

# DELIVERING EXCESS INVESTMENT RETURNS IN TODAY'S MARKET: CAN ACTIVE MANAGERS BEAT THE MARKET?

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**Ms. Anderson & The Othmers.** In September, 2007, the George School, a preparatory school in Bucks County, Pennsylvania, received a \$128 million donation from Barbara Anderson, an alumna of the high school. The administrators of the private, 500-student institution set on a leafy 240-acre campus were stunned.

Ms. Anderson, who now lives in Fresno, California, is a retired kindergarten teacher. Her parents were well educated but not considered wealthy. At 75, and diagnosed with Alzheimer's, she wanted to make the gift to the school for the fine education she received and the work ethic the school encouraged.



Separately, living quiet, unpretentious lives Dr. and Ms. Othmer – he was a professor of chemical engineering at Polytechnic University in Brooklyn and she was a former grade school teacher - died in the late 1990's. They had no children. When the Othmers died, friends were shocked to learn that their estate was worth close to \$800 million.

What is the connection between the Othmers and Ms. Anderson? How did these teachers acquire so much wealth?

In Ms. Anderson's case, her father happened to be a finance professor at Columbia University. He became well known in academic circles for the textbook he co-authored with another professor entitled "Security Analysis". His name was David L. Dodd. The co-author was a professor named Benjamin Graham. The textbook sales generated a good profit, but did not make either wealthy.

A prospective student who had been rejected from Harvard's MBA program wrote to Dr. Dodd in 1950: "I thought you were dead, but now that I know that you're alive, I'd like to come study with you." That student was admitted to Columbia, eventually graduating.

Dodd invested for himself and his daughter in a private investment partnership managed by his young student. The student's name was Warren Buffett. The investors were eventually given the option of liquidating their investment when the partnership dissolved – or taking Berkshire Hathaway shares priced in the open market under \$50 per share. Dodd elected to take the shares.

The Othmers, like many long term investors, invested their money into small, well managed, undervalued companies. Like the Dodds, the Othmers had an additional benefit: in the early 1960's they each invested \$25,000 in a private investment partnership run by Warren Buffett.

The Othmers received thousands of shares of Berkshire Hathaway at \$46 a share when Mr. Buffett dissolved his partnership. Today those shares trade around \$130,000 a share. Mrs. Othmer's shares were worth \$578 million on her death; her husband's, sold on his death when the price was lower, were worth \$210 million.

A graphical representation of the Othmer's investment in Mr. Buffett's Berkshire Hathaway is set out in the chart at right.

Polytechnic University, which once faced bankruptcy, unexpectedly found itself heir to \$175 million from the Othmer's estate. Planned Parenthood received \$65 million. All told, the couple bequeathed \$340 million to several other cash-strapped Brooklyn institutions.



<sup>1</sup> This academic presentation is for the sole use and benefit of undergraduate finance students at Michigan Technological University and is not an offer to buy or sell securities. Investors should not rely on these materials in evaluating the investment strategy of the LSGI Fund L.P., or the investment suitability of potential investors.

The common thread for both the Othmers and Dodds was Warren Buffett - arguably one of the best investors of all time. Mr. Buffett managed a private investment partnership from 1957 until roughly 1969. When he shut down the partnerships 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.<sup>2</sup>

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

### **Lessons for Investors**

- An investment manager that can outperform the market has an incredible impact on total long term returns
- Strategies that have a high probability of outperforming the market are extremely valuable to investors with a long term time horizon
- Time is one of an investor's most valuable assets
- Even small differences in annual returns can have enormous longer term impact on total returns due to compounding<sup>3</sup>
- You don't have to be a Harvard MBA to be a successful money manager

