

Adding Micro-Caps to Small-Caps:

Unlock the potential to enhance
return and lower risk



Many investors have long recognized the benefits of adding small-cap stocks to diversified portfolios. An allocation to small-cap stocks can increase return potential, add to diversification, and provide exposure to a relatively inefficient market. Yet many have not yet recognized the potential additional upside that comes from adding micro-cap stocks to their traditional asset allocations. Exposure to micro-caps can further boost potential returns, augment diversification through non-correlated performance, and deliver many of the benefits of private equity and venture capital within a liquid vehicle. The strong benefits of micro-caps, combined with investors' relative lack of attention to this dynamic asset class creates an opportunity. We believe exposure to micro-caps can further boost potential returns to your small-cap allocations: you can enhance returns while modestly reducing volatility, and in doing so, participate in the corporations of tomorrow by investing in the entrepreneurs of today.

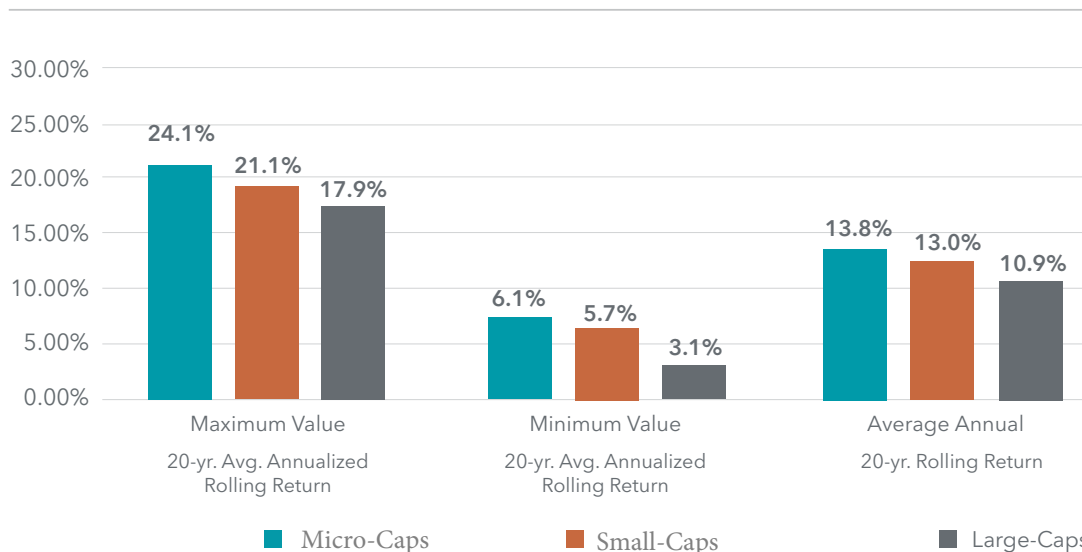
What do micro-caps have to offer?

The small firm effect: Both small- and micro-cap equities have historically offered higher returns than larger company stocks, as well documented by Ibbotson & Associates*. It is especially noteworthy that micro-caps have provided investors with both higher highs and higher lows. Our analysis of all seventy-three 20-year rolling return periods from 1926-2018 shows that for investors with a 20-year time horizon, micro-caps provided the higher maximum annualized return (24.1%) as well as the higher minimum annualized return (6.1%) when compared to small- and large-caps as the chart below illustrates.

MICRO-CAPS PROVIDE HIGHER HIGHS AND HIGHER LOWS

20-Year Rolling Return Periods

Jan. 1, 1926 - Dec. 31, 2018



Source: Duff & Phelps Stocks, Bonds, Bills and Inflation Yearbook 2019, FRP and FactSet 2018.

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Low correlations to other assets: Micro-cap equities have historically had low performance correlation to both large- and small-cap stocks, providing significant diversification benefits to investor portfolios. As an example, over the past 25 years, The Perritt MicroCap Opportunities Fund (one of two funds offered) has provided a correlation of 0.47 versus the S&P 500 Index, as well as a correlation of 0.81 to the Russell 2000 Index of small-cap equities.

