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NEEDHAM FUNDS**First Half 2019****Macro Commentary****Review of the First Half of 2019**

The Needham Funds' mission is to create wealth for long-term investors and the first half of 2019 was a good step forward.

For the half year 2019, the Needham Growth Fund Institutional and Retail classes returned 25.83% and 25.45%, respectively; the Needham Aggressive Growth Fund Institutional and Retail classes returned 22.66% and 22.30%, respectively; and the Needham Small Cap Growth Fund Institutional and Retail classes returned 29.36% and 29.03%, respectively. The Russell 2000 Index returned 16.98% and the S&P 500 Index returned 18.54%.

In January, the markets roared and the Needham Funds earned back the December losses and most of the fourth quarter 2018 losses. Talk of a global economic slowdown created uncertainty surrounding the U.S. Federal Reserve's plan to increase interest rates in 2019. On January 25, the 35-day partial U.S. Federal government shutdown ended.

At its February 1 meeting, the Federal Reserve decided to hold interest rates flat and forego the planned hikes for 2019, confirming what the market had anticipated. The Fed cited slow growth in China and Europe, Brexit, the risks of U.S.-China trade talks, and the government shutdown. While a Federal Reserve pause is good for the equity markets, we also recognize that 2.25-2.50% is a historically low range for interest rates. We have long said that as a rule, monetary authorities pursue easy money policies. Paul Volcker was the one exception in the last 40 years. We believe equity markets could continue to benefit in 2019 from these easy monetary policies.

In February, fourth quarter 2018 GDP growth was confirmed at 2.6%, versus an initial estimate of 1.8-2.0%. The U.S. also agreed to postpone its announced tariff increase from 10% to 25% on \$200 billion of Chinese goods, and trade negotiations continued. In House testimony, Federal Reserve Chairman Powell confirmed that the Fed will pause on its plan to downsize its \$4 trillion balance sheet.

March was a relatively flat month. Inverted yield curves have traditionally foreshadowed economic slowdowns. For a few days in March, the yield curve inverted when the yield on 10-Year Treasuries fell below maturity dates under one year. By the end of March, Chairman Powell said wages were growing, consumer confidence rebounded, and economic fundamentals were strong.

In April, the market continued its positive trend of the first quarter and the Fund outperformed. Unemployment was just 3.6% and first quarter GDP growth was 3.1%. April closed with Secretary of the Treasury making positive comments about trade negotiations with China. Within the week, the talks were off and President Trump accused the Chinese of attempting to "renegotiate" the agreement. Economists were predicting that second quarter GDP growth would fall to 1.5%, as the U.S. was threatening trade wars with Europe and China.

In May, the market was down and the Fund underperformed owing to weakness in semiconductor capital equipment stocks. The economy weakened in May, and the Labor Department reported that only 72,000 jobs were added. The U.S. raised tariffs on \$200 billion of Chinese goods to 25% from 10%. A few days later, on May 15, President Trump issued a national security order effectively banning sales to Huawei over concern that Huawei posed a national security risk to the United States.

The President is concerned that Huawei's leadership position in supplying 5G wireless equipment to countries around the world, including U.S. allies in Western Europe, would make U.S. communications vulnerable. As Huawei is part of the integrated worldwide electronics supply chain, May brought uncertainty to semiconductor companies. I had previously written about expecting a U.S.-China trade deal. At this point, it is hard to be an optimist on trade, although both sides would benefit from a resolution.

In response to the May economic weakness, talk of a Federal Reserve rate cut started in June. In June, the markets roared higher and the Fund once again outperformed. By mid-July, Federal Reserve Chairman Powell signaled that a 25bps rate cut was appropriate in July, given concern about economic weakness.

Our outlook for 2019 remains positive, with an accommodative Federal Reserve, and value recognition in our small cap companies that lagged in 2018. We look forward to a year of patience rewarded.

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