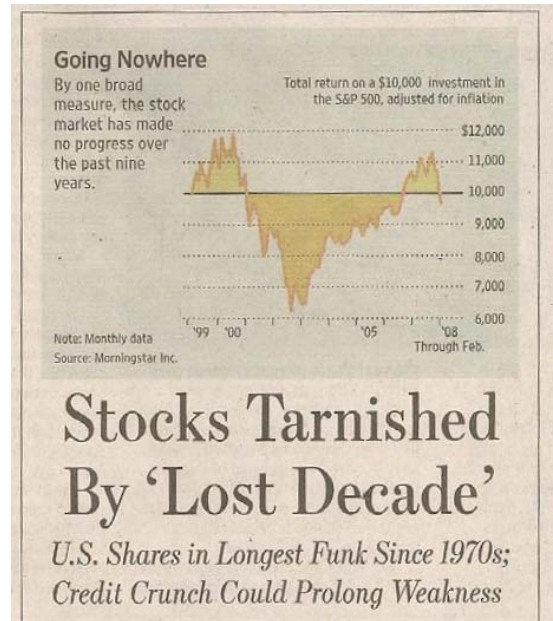
### **Active Portfolio Management & Historical Returns**

As pointed out in a page one article in the Wall Street Journal last month, over the last nine years the S&P 500 index has actually declined in value (see chart at right). The S&P 500 index is composed of 500 of the largest and most successful companies that operate on a global basis – and the index is used by many active portfolio managers as a performance benchmark. It is a good proxy for the overall market.

Long term investors, hoping to harvest returns from the market, have had slim pickings over that time period – in fact the equities market performed much worse than many alternative asset classes.

Further, there is a growing consensus among investment advisors and professionals that 'active' portfolio managers – that is managers who pick and choose stocks for their portfolio like Buffett and Munger – tend to under-perform the major market averages. There is some statistical validation of this claim.<sup>4</sup>

One measurement of a money manager's excess returns is referred to as 'alpha'. It is defined as the added returns an investor receives over and above the returns you would expect from the market. Bill Donoghue, Editor of The Proactive Fund Investor, recently reviewed 3,226 actively managed mutual funds and found the average alpha was a negative 0.74.



<sup>2</sup> Buffett started his first private investment partnership in 1957. He convinced a number of Omaha individuals to invest \$25,000 each. Buffett put in \$100 of his own money, appointed himself general partner and began to purchase small undervalued stocks. His goal was to beat the Dow Jones Industrial Average by an average of 10% a year. When he dissolved the partnership in 1969 Buffett's investments had ballooned at a compound rate of 30.4% annually, compared to just 8.6% annually for the Dow. The return on Buffett's initial \$100 investment would certainly be described as "incredible". Mr. Buffett is currently Chief Executive Officer of Berkshire Hathaway (NYSE symbol: BRKA).

<sup>3</sup> Had Mr. & Mrs. Othmer invested in the S&P 500 index instead of with Mr. Buffett they would have an account worth roughly \$2.7 million (a return of around 11.8% a year) – very impressive. But not anywhere near the almost \$800 million obtained with Mr. Buffett (annual returns of around 24.1%)

<sup>4</sup> See: "The Little Book of Common Sense Investing: The Only Way to Guarantee Your Fair Share of Stock Market Returns", (Wiley Publishing 2007) by John C. Bogle.

Donoghue’s results indicate that active portfolio managers are delivering returns below what you would expect from the market. In fact, investors overall were penalized from a return standpoint by investing in actively managed funds. This finding was not unique.

Studies like Donoghue’s explain why many investment advisors recommend individuals consider low cost exchange traded funds that track the major market averages. Statistically, the advisors argue this low cost ‘passive’ method of investing generally outperforms many strategies that rely on actively managed portfolios.

Other recent studies confirm that active portfolio managers have a very difficult time beating the major market averages – and it appears that it is becoming more difficult for professional money managers to generate alpha (excess returns) over time. Some claim this is because the markets are becoming more global and more efficient. Others claim transactional and management costs overwhelm any excess returns an active manager can generate.

**Excess Returns – The Buffett, Munger & LSGI Partnerships**

With eight years worth of data from the Buffett, Munger, and LSGI partnerships we should be able to draw some conclusions with regard to whether an active manager can generate excess returns.