A liquid option to invest in smaller companies: Perritt Capital Management's MicroCap Opportunities Fund managers buy companies and management teams based on strong conviction and invest in them for the long haul. As a result, similar to venture capital and private equity, the potential for gains can be great. It is possible for the top performing stocks in a micro- or small-cap portfolio to double or even triple in value in a single year. In 2018, the Perritt MicroCap Opportunities Fund top performing stock was up 36% in value. The downside on single micro-cap stocks can be just as significant, however a disciplined selling process can help mitigate the effect one poor investment has on an entire portfolio. Micro-cap funds like the Perritt MicroCap Opportunities Fund and the Perritt Ultra Micro-Cap Fund also have daily liquidity, unlike private equity funds which may lock up capital for months or years.

Merger & Acquisition (M&A) opportunities: Healthy, growing small- and micro-cap companies are often targets for acquisition by larger

companies. In fact, since 1993, more than half of all public M&A transactions involved micro-cap equities.** As a result, we believe there are far more unrecognized opportunities in this asset class. Typically, these sales drive share prices, creating a potential windfall for investors. Specifically, over the past five years between 3% - 6% of the micro-cap companies we held in The Perritt MicroCap Opportunities Fund were acquired — in many cases at a substantial premium.

Discovering Growth Potential: The small- and micro-cap universe is vast, comprised of thousands of companies, many of them too small to be followed by Wall Street analysts. As a result, there are far more unrecognized opportunities in this part of the market — and potential to reap the benefit once other investors start to understand the value of these uncovered companies.



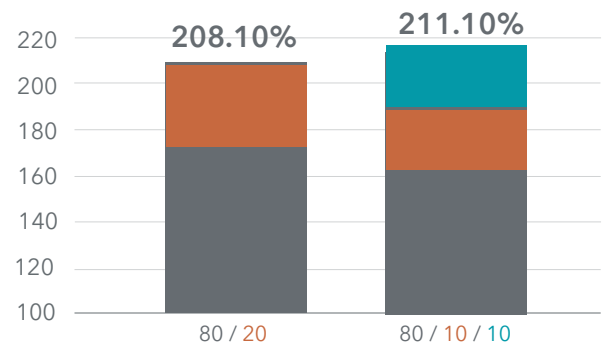
Portfolio strategies for adding small- and micro-caps

Small- and micro-cap equities are inherently more volatile than large caps, so the higher your allocation to these two sub-asset classes, the more variation in short-term performance can be anticipated. As you might expect, portfolio returns are higher when you substitute micro-cap equities for a portion of the small-cap allocation in a hypothetical portfolio. However, our research shows that as more micro-cap is added to the small-cap allocation, we also see a slight decline in volatility.

The table measures the changes in performance and volatility of a portfolio consisting of 80% large-cap / 20% small-cap when a 10% micro-cap allocation is added. In each of these examples, large-cap is represented by the S&P 500 Index, small-caps by the Russell 2000 Index and micro-caps by the Russell Microcap Index. Return and risk are calculated from 2001 through 2018, which encompasses the entire period in which the Russell Microcap Index has been in existence.

CHANGES IN PERFORMANCE AND VOLATILITY WHEN ADDING MICRO-CAP 80/20 MIX

1/1/2001 - 12/31/2017



Annualized Returns	6.84%	6.62%
Average Volatility	17.84%	17.65%
Return / Risk	0.384	0.391

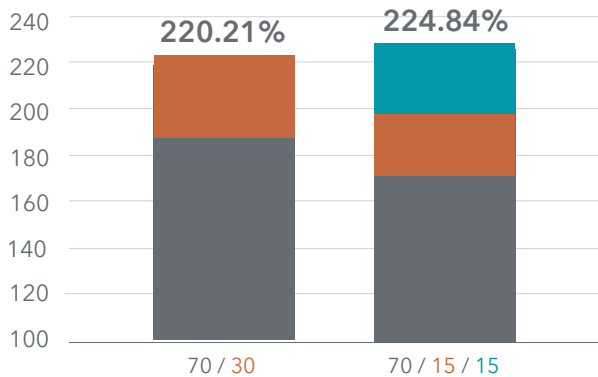
■ Large-Cap ■ Small-Cap ■ Micro-Cap

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The same is true for a portfolio that begins with a slightly more aggressive allocation of 70% large-cap stocks and 30% small-cap equities. Returns are enhanced and volatility reduced when a small-cap allocation is complemented with a micro-cap allocation. As seen in the chart, when micro-caps are added to a portion of the small-cap allocation, annual returns increase from 7.09% to 7.18% (as might be expected) and average volatility actually decreases modestly from 18.24% to 17.97%.

