by most of the very high-value CAR-T (chimeric antigen receptors-T cells), which are anti-cancer drugs that the FDA is giving fast track to market. Customers include Kite Pharma, Inc. (KITE) and Novartis AG (NOVN).

The Fund's leading detractor by far was PDF Solutions, which is also the Fund's largest position. We took advantage of the stock price weakness to add shares.

Akamai Technologies, Inc. (AKAM) was the second largest detractor and fell 16.6% in the second quarter and 25.3% for the half year. Akamai reported disappointing guidance in its media delivery business and that it will be investing in cloud-based security and enterprise content delivery service offerings, and the market responded negatively. Longer term, the media delivery business should benefit from growth in over-the-top video.

GSE Systems, Inc. (GVP) also detracted from second quarter performance with an 8.9% decline. For the half year, GSE declined 11.4%, despite reporting very good results in the first quarter. First quarter revenue was \$16.3 million—the highest total in over a decade and measured 26% growth relative to the first quarter of 2016. GSE also reported \$0.8 million of adjusted EBITDA, making the seventh-consecutive quarter of positive adjusted EBITDA. New orders were near \$20 million. We believe the need for training and personnel in the nuclear industry remains healthy. GSE has \$1.20 per share of cash, no debt, and a \$3.10 per share stock price as of June 30. Its total market cap is just \$56 million. We believe the stock price decline is a reflection of the inefficiency and vagaries which may happen in microcaps, and we remain enthusiastic about GSE's prospects.

It was a very light trading half for the Aggressive Growth Fund. In the first half, we added new positions in comScore, Markel, DIRT Environmental (DRT), Pure Storage, Cryoport, Coupa Software, and Ecology and Environment (EEI).

We added to positions in Oil-Dri, KVH Industries, ViaSat, Inc. (VSAT), PDF Solutions, comScore, Vicor Corporation (VICR), GSE Systems, Akamai and Reis, Inc. (REIS) on their weaknesses. We exited TheStreet Inc. (TST), and also Xactly on M&A. It was an active half for M&A, as takeovers were announced of portfolio companies Xactly, Xcerra Corporation (XCRA), ARI Network Services, Inc. (ARIS) and Norsat.

#### **Needham Small Cap Growth Fund (NESGX/NESIX)**

The Needham Small Cap Growth Fund Retail class returned 5.43% and the Institutional class returned 5.55% in the 2Q17. In the first half of 2017, the Fund's Retail class returned 7.02% and the Institutional class returned 7.28%. The Russell 2000 Total Return Index returned 2.46% in the second quarter and 4.99% in the first half. We were very pleased with the performance of the Fund in the first half of 2017 after great performance from our holdings in 2016. We were concerned regarding a greater correction in many of our stocks; however, that correction was short lived in the first quarter and recovered by the end of the first half. We used our strategic cash position to redeploy cash into both new and existing positions that we believe offer great value. Mergers and acquisitions continued in the small capitalization stocks but slowed over 2016 activity. We believe this trend is a pause until tax reforms are established and repatriation of cash occurs. While the first half rewarded many of our stocks, we remain vigilant to any downturn in the multi-year bull run that we have experienced.

The Fund continued to show strength into the second quarter after the short-lived market pullback in the middle of the first quarter. As fears of an economic slowdown subsided and earnings season concluded, meetings with company management teams remained upbeat and stocks recovered. We were able to significantly deploy our cash levels into new and existing positions and ended the quarter with approximately 3% cash. We also were able to return to our more normal concentration with our top ten holdings accounting for over 51% of the Fund. Top holdings at June 30 included Pure Storage (PSTG), Amber Road (AMBR), PDF Solutions (PDFS) and FireEye (FEYE). Our top quarterly contributors included Pure Storage, Corium International, FireEye, Reis, Inc. and Amber Road. Our detractors were PDF Solutions, Frequency Electronics (FEIM), Photonics (PLAB) and Navigator Holdings (NVGS). In general, our technology exposure was able to perform well even during a period of volatile political rhetoric and failure to pass any major policy changes. We continue to believe that some policy change will occur; however, as we have discussed, we believe the timing of these changes is further into the future than originally expected by the market.

We expect consolidation to continue in the enterprise hardware sector and we remain exposed to this potential trend through our investments in Pure Storage (PSTG) and Nutanix (NTNX). Both of these holdings recovered in the quarter and the correction they experienced in the early part of the year allowed us to add to these positions at more reasonable entry points. While we remain confident in their long-term business plans, we recognize that the shortage in memory components and increased pricing for these components may weigh on margins for a more extended period of time while revenue continues to expand near term.

As an update to our long-term investment in Ultra Clean Holdings, Inc. (UCTT), we exited the position as the stock price achieved and surpassed our price target. The company has been a tremendous contributor to the Fund over the past several years and we believed it was time to realize profits in the stock. While the semiconductor capital equipment cycle remains vibrant, we look for better valuation entry points to initiate or add to positions. PDF Solutions (PDFS), FormFactor (FORM) and Photronics (PLAB) are three companies that we believe offer a better risk/reward at their current valuations.