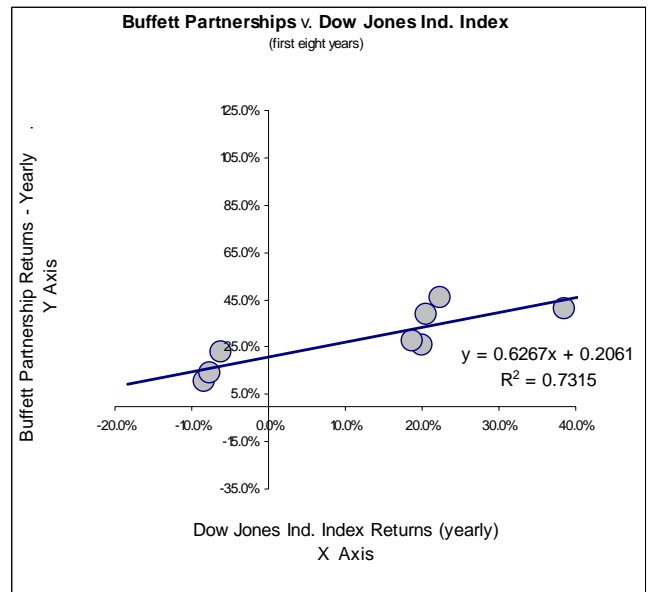
We took the first eight years of historical performance data of each partnership and used a linear regression analysis to examine the statistics. A linear regression is a method of analyzing a set of data points using mathematical relationships to fit a straight line through the data set. This regression analysis is part of the Capital Asset Pricing Model (‘CAPM’) and useful in evaluating manager performance.

The table below represents the performance of each partnership benchmarked against the Dow Jones Industrial Index during the first eight years of operation of each partnership.<sup>5</sup>

|                      | Average Annual Return (Gross) | Excess Annual Return Over DJIA Benchmark | CAPM Alpha | CAPM Beta | CAPM r square |
|----------------------|-------------------------------|--|------------|-----------|---------------|
| Buffett Partnerships | 27.7%                         | 16.7%                                    | 20.6%      | 0.62      | 0.731         |
| Munger Partnership   | 35.6%                         | 30.9%                                    | 31.9%      | 0.93      | 0.461         |
| LSGI Partnership     | 27.5%                         | 24.9%                                    | 28.3%      | 1.87      | 0.226         |

Several interesting points can be drawn from this chart:

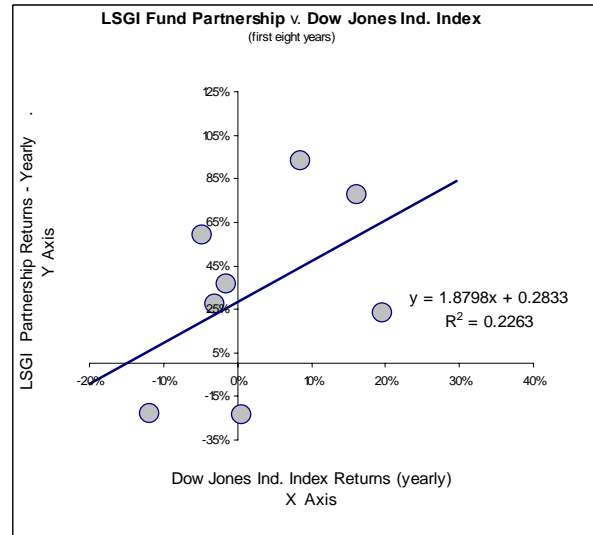
- During the time period involved it appears that each partnership delivered significant excess returns over and above the benchmark index. The Dow Jones Industrial Index was used by Buffett and Munger as a benchmark for the market, so for this comparison we utilized this index as a benchmark for LSGI to maintain consistency. At least in this case, over the time periods involved, the 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 Munger partnership generated the highest alpha, excess returns of 35.6% per year. Most actively managed public mutual funds have an alpha near zero (hence the argument investors should buy index funds).
- 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.



<sup>5</sup> 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.

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 excess returns.

