THE CASE FOR MICRO-CAP EQUITIES
Micro-cap equities present a compelling investment opportunity for long-term investors. In an increasingly efficient and competitive market, this segment is perhaps the only one that has become less efficient. With Wall Street research coverage and investment manager attention increasingly focused on larger stocks, institutional neglect has increased in recent years. Imperfect information flows, market cap and share price restrictions, and illiquidity frequently create tremendous opportunities to buy companies at dramatic discounts to intrinsic value. Micro-caps have therefore become even more attractive to those who are willing and able to put in the work needed to capitalize on a unique opportunity set.

Here is an outline of the rationale for investing in micro-caps, both as an asset class and specifically in Ariel’s deep value strategy:

- Over long periods of time, micro-cap stocks outperform other equities.
- Micro-cap stocks improve a portfolio’s risk/return characteristics.
- Adding a deep value approach to a micro-cap strategy increases outperformance.
- Perceived negatives such as illiquidity actually benefit long-term investors.
- Ariel’s proven approach provides further opportunity by exploiting inefficiencies.

At Ariel Investments, we define a micro-cap stock as one whose total market capitalization at the time of initial purchase is less than $500 million. This is in line with other definitions; for instance, the Center for Research in Security Prices (CRSP) at the University of Chicago Booth School of Business uses deciles 9 and 10 of its comprehensive US equity data base. At year-end 2009, this corresponded with stocks under $431 million in market cap.1

### Long-Term Outperformance of Micro-Cap Stocks

More than 80 years of data support the case that micro-cap stocks have been by far the highest returning segment of the domestic equity market. CRSP has data from 1926-2009 which show the following average annual returns:2

<table>
<thead>
<tr>
<th></th>
<th>5 years</th>
<th>10 years</th>
<th>25 years</th>
<th>Life of Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro-Cap</td>
<td>$1,770</td>
<td>$3,134</td>
<td>$17,384</td>
<td>$14.68 mm</td>
</tr>
<tr>
<td>Low-Cap</td>
<td>$1,708</td>
<td>$2,917</td>
<td>$14,534</td>
<td>$8.05 mm</td>
</tr>
<tr>
<td>Mid-Cap</td>
<td>$1,677</td>
<td>$2,814</td>
<td>$13,283</td>
<td>$5.95 mm</td>
</tr>
<tr>
<td>Large-Cap</td>
<td>$1,596</td>
<td>$2,547</td>
<td>$10,353</td>
<td>$2.57 mm</td>
</tr>
</tbody>
</table>

In addition, this outperformance has been persistent. Richard Imperiale’s study (encompassing 1926-2002) documented that micro-caps outperform large-caps 98% of the time for rolling 20-year periods.3

### Positive Impact on Portfolio Risk/Return Profile

Most readers will not be surprised by the return data shown above; informed investors assume higher returns found in very small stocks are simply a trade-off for taking on higher risk. That is, smaller companies are inherently riskier than larger ones. Many assume that further implies adding them to a portfolio will add to its overall riskiness.

The data says otherwise. Micro-cap stocks do not behave merely like a smaller version of small-cap stocks (i.e. low-cap, or those in the deciles 6-8). Because micro-caps are generally far off of the radar of Wall Street, their individual and collective return profiles do not correlate highly with larger stocks. The Dow Jones Wilshire US Micro-Cap Index, for example, has shown a correlation of .71 with the S&P 500.4 Micro-cap stocks are indeed a separate asset class – and adding them to a typical balanced portfolio can produce surprising results, as shown in the following table produced by Richard Imperiale:5

<table>
<thead>
<tr>
<th>Allocation</th>
<th>Stocks</th>
<th>Bonds</th>
<th>Micro-Caps</th>
<th>Annual Return</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>40</td>
<td>0</td>
<td>12.1%</td>
<td>7.7%</td>
<td>13.3%</td>
</tr>
<tr>
<td>55</td>
<td>40</td>
<td>5</td>
<td>11.3%</td>
<td>8.2%</td>
<td>12.7%</td>
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<tr>
<td>50</td>
<td>40</td>
<td>10</td>
<td>10.9%</td>
<td>8.7%</td>
<td>11.6%</td>
</tr>
<tr>
<td>45</td>
<td>40</td>
<td>15</td>
<td>9.6%</td>
<td>9.2%</td>
<td>10.6%</td>
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<td>40</td>
<td>40</td>
<td>20</td>
<td>9.9%</td>
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<td>35</td>
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<td>25</td>
<td>10.2%</td>
<td>10.2%</td>
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<td>30</td>
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<td>30</td>
<td>10.6%</td>
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<td>45</td>
<td>11.2%</td>
<td>11.2%</td>
<td>8.9%</td>
</tr>
</tbody>
</table>


Over long periods of time this advantage becomes quite significant. $1,000 invested in each of these classes would grow to the following values over the following time frames:
As expected, the annual return of the model portfolio increased as the 60% in total equities contained progressively larger weightings of micro-caps. What is remarkable is that up until the equity portfolio was well beyond 50% in micro-caps, the overall portfolio volatility actually decreased.

