

Portfolio Management: The Buffett & Munger & LSGI Partnerships

July 1st marked the ninth anniversary of the LSGI Venture Fund. Since the structure of our investment vehicle is essentially identical to the investment partnerships Warren Buffett and Charlie Munger ran in the 1950's and 1960's an interesting academic question arises:

Using the Capital Asset Pricing Model (CAPM) to review the returns of each partnership portfolio which active manager has generated more 'alpha' (excess returns over and above that expected by the market) in the first nine years of running their partnership—(1) Warren Buffett and the Buffett Partnerships? (2) Charlie Munger and the Munger Partnership, or (3) LSGI and the LSGI Venture Partnership?

Buffett & Munger Partnerships. Few people realize that before running Berkshire Hathaway both Warren Buffett, and Co-Chairman Charles Munger, ran investment partnerships structured very similar to the LSGI Technology Venture Fund L.P.

Mr. Buffett actively managed his partnership from 1957 until roughly 1969. He invested \$100 in the partnership at founding and found investors willing to invest another \$100,000, and earned both an administrative and incentive fee depending on portfolio performance.²

When he shut down the partnership investors could either 'cash out' or roll over their investment into Berkshire Hathaway. Those who cashed out did very well. Those that rolled their investment over to Berkshire Hathaway did incredibly well.

Charles Munger, Vice-Chair of Berkshire Hathaway and long time Buffett partner in the investment world, was an attorney by trade. Munger began investing in real estate, then founded a small investment partnership which was also structured and regulated in a manner comparable to the LSGI Fund partnership. Mr. Munger actively managed this investment partnership from 1962 to 1975.

Historical returns With nine years worth of data from the Buffett, Munger, and LSGI partnerships we might be able to draw some conclusions regarding a manager's ability to generate excess returns. The table below represents the performance of each partnership benchmarked against the Dow Jones Industrial Index during the first nine years of operations.

	# Years	Average Annual Return (Gross)	Excess Annual Return Over DJIA Benchmark	Yrs. Outperform DJIA benchmark	CAPM Alpha	CAPM Beta	CAPM r square
Buffett Partnerships	9	29.7%	18.3%	9	22.4%	0.64	0.599
Munger Partnership	9	31.1%	26.0%	7	27.8%	0.86	0.261
LSGI Partnership	9	25.4%	25.1%	7	29.8%	1.71	0.247

Several interesting points can be extracted from this chart:

- During the time period involved it appears that each partnership delivered significant excess returns over and above the benchmark index. The Dow Jones Industrial Index was used by Buffett and Munger as a benchmark for the market, so for this comparison we utilized this index as a benchmark for LSGI to maintain consistency. At least in this case, over the time periods involved, active portfolio managers added significant value.
- Using the Capital Asset Pricing Model ('CAPM'), a linear regression of historical performance data, we find that each manager delivered significant excess returns over and above what would be expected from the market. This measure of excess returns is known as 'alpha'. The LSGI partnership generated the highest alpha, excess returns of 29.8% per year. Most actively managed public mutual funds have an alpha near zero (hence the argument investors should buy index funds).

² The information on the Munger and Buffett Partnerships, and performance data, come from Robert Hagstrom's book entitled "[The Warren Buffett Portfolio](#)" and Andrew Kilpatrick's book entitled "[Of Permanent Value](#)". Gross performance data, before the allocation of incentive fees, was reported annually.

- Using the Capital Asset Pricing Model ('CAPM') we find the 'beta' – or volatility of the partnership versus the benchmark – varies considerably. Both Buffett and Munger's beta was well below 1.0, meaning their portfolio was less volatile than the Dow Jones Industrial Index for the period in question.

The LSGI partnership has a beta well in excess of 1.0, meaning the LSGI partnership is much more volatile than the benchmark. Volatility is a measure of risk according to some, therefore the argument can be made the LSGI partnership carries much more risk than the Buffett or Munger vehicles. In theory, an argument can be made that the LSGI partnership is incurring more risk to deliver its' excess returns.

- On a return basis versus the benchmark, the Munger partnership outperformed the Dow Jones Industrials Index by 26.0% per year, followed by the LSGI partnership outperforming by 25.1%. The Buffett partnerships outperformed the Dow by 18.3% per year.
- The coefficient of determination, also known as "r squared" also varies considerably between the partnerships. What is quite surprising is the fact the Buffett partnership had an r squared of 0.599. This means that during the time period examined 59.9% of the return of that partnership was statistically explained by movements in the benchmark index.

Munger had an r square of 0.261 and LSGI had an r square of 0.247. Both partnerships correlated poorly with the benchmark index. This is positive since the lack of correlation with the market reduces the overall risk in an individual's total investment portfolio.

Because of the low correlation, an argument can also be made that in the Munger and LSGI partnerships stock selection and portfolio management activities had a greater impact on the investment returns than movements in the market index.

- When reviewing any historical performance data we seek to study a period substantial enough to validate any trends. Short term variations, both positive and negative, will tend to cancel each other out over longer periods. We consider a nine year period sufficient enough to be considered 'long term', however the results noted above might not be 'significant' from a statistical standpoint.