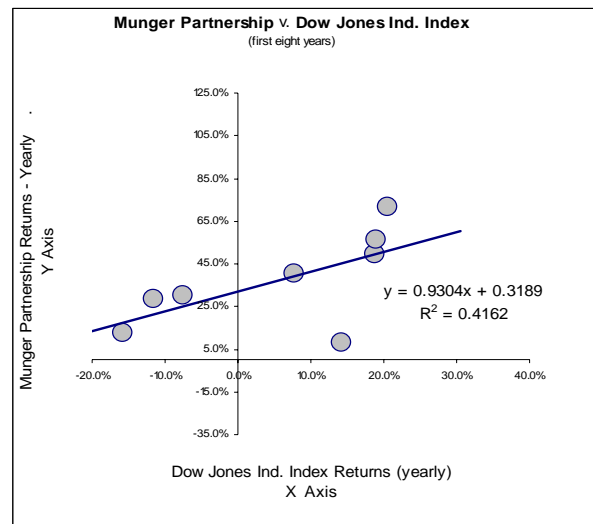
Note that beta changes over time. Also, portfolios that move to cash during market downturns will have a lower beta than the model indicates. Cash has a beta of zero (the value of cash does not vary with the benchmark index). Over the last 12 months the LSGI partnership has had periods when cash levels were well over 25% and periods where cash levels were well below 5%. For this reason the short term beta of the LSGI partnership will change, but the longer term beta in the CAPM model might not reflect these short term variations.



- The coefficient of determination, 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 0.731. This means that during the time period examined 73.1% of the return of that partnership was statistically explained by movements in the benchmark index.

Munger had an r square of 0.461 and LSGI had an r square of 0.226. Both partnerships correlated poorly with the benchmark index. This is positive for the investor since the lack of correlation with the market reduces the overall risk in an individual's total stock portfolio.

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



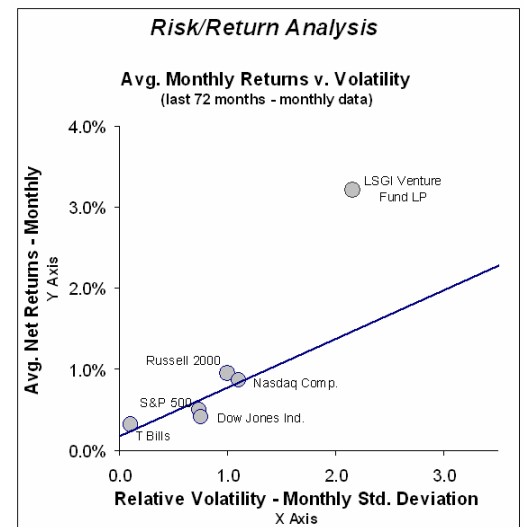
- When reviewing any historical performance data we seek to study a period substantial enough to validate any trends we might uncover. Short term variations, both positive and negative, will tend to cancel each other out over longer periods. We consider an eight year period sufficient enough to be considered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

Regardless of the statistical significance 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.

### Risk & Returns

Risk, according to many institutional investors, can be measured by a portfolio's volatility. The more volatile a portfolio the more risky the investment according to this theory. An ideal investment for those institutional clients who consider volatility a measure of risk would generate consistent excess returns while having no volatility—somewhat like a savings account generating periodic above-average interest payments.

It is a generally accepted investment theory that to generate excess returns from a portfolio an investor must accept more risk. If risk is defined as volatility, the investor must accept more volatility in exchange for the opportunity to harvest greater returns.



The volatility versus return concept is illustrated in the chart at right. As the monthly volatility of an asset increases, the return should also increase. We can use a regression analysis to determine the expected return given the level of risk or volatility incurred.

For the LSGI Fund we find that over the last 72 month period (six years) the average volatility is well above average – more than twice that of the Russell 2000 small cap index. But the net monthly return from the LSGI portfolio is also well above what would be expected given the LSGI Fund's level of volatility. Those assets with returns above the charts trend line are generating excess returns given the amount of risk incurred.

Another measure of returns and volatility is referred to as the “Sharpe” ratio. The Sharpe ratio is a measure of return divided by the volatility of the portfolio. Assuming volatility is a measure of risk, the Sharpe ratio tells an investor how much return they obtain per unit of risk.