We still believe it is a good environment for investment in equities. We still expect pro-growth policies from the new administration; however, the timing of these policies is the big question mark and may take longer than initially expected. Small cap stocks in particular look more attractive now, as they significantly underperformed relative to large cap companies. The strength in the high-yield market also gives us confidence for now that small caps are in a bullish uptrend. Although a slight slowdown in activity occurred in the first half of the year, mergers and acquisitions should remain active and could accelerate if tax reform and repatriation is passed.

### **Closing**

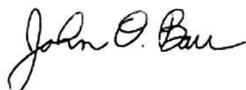
To reiterate our overall thesis: we believe the U.S. remains the best place in the world to be investing and working. We believe there remains an opportunity to invest in small and mid-cap stocks. Monetary policy remains accommodative. Most importantly, we see a revolution happening in technology that has created and continues to create investment opportunities. We see opportunity in our strategy of investing in companies that we know well and that we believe are positioned with secular growth drivers.

We welcome our new investors and thank all of our investors for their continued support. If you have any questions, thoughts or concerns, please contact us at (800) 625-7071 or send us an email at [cretzler@needhamco.com](mailto:cretzler@needhamco.com) or [jbarr@needhamco.com](mailto:jbarr@needhamco.com). For information about the funds, please visit our website at [www.needhamfunds.com](http://www.needhamfunds.com).

Sincerely,



Chris Retzler  
Portfolio Manager



John O. Barr  
Portfolio Manager

### Needham Funds Fact Sheet Links:

[Needham Growth Fund](#)

[Needham Aggressive Growth Fund](#)

[Needham Small Cap Growth Fund](#)

*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. Past performance is no guarantee of future results. Not all investments have been profitable.*

*This message is not an offer of the Needham Growth Fund, the Needham Aggressive Growth Fund or the Needham Small Cap Growth Fund. Shares are sold only through the currently effective prospectus. Please read the prospectus carefully and consider the investment objectives, risks, and charges and expenses of the Fund carefully before you invest. The prospectus contains this and other information about the Fund.*

*A copy of the prospectus is available at [www.needhamfunds.com](http://www.needhamfunds.com) or by contacting the Fund's transfer agent, U.S. Bancorp Fund Services, LLC at 1-800-625-7071.*

*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.*

Needham & Company, LLC, member FINRA/SIPC, is the distributor of The Needham Funds, Inc.

*Portfolio holdings are subject to change. The Needham Funds ownership as a percentage of net assets in the stated securities as of 6/30/17:*

SECURITY	NEEGX	NEAGX	NESGX	SECURITY	NEEGX	NEAGX	NESGX
MKL	0.13%	0.23%	0.00%	ENTG	3.07%	6.59%	0.00%
TMO	7.84%	0.00%	0.00%	NSAT	0.00%	1.53%	0.00%
CORI	1.41%	1.65%	2.98%	IPGP	0.75%	1.72%	0.00%
PDFS	3.55%	7.86%	6.17%	CYRX	0.00%	0.58%	0.00%
NVDA	0.00%	0.00%	0.00%	KITE	0.00%	0.00%	0.00%
COUP	0.06%	0.11%	0.00%	NOVN	0.00%	0.00%	0.00%
CLH	0.14%	0.35%	0.00%	AKAM	2.15%	5.12%	0.33%
SCOR	1.59%	2.65%	2.65%	GVP	0.00%	4.99%	0.00%
MKL	0.13%	0.23%	0.00%	DRT.TF	0.00%	0.62%	0.00%
KVHI	4.42%	5.44%	4.32%	EEI	0.00%	0.56%	0.00%
ODC	0.79%	3.28%	0.00%	VSAT	5.00%	2.62%	4.41%
PSTG	0.55%	0.30%	8.11%	VICR	0.31%	2.05%	0.00%
AMBR	3.28%	2.39%	6.43%	REIS	1.51%	4.03%	4.65%
PLAB	1.27%	1.45%	3.80%	TST	0.00%	0.00%	0.00%
AGRX	0.34%	0.50%	3.00%	XCRA	0.00%	0.12%	0.00%
JBL	0.00%	0.00%	0.00%	ARIS	0.00%	0.17%	0.00%
UCTT	0.00%	0.00%	0.00%	FEYE	0.00%	0.00%	4.82%
XTLY	0.00%	0.00%	0.00%	FEIM	0.41%	0.44%	4.11%
ESRX	5.51%	0.61%	0.21%	NVGS	0.04%	0.00%	0.55%
MKSI	1.86%	2.87%	0.00%	NTNX	0.21%	0.05%	3.53%
NVMI	1.24%	2.46%	0.00%	FORM	3.89%	3.58%	0.75%