CHANGES IN PERFORMANCE AND VOLATILITY WHEN ADDING MICRO-CAP 70/30 MIX

1/1/2001 - 12/31/2017



Annualized Returns	7.09%	7.18%
Average Volatility	18.24%	17.97%
Return / Risk	0.388	0.399

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Using small- and micro-caps: three different risk profiles

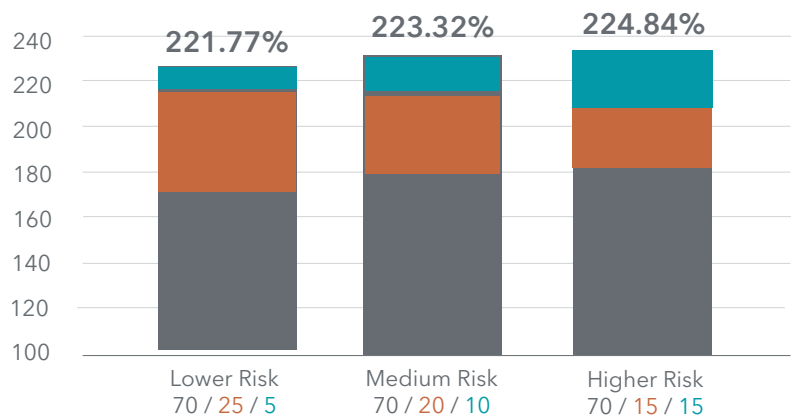
You may think of micro-cap equities as primarily an asset class for investors with a higher tolerance for risk, but in reality, prudent allocations to these investments can potentially enhance returns for even investors with a lower tolerance for risk.

Here are examples of how adding micro-caps can add to returns while modestly reducing volatility in portfolios designed for low risk, medium risk and higher risk.

As these examples show, adding micro-cap equities to the small-cap portion of diversified portfolios can enhance returns while modestly reducing volatility.

CHANGES IN PERFORMANCE AND VOLATILITY LOWER, MEDIUM AND HIGHER RISK

1/1/2001 - 12/31/2017



Annualized Returns	7.12%	7.15%	7.18%
Average Volatility	18.15%	18.06%	17.97%
Return / Risk	0.392	0.396	0.399

■ Large-Cap ■ Small-Cap ■ Micro-Cap

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There are a number of factors for you to consider when incorporating micro-caps

#1. Return

Investors considering complementing their small-cap allocation with micro-cap equities should understand that while these assets have historically added to returns over the long-term, they have also had variable performance over shorter periods. In the chart you can see the year-by-year performance of each of our three portfolios. Note that the portfolios lost money in 5 out of 17 years and had double-digit gains in 10 out of 17 years.

ANNUAL VOLATILITY Large / Small / Micro

Year	70 / 25 / 5	70 / 20 / 10	70 / 15 / 15
2001	21.17%	20.97%	20.77%
2002	24.87%	24.58%	24.28%
2003	16.86%	16.68%	16.49%
2004	12.65%	12.56%	12.47%
2005	11.62%	11.50%	11.37%
2006	11.82%	11.72%	11.61%
2007	16.88%	16.76%	16.64%
2008	41.74%	41.53%	41.29%
2009	29.58%	29.54%	29.50%
2010	19.88%	19.82%	19.91%
2011	25.91%	25.85%	25.80%
2012	13.69%	13.68%	13.66%
2013	11.87%	11.85%	11.83%
2014	12.37%	12.39%	12.41%
2015	15.42%	15.38%	15.34%
2016	14.26%	14.23%	14.20%
2017	7.89%	7.90%	7.91%
Average Volatility	18.15%	18.06%	17.97%
Return / Risk	0.392	0.396	0.399