**Sharpe Ratio: Return / Volatility**  
(72 month est. values)

|                              |      |
|------------------------------|------|
| LSGI Venture Fund LP         | 1.07 |
| Russell 2000 Small Cap Index | 0.56 |
| Nasdaq Composite Index       | 0.27 |
| Dow Jones Industrial Index   | 0.19 |
| Standard & Poor's 500 Index  | 0.10 |

For the investor, the higher the Sharpe ratio the better – it tells an investor how much return they get per unit of volatility. We estimated the Sharpe ratio for the major market indexes and the LSGI Fund over the last 72 months and found quite a bit of variation. In the end the data seems to indicate the LSGI portfolio is generating excess returns for the volatility incurred.

### **Return Attribution Analysis**

Taking into account historical returns and risk, the main question becomes why did these managed portfolios outperform when so many actively managed portfolios have not generated excess returns? We think the excess returns delivered by the above partnerships can be explained from both an academic as well as practical standpoint by the following factors:

1. During the time periods involved all the managers noted above invested partnership funds in small company stocks. Statistically, over time, small and micro-cap firms have significantly outperformed the major market indexes. This part of the market is extremely inefficient.
2. The cost, in time and effort, to research and conduct due diligence on small companies is significant. For economic reasons most firms and managers ignore many of the firms in this sector. As a result many excellent companies are not followed by analysts or managers and are inefficiently priced. The managers of all three partnerships enjoyed the exercise of evaluating these small firms, a task some would deem tedious.
3. All three partnerships used value-based criteria as a measure to evaluate potential investments. Growth potential was also important. Historical data indicates this value-based growth strategy in the small and micro-cap sector tends to outperform the market.
4. All three partnerships managed a limited amount of assets in their early years. The lack of assets was a major advantage as the partnerships could easily invest a significant part of their portfolio in undervalued small companies. The more assets under management the more difficult it is to invest in this asset class, and hence the more difficult to deliver excess returns to investors.
5. All three partnerships ran relatively concentrated portfolios which contain the manager's best ideas. Munger was especially notorious for running extremely concentrated portfolios. If the risk/reward relationship is tilted heavily in favor of the investor this style of investing in theory should deliver substantial excess returns over time. Both Buffett and Munger have noted a key element to their success was to invest heavily in a company when the odds were strongly in their favor.
6. Due to the criteria noted above the managers tended to invest in companies with a unique market niche, with impressive margins, and with the ability to 'scale' their operations.
7. The partnership structure allows the manager to control the inflow of cash into the portfolio. Studies of historical data show that the less movement of cash into or out of an actively managed portfolio the easier it is for the manager to generate excess returns.
8. The partner structure of the investment vehicle, and the substantial amount of funds each manager held in their partnership, strongly aligned the interest of the investor with the manager. While some might criticize the fee structure of these partnerships (including, surprisingly, Mr. Buffett, who claims that most active managers don't generate enough excess returns these days to justify their performance incentive fee) it does tend to align the interest of all towards one goal - performance.

## Outperforming the Market

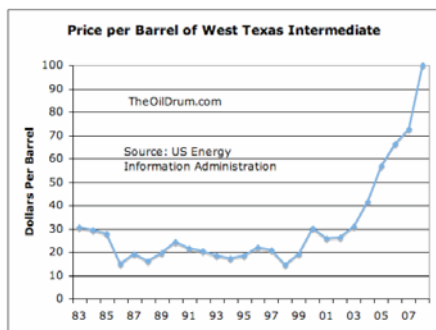
To generate excess returns Buffett and Munger maintain an active manager should invest heavily when the risk/reward relationship is in their favor. When the risk/reward relationship is not in their favor the active manager will reduce their exposure to the market, to specific stocks, or to specific sectors to avoid sub-market or lagging performance.

Some experts claim the market is very efficient and most active managers cannot outperform the major market indexes. They have historical market statistics to support their view. We do not dispute their contention, but a number of market inefficiencies exist that provide opportunities for an active manager to generate excess returns. We discuss four of these inefficiencies below: (1) long term sector trends, (2) historical attributes present in stocks that outperform, (3) return persistence, and last (4) seasonality of returns.

### (1) Market Inefficiencies: Long Term Sector Trends Provide Opportunities

When analyzing their investment success Warren Buffett and Charles Munger claim the investments that have done best have been those businesses in attractive sectors or niches. A growing sector will allow a well managed firm a good chance of generating a reasonable return on investment.