Regardless of the statistical significance (or lack thereof) of the data noted above, and the tendency for actively managed portfolios to lag the major market indexes, it appears that these active managers outperformed a passive management strategy for the periods involved. Active portfolio management, at least in some circumstances, can generate substantial excess investment returns.

LSGI Technolog Venture Fund L.P. – Performance Analysis vs. Small Cap Benchmark

In addition to reviewing the historical performance of the LSGI Fund versus the performance of Mr. Buffett's and Munger's partnerships, we need to also review the performance of the LSGI Fund versus the small capitalization benchmark we use – the Russell 2000 small cap index.

One of the models used by institutional investors to determine if a portfolio's manager is generating excess returns is called the Capital Asset Pricing Model ('CAPM'). The CAPM model is a linear regression which analyzes a set of data points using a mathematical formula.

The end result of the CAPM analysis a straight line is mathematically placed through the data points. This line of best fit can be used to determine how well – or poorly – the portfolio performed compared to the

market benchmark. The results in theory can tell us if the portfolio returns were due to fluctuations in the market, or were generated by the decisions of the portfolio manager.

We took the 60 months of performance data from the LSGI Technology Venture Fund L.P. ending July 1, 2008 – five years of data – and compared it to the performance of the Russell 2000 Small Cap Index for the CAPM analysis. We took a five year stretch of data because that period was long enough for the results to be statistically significant. A five year period also avoids the model mistaking short term trends for longer term results. The LSGI returns were after all costs, expenses, and incentive allocations.

We used the Russell 2000 Small Cap Index as a benchmark because it best represents the performance of the market's smaller public companies – the sector we are primarily invested in.

So the question the CAPM model attempts to answer for our investors becomes:

Were the returns of the LSGI Technology Venture Fund L.P. 'explained' by the returns of the Russell 2000 Index during the last 60 month period, or did LSGI investors obtain excess returns due to the manager's actions (skill or luck) during that period?

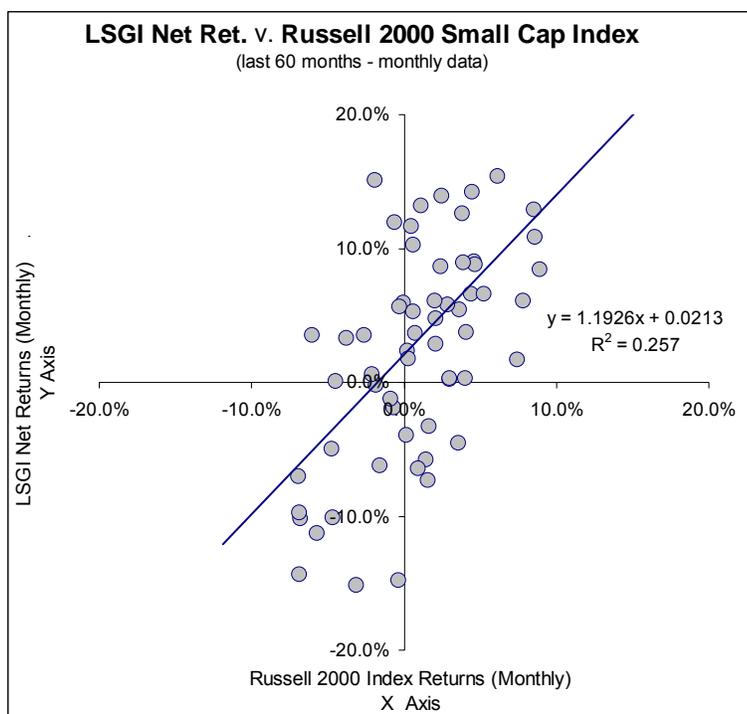
The CAPM answer is as follows:

Drawing a straight line through the set of data points using the linear regression model, we find the excess returns generated over and above what would be expected from the movement of the market itself is measured where the line intersects the point where the Russell 2000 index on the y-axis has a return of zero. If the line indicates the LSGI Fund would have a positive return when the Russell 2000 is unchanged then excess returns have been generated. This measure is known as alpha (' α ').

For the 60 month period examined we find that the LSGI Technology Venture Fund L.P. generated excess returns amounting to 2.13% per month net of all fees and expenses (see chart). It is rare for an actively managed portfolio to generate this degree of excess returns.

Note that the coefficient of determination on the chart – designated as "R squared" – is 0.257. This indicates the majority of the performance of the LSGI portfolio is not explained by movements (gains or losses) in the Russell 2000 index.

If the Russell 2000 index and our portfolio correlated perfectly R squared would be 1.000. In that case all of the gains in our portfolio would be explained by gains in the market.



For LSGI investors this lack of correlation is a positive event. Excess returns from an asset class that don't correlate closely with the major market indices tend to reduce risk across an individual's total portfolio. The 'beta', or volatility, of the regression model is 1.1926, which means the LSGI portfolio is 1.1926 times as volatile as the Russell 2000 index. Volatility is considered a measure of risk according to some analysts, the higher the volatility the more risky the portfolio.

So, in theory, we are generating excess returns (alpha) of 2.13% per month - but are also taking higher risks (beta) (19.26% more volatile than the index) to achieve those returns. The results of the regression analysis are statistically significant.