ANNUAL RETURNS Large / Small / Micro

Year	70 / 25 / 5	70 / 20 / 10	70 / 15 / 15
2001	-7.04%	-6.40%	-5.75%
2002	-21.28%	-21.06%	-20.83%
2003	34.96%	35.79%	36.63%
2004	12.98%	12.77%	12.57%
2005	4.78%	4.67%	4.57%
2006	16.57%	16.48%	16.39%
2007	3.05%	2.70%	2.35%
2008	-36.15%	-36.45%	-36.75%
2009	26.94%	26.97%	27.00%
2010	18.72%	18.82%	18.92%
2011	0.08%	-0.19%	-0.46%
2012	16.35%	16.52%	16.69%
2013	34.68%	35.00%	35.33%
2014	11.02%	10.96%	10.91%
2015	-0.36%	-0.39%	-0.42%
2016	14.75%	14.71%	14.67%
2017	19.63%	19.56%	19.49%

Total Return	221.77%	223.32%	224.84%
Annualized Return	7.12%	7.15%	7.18%

#2. Volatility

Volatility is also a concern for investors considering complementing their small-cap allocation with an investment in micro-cap equities. In the next chart you can see the annual volatility of each of our three portfolios. Note that in every year except three (2010, 2014, 2017) annual volatility was actually reduced as micro-cap allocation was increased in the small-cap portion of a portfolio.

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#3. Return/Risk or potential bang for buck

Our final investment measure shows how well investors are compensated for taking on the additional risks of small- and micro-cap investing. To calculate Return/Risk we simply divided the 17-year annualized returns by the average volatility over the 17 years. That tells us how much return an investor got per unit of risk. As the chart clearly illustrates, just adding small-caps to an all-large-cap portfolio increases return/risk.

	Large / Small				
	100 / 0	90 / 10	80 / 20	70 / 30	60 / 40
Return / Risk	0.368	0.377	0.384	0.388	0.392

Return/Risk rises slightly further when you add micro-caps to the small-cap allocation.

	Large / Small / Micro				
	100 / 0 / 0	90 / 5 / 5	80 / 10 / 10	70 / 15 / 15	60 / 20 / 20
Return / Risk	0.368	0.381	0.391	0.399	0.406

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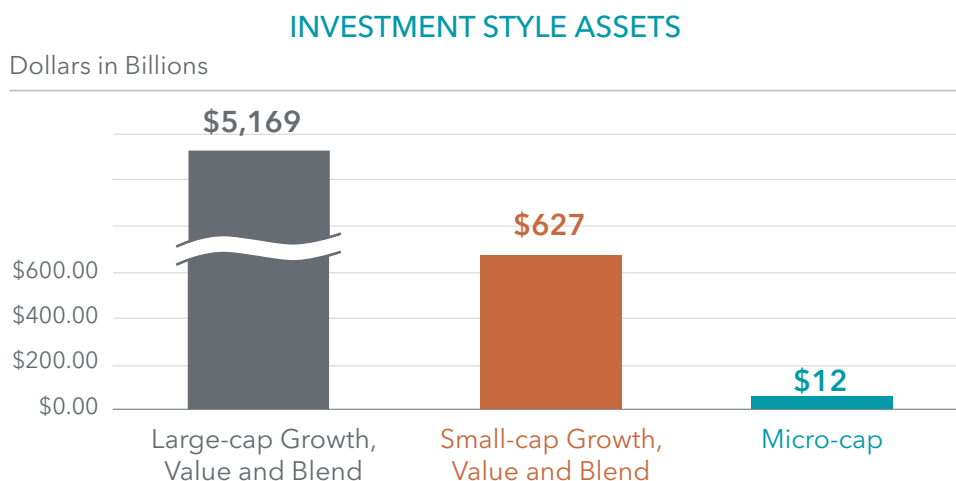
Invest in the entrepreneurs of today

We believe micro-cap stocks are one of the investment industry's best kept secrets. Many of these companies are not followed by Wall Street analysts. They are generally overlooked by the financial press. Their index, the Russell Microcap, isn't widely tracked or reported. And even more importantly, many of these undiscovered, under-owned small companies could grow into the corporations of tomorrow.

By understanding the benefits of micro-caps – their extraordinary performance potential, their low correlation to other assets, their similarity to less liquid assets – you can take the opportunity to invest in the entrepreneurs of today.

We believe micro-cap equity is a powerful asset class that is often overlooked by investors.

We have been one of the industry's leading micro-cap investors for over 30 years, offering specialized micro-cap focus and expertise, deep research and a long-term competitive track record. Adding



Source: Perritt Capital Management/Morningstar as of 12/31/17
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micro-cap stocks managed by Perritt Capital Management may help you enhance returns and diversify risk in your portfolio.

Capacity: Investing in small- and micro-caps successfully requires intensive research into thousands of little-known stocks, so the issue of capacity is an important one. Investment teams

have to be cognizant of the maximum amount of assets they can invest while still maintaining a strict focus on micro-cap companies. Micro-cap managers who grow too large in assets can be

Answering objections to micro-cap stocks

Despite the benefits outlined on the previous pages, many investors are still hesitant of micro-cap stocks. Here are two common objections we hear from potential investors and how we answer them.

Lack of liquidity: It is true that many micro- and small-cap stocks are more thinly-traded than S&P 500 stocks. However, they are also far more liquid than some of the asset classes they most closely resemble with no lock-up periods and daily pricing and trading. Moreover recent studies show that illiquidity is, if anything, an added source of return. In a 2008 paper called “Liquidity as an Investment Style***,” Zhiwu Chen and Roger Ibbotson found that an investment strategy based on undervalued stocks that were relatively illiquid outperformed all other strategies, including equal weighted and volume weighted index performance. For investors with a long time horizon, we believe illiquidity should be embraced as an opportunity.

The “liquidity premium” earned on micro-cap investments is a cornerstone of our investment philosophy and strategy. We have built trading relationships in the micro-cap space for over two decades allowing us to find unadvertised liquidity when needed. In addition, our process seeks to minimize liquidity risk. We limit single position size to approximately 3% of the portfolio and have an annual turnover ratio that historically has averaged below 50%. While at any given time, single names in the portfolio may be thinly traded, the portfolio as a whole is liquid.

Perritt Capital Management’s funds all have daily pricing and trading.

forced to “creep” up the market cap scale and quickly find that their portfolio looks more like a small-cap fund. At Perritt Capital Management, we place strict limits on fund size – and close

funds to new investors when they reach our ceiling for capacity. Although our funds have been closed in the past, they remain open to new investments from select existing investors.

Choose a Specialist Who Understands the Opportunity

At Perritt Capital Management, we have over 30 years' experience investing in small company stocks.

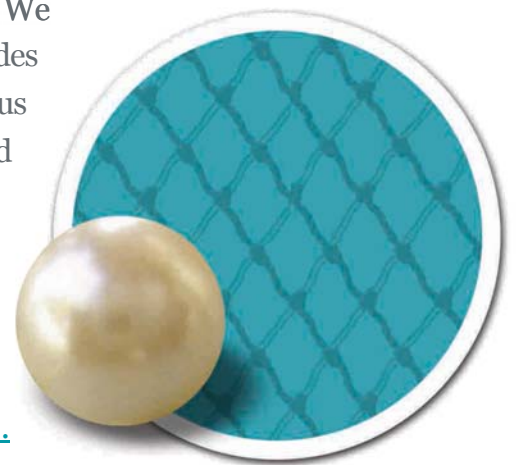
Our intensive, research-based process begins with a nine-point evaluation — based on balance sheets, cash flow statements and income statements — that determines if a company is acting in the best interests of its shareholders. Top performing companies have strong balance sheets, positive cash flows and expanding profitability. They also typically have a track record for above-average growth in revenue and/or earnings, a relatively low or declining level of long-term debt, a significant percentage of their shares owned by company management, and reasonable price-to-sales ratios, price-to-earnings ratios, and price-to-cash flow ratios.

For companies whose fundamentals look favorable based on our evaluation, the next step is to assess broader business prospects. We look for growing, niche companies with innovative products and/or services, and the potential to build brands. During this phase of our analysis, we visit companies and meet with management to gain hands-on knowledge of their business models and growth strategies.

Companies that meet our criteria are then assessed based on valuations, and are considered for purchase if they fall under a range of valuation determinations, including GARP or Deep Value. We use conservative growth estimates to determine valuations. We understand that even the most dynamic companies cannot maintain high double-digit growth indefinitely.

Our funds invest in a diversified portfolio of 70-90 small companies, with individual holdings generally restricted to 3% of the fund's assets. Like venture capitalists, we are willing to hold investments over multiple market cycles so that they can reach their full potential. We have a highly disciplined approach to selling companies which includes a market capitalization target of approximately \$3 billion. This helps us to trim profits from our winners and reinvest in smaller, undiscovered companies, keeping the characteristics of our portfolios true to the micro-cap asset class and all of its benefits illustrated here.

For information about Perritt Capital Management's Mutual Funds— including fund prospectuses, performance information and additional white papers— please visit <http://www.perritcap.com/literature/>.



* According to Ibbotson & Associates Classic Yearbook 2015 + FRP & FactSet 2018, \$1 invested in micro-cap stocks on January 1, 1926 grew to \$36,674 by March 31, 2018. \$1 invested in small-cap and large-cap stocks grew to \$23,470 and \$7,248 over the same time period. Micro-cap stocks defined as the bottom two deciles of securities ranked by market capitalization from 1926-2018. Small-cap stocks defined as deciles 6-8. Large company stocks are represented by the S&P 500 Index. S&P 500 is an unmanaged index which is widely regarded as the standard for measuring large-cap U.S. stock market performance. An investment cannot be made directly in an index. Past performance does not guarantee future results.

**Source: Furey Research Partners.

***Source: "Liquidity As An Investment Style," *Financial Analysts Journal*, Roger G. Ibbotson, Zhiwu Chen, Daniel Y.-J. Kim, and Wendy Y. Hu, Volume 69, Number 3, 2013 October/November 2012. For more information [click here](#).

Cash Flow is defined as a revenue or expense stream that changes a cash account over a given period.

Price-to-Sales Ratio is a tool for calculating a stock's valuation relative to other companies, calculated by dividing a stock's current price by its revenue per share.

Price-to-Earnings Ratio is calculated by dividing current price of the stock by the company's trailing 12 months' earnings per share.

Price-to-Cash Flow Ratio is a measure used to compare a company's market value to its cash flow. The ratio is calculated by price per share divided by operating cash flow.

Growth At A Reasonable Price (GARP) is an equity investment strategy that seeks to combine tenets of both growth investing and value investing to find individual stocks. GARP investors look for companies that are showing consistent earnings growth above broad market levels (a tenet of growth investing) while excluding companies that have very high valuations (value investing).

The **S&P 500 Index** is a broad based unmanaged index of 500 stocks, which is widely recognized as representative of the equity market in general. The **Russell 2000 Index** consists of the smallest 2,000 companies in a group of 3,000 U.S. companies in the **Russell 3000 Index**, as ranked by market capitalization. The **Russell Microcap index** is a capitalization weighted index of 2,000 small-cap and micro-cap stocks that captures the smallest 1,000 companies in the **Russell 2000**, plus 1,000 smaller U.S. based listed stocks. You cannot invest directly in an index.

Private Equity is capital that is not quoted on a public exchange. Private equity consists of investors and funds that make investments directly into private companies or conduct buyouts of public companies that result in a delisting of public equity. The majority of private equity consists of institutional investors and accredited investors who can commit large sums of money for long periods of time. Private equity investments often demand long holding periods to allow for a turnaround of a distressed company or a liquidity event, such as an IPO or sale to a public company. Active micro-cap portfolios invest in companies that are often targeted by private equity investors due to their business characteristics and small market capitalizations. However active micro-cap portfolios only invests in companies that are listed on public exchanges.

Volatility is defined as Standard Deviation, which is a statistical measure of the historical volatility of price or portfolio using 12 monthly returns.

Average Volatility is defined as the average annual volatility from 2001-2018 for the large-cap, small-cap and micro-cap allocations.

Differentiating Private Equity and Venture Capital

Private Equity typically invests a large sum in an existing company with existing products and cash flows, then restructures that company to optimize its financial performance. When private equity works, it can turn around a poorly-performing company and turn it back into a profitable, and even growing enterprise.

Venture Capital typically invests in a start-up firm, or a growing, but still very small company that is seeking capital for both survival and growth. Many venture investments require follow-up on investments for these early life-cycle stages of growing firms. These investments are assigned letters, such as series A, B, and so on.

Diversification does not assure a profit nor protect against loss in a declining market.

The Perritt Funds are distributed by Quasar Distributors, LLC.