Buffett admits one of his worst investments was one of his first when he bought a firm in the textile business. Regardless of how well management ran the company, the competition was such that it was difficult if not impossible for that firm to generate a profit. A 'good business boat' became a requirement for his later investments. A good business will make the task of maximizing shareholder value much easier.



Today two sectors have long term trends that are very favorable for investors: energy and agriculture.

Companies in both sectors see long term growth in global demand. Serious supply issues exist for firms attempting to expand production to meet the rocketing demand for those commodities caused by the expanding global economy.

Companies operating in either sector are in a good position to expand margins. Products sold in the sector will be increasingly in demand as prices remain elevated and supplies remain constrained. In a sector that is expanding,

management with even a mediocre product should generate reasonable and growing returns – which eventually will drive company and sector stock prices upward.

### (2) Market Inefficiencies: Factors increasing the probability a stock will outperform

Most individuals assume that profitability and a low price to earnings ratio are the primary drivers of future stock prices. That is true to an extent, but other factors are statistically much more significant in stock selection.

James O'Shaughnessy in his book "What Works on Wall Street" reviewed 42 years worth of market data, and Dr. Benson Durham at the Federal Reserve System studied 37 years of data and published a research paper entitled "The Extreme Bounds of the Cross-Section of Expected Stock Returns" (as well as others who have done similar studies). They found the following factors are statistically significant and correlate positively with future stock price out-performance:

1. **Small market capitalization** Companies are *small* if the market capitalization are below \$2 billion, and *very small (micro-caps)* if they are below \$250 million. The studies found the smaller the firm the higher the subsequent out-performance
2. **Low price/sales ratios**
3. **High 12 month relative strength** Relative strength is how well a stock has performed over the last 12 months compared to other stocks. The better a stock has performed, statistically the more likely it will continue to perform well. (see discussion of price persistence below)

These three statistical measures establish the foundation of our quantitative screening system. Based on dozens of hypothetical portfolios we have run experimenting with different criteria we have added another half dozen factors we also screen on.

Agricultural commodity prices  
S&P/GSCI



Source: Thomson Datastream

**Small companies perform well historically.** With regard to the micro-cap sector James P. O’Shaughnessy in his book entitled “What Works on Wall Street” notes:

“Most academic studies of market capitalization sort stocks by deciles and review how an investment in each fares over time. The studies are *nearly unanimous* in their finding that **small stocks do significantly better than large ones. We too have found tremendous returns from owning tiny stocks.**” (emphasis supplied)

Using 42 years of historical data for his studies, O’Shaughnessy goes on to note that the returns of microcap stocks have been “**stunning**”. O’Shaughnessy also found that the use of ‘multiple value’ factors, in addition to screening for small capitalization firms, tended to increase investors returns:

“Using multifactor models [like market capitalization combined with low price/sales, price/cash flow, and low price/book values] **dramatically** enhances returns.”

Note that the volatility – hence risk - of small firms is generally higher, reflecting the lack of liquidity.

**(3) Market Inefficiencies: Return Persistence & Stock Performance**

Return persistence – the tendency for stocks to trend in the same direction – has been the topic of a number of academic studies. Many academics, and a number of portfolio managers, adhere to the theory that the market is reasonably efficient. As such, historical stock prices should reflect the sum of public knowledge and should have little predictive value of future stock price movements. Many value managers adhere to this theory. The fact that some studies show that stocks tend to trend on one direction is therefore puzzling to these researchers.

The latest comprehensive study of this issue by Elroy Dimson, Paul Marsh and Mike Staunton of the London Business School examined 108 years of market data. They looked at markets in 16 different countries to determine if a stock’s historical return has any predictive basis when looking at future stock returns.

**Return Persistence.** The study found extensive evidence that was statistically significant, across time periods and markets, that returns are persistent – that is a stock that has performed extremely well in the last year has an increased probability of performing well in the future. Conversely, stocks that have performed poorly have an increased probability of underperforming the market going forward.

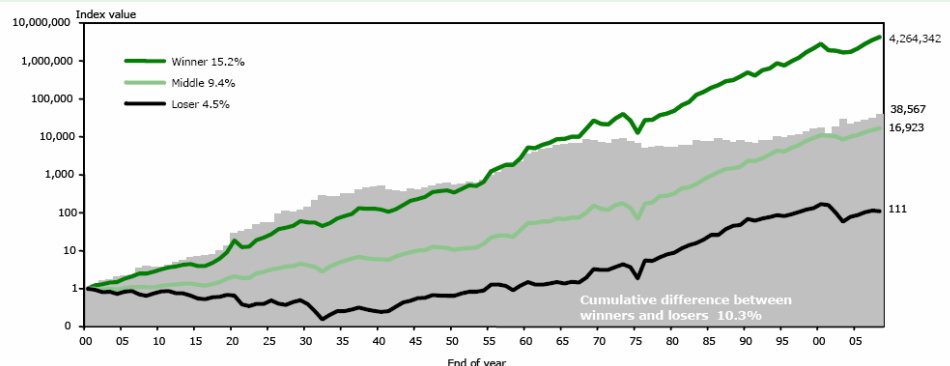
Strategies which utilized this persistence, called ‘momentum’ investing or ‘relative strength’ or ‘trend following’ by some, generated excess returns that were striking. Over 108 years, taking the largest stocks, those that performed in the top 20% in the previous year, outperformed those in the bottom 20% by 10.3% *per year* in the U.K. markets. Over time such incremental returns compound – delivering substantial excess returns for long term investors.

Over shorter periods the excess returns of momentum investing remained significant. Over the 1956 to 2007 period the top 20% outperformed the lowest performing 20% by 10.8% per year. The impact of this strategy was present not only in the U.K. markets but every market they studied, including U.S. markets.

**Small Cap Sector.** Significantly, at least from our standpoint, is that the excess returns attributed to persistence were larger for small cap stocks than large cap stocks. While the best performing U.K. portfolios weighted by company size had an annual return of 18.3% for the 1956-2007 period, using an equally weighted portfolio in which smaller companies had the same impact as larger ones resulted in an annual returns of 25.6% - generating much higher excess returns. The average market return during these periods was 13.5%. The inefficiencies of the smaller cap sector apparently compound the momentum effect.

It is also significant that when they studied the best performing 10% of the portfolio in the prior year versus the lowest 10%, the momentum effect was also greater then using the 20% cutoff. The better the previous year performance, the more likely the significant out-performance would continue.

**Figure 9: Annual value-weighted momentum portfolio returns for the Top 100 UK equities 1900-2007**



This chart shows value-weighted returns for winner and loser portfolios among the Top 100 equities, defined with breakpoints at the 20th and 80th percentiles. The shaded area is the cumulative difference between winners and losers, and measures the value of a long-short WML portfolio. The momentum process followed here is a 12/1/1 strategy. Source: ABN AMRO/LBS Global Investment Returns Yearbook 2008, chart 26

While most active managers do not expressly focus on this issue they either adopt a momentum based strategy or reject the premise by default. Pure value based managers reject the momentum effect, while hedge funds using pure technical analysis buying purely on price action clearly adopt the theory.

The authors conclude that practices like letting winners run and cutting losers short implicitly incorporate a momentum bias in the management style – and the performance of these managers should benefit from such a strategy. The performance improvement should be significant. This is especially true of small cap portfolios according to the data.

In the 1956 to 2007 period the non-market related difference in return, referred to as ‘alpha’, was roughly 11 percent per year – an incredibly high value considering the fact that many active managers have difficulty generating positive alpha.

One of the authors of the study noted that finding an attractive sector is especially important for an investor, and he claims this explains why some investors like Warren Buffett have done so well. A well performing sector, with a strategy to buy well performing stocks, historically has generated substantial excess returns.

The researchers conclude: “The momentum effect, both in the UK and globally, has been pervasive and persistent. . . Even if they do not set out to exploit it, momentum is likely to be an important determinant of their investment performance.”

#### **(4) Market Inefficiencies: Seasonality – Historical Data, Trends & Market Timing**

According to Ned Davis Research if an individual invested \$1,000 in the S&P 500 index from November 1<sup>st</sup> to April 30<sup>th</sup> every year from 1950 to 2006 – the ‘winter season’ – and held cash in their account for the remainder of each year the account would be worth an astonishing \$38,700 before tax considerations. If, over the same 56 year period, an investor had invested the \$1,000 in the S&P 500 index from May 1<sup>st</sup> to October 31<sup>st</sup> – the ‘summer season’ – and held cash in their account for the remainder of each year the account would be worth \$916.

Historical market data indicates that all of an investor's gain would have been generated during the winter season's six months. Further, researchers have found that this seasonal impact is pervasive – present in numerous countries, significant in size, and statistically robust over time.

Wall Street has long been aware of this seasonality trend, generating an old maxim to “sell in May and go away”. Financial journalist Mark Hulbert recently discussed the topic:

The odds of success [in timing the market] would certainly not appear to be very high. After all, market timers in general have very poor success rates, rarely doing better over the long term than simply buying and holding. Why would we think that they can do any better timing their entries and exits in October and April than in any other month of the year? . . .

Perhaps the most comprehensive review of its historical legitimacy appeared in the December 2002 issue of the prestigious academic journal, American Economic Review. It was reported there that in 36 of 37 countries studied, average stock market returns from Halloween through May Day (the so-called "winter" months) were significantly higher than equity returns from May Day through Halloween (the "summer months").

In fact, ***the study found, the summer months' returns have averaged so much less than those of the winter months that almost all of the stock market's long-term returns have been produced during the winter months.*** That implies that simply going to cash between May Day and Halloween will have only minor impact on long-term returns while dramatically reducing risk -- a winning combination that would show up in a much improved risk-adjusted performance.

The Halloween [seasonality] Indicator is ***thus in the rarefied ranks of those select few market timing systems that truly appear to work.*** . .

**Seasonality Impact International in Scope.** The long term seasonality trend is not just apparent in the U.S. stock markets – it is international in scope. The U.K.'s FTSE All-Share index, an index that tracks hundreds of companies traded on the London Stock Exchange and is considered by some as one of the best measures of the London equity market, has exhibited a powerful seasonality trend over the last forty years. The summer season returns of the All-Share index has outperformed the winter season by roughly 12% per year during this four decade long period.

Over the last ten years (since 1997), the "Sell in May" strategy for the U.K. FTSE All-Share index has gained 95 per cent, while the "Buy in May" strategy has lost 19 per cent. The All-Share is up 57 per cent for those who remained continuously invested.

"This is not due to a few one-off events" according to an article in the Financial Times by journalist John Authers. "Over every three-year and five-year period since 1980, these results have held good. Selling in May always wins. This also holds true whether the money held out of the market is parked in bonds, or cash, or hidden under the mattress."

**Recent Seasonality Data in the U.S. Markets.** Because the long term seasonality trend appears to be robust and global in nature we expected investment managers would have discovered these pricing patterns and exploited the market inefficiencies, thus reducing the seasonality effect. We also expected the seasonality factor to apply more forcefully to the S&P 500 index – an index of the stocks of larger more liquid companies held by many mutual and pension funds and one that is widely used as a benchmark by active managers.

To test these expectations we examined the last eight years of market data, specifically the returns of the S&P 500 Index, the Russell 2000 Small Capitalization Index, the Dow Jones Industrial Index, and the Nasdaq Composite Index.

We assumed that the investor was only invested in the market for the six-month winter or summer season. The remainder of the year the individual was invested in cash, with no interest earned on the cash balance. We found, somewhat to our surprise, that the seasonality factor was strong and clearly evident in the recent data – and it appeared across all the market indexes we examined. A summary of our findings for the eight year period ending November 1, 2007 is set out in the accompanying chart.

| Investment period:<br>11/1/99 to 11/1/07 | \$1,000 Investment Grows To   |                               |                          |
|--|-------------------------------|-------------------------------|--------------------------|
|  | Winter Season:<br>Nov. to May | Summer Season:<br>May to Nov. | Continuously<br>Invested |
| Russell 2000 index                       | \$2,014                       | \$959                         