As Imperiale notes in his book, it is highly unlikely that an institution would allocate 40% of assets to micro-caps. The lack of liquidity would certainly become a major negative at that size. Nevertheless, the data suggests allocations considerably higher than often practiced, for long-term investors, can provide significantly increased expected returns with a meaningfully reduced overall risk profile.

**Deep Value Investing and Micro-Cap Stocks**

A number of academic studies support the notion that there is a “value effect,” which is particularly strong in small stocks. Fama and French are the most prominent scholars to examine the relationship between company size and the value premium. When price-to-book value is used to define value, there was a notable advantage for small value stocks – and particularly so since 1963. Works by Lakonishok, Shleifer & Vishny, as well as Thaler & DeBondt also support the idea that behavioral biases by investors lead to superior results for such value-based strategies.

We believe that this value phenomenon is consistent with the investment philosophies of Benjamin Graham and David Dodd. Because the level and sustainability of growth is difficult to estimate properly, investors tend to misprice very small stocks on an earnings basis. Asset values (i.e. cash, receivables, and property, plant & equipment) tend to be more stable, and when investors take a dim view of the earnings power of a company, a margin of safety often appears. For the patient investor, a free (or at least very inexpensive) lunch is often available. Micro-cap stocks are often so misunderstood and/or neglected that their risk/return profiles become truly asymmetric. That is, they sometimes trade at prices at or below liquidation values (i.e. with a margin of safety), thereby assigning little or no value to operations which may ultimately prosper and produce exceptional returns.

**Iliquidity Is Our Friend**

We have long been of the view that micro-cap illiquidity, so often feared by market observers, is actually a benefit to long-term value investors.

Roger Ibbotson recently produced data supporting this view. He has shown that illiquid stocks outperform liquid stocks across all market cap ranges. He believes that investors avoid thinly traded stocks, thereby creating bargains. Over long periods of time these bargain prices provide excess returns. In micro-caps, Ibbotson’s data show that the most thinly traded stocks outperform the more liquid stocks by 12 percentage points per year.

From a practical standpoint, we believe that we can take advantage of impatience to buy at larger discounts and sell at higher premiums. For instance, often a margin of safety will result from the forced liquidation of a large position in an illiquid stock. Likewise, newfound enthusiasm by Wall Street analysts or traders may cause a stock’s price to suddenly spike higher – providing the opportunity to reduce a position at an attractive price.

**Adding Value with Ariel’s Proven Approach to Micro-Cap Investing**

Ariel Investments has a well-established, in-depth, bottom-up approach to stock selection. This method is ideally suited to the world of micro-cap equities, where institutional neglect leads to imperfect information flows, inefficiency in the short-term and, therefore, opportunity. For major sell-side and buy-side firms, the costs of analyzing very small companies simply cannot be justified. For example, stocks in the Russell Micro-Cap Index currently are followed by an average of 2.9 Wall Street analysts, while those with market capitalizations over $50 billion are followed on average by 24.3 analysts.

At the smallest end of the capitalization spectrum, there are often no sell-side analysts following our companies, and we are typically one of only a handful of institutional investors who own them and closely follow their progress. We believe that our visits with management teams, extensive reading, financial statement analysis and discussions with industry contacts give us insights which allow us to add significant value as an active manager.

By employing a contrarian, long-term, deep value approach to the micro-cap universe, Ariel starts with a large pool of potential investments that has demonstrated outstanding returns, both absolutely and risk-adjusted, over long periods of time. We then take advantage of the lack of interest in our world by doing the intense, hands-on research necessary to estimate intrinsic value. We use asset value as a starting point, and gravitate toward cash-rich, debt-free balance sheets and companies with strong corporate governance and insider ownership. We believe we are able to construct a relatively concentrated portfolio with a significant margin of safety and considerable upside potential – as noted earlier, one with a truly asymmetric risk/return profile. We believe that our track record over more than eight years in micro-cap stocks demonstrates our ability to add value to this already attractive investment opportunity.*
David Maley began managing his micro-cap value strategy for Ariel Investments, LLC on April 30, 2009. Prior to April 30, 2009 David Maley managed the strategy at his prior firm using a substantially similar investment style. The strategy may include the holding of cash for defensive purposes. Also, the strategy may include temporary investments in Exchange Traded Funds (ETFs) while seeking other investment opportunities. During June 2004 through January 2008, the investment strategy included periodically holding short positions in certain ETFs. This practice may have had a material effect on returns.

Note: Past performance does not guarantee future results. Investing in micro cap companies is more risky and more volatile than investing in large cap companies.

The performance results shown do not represent the management of an actual client account or any actual investment performance or stock trading. The results represent performance of equity classes at one point in time and are not predictive of future performance of such classes. The results do not represent stocks bought and sold, and thus the results may have under- or over-compensated for the impact, if any, of certain economic and market factors. No investor will or is likely to achieve profits or losses similar to those shown. Ariel’s clients experienced investment results different from the results portrayed.

This commentary candidly discusses opinions and third party independent research relating to micro-cap stocks. The opinions are current as of the date of this commentary but are subject to change. The information provided does not provide information reasonably sufficient upon which to base an investment decision and should not be considered a recommendation to purchase or sell any particular security. The data shown is based on third party independent research and does not relate to Ariel’s micro-cap equity strategy.

Endnotes
9 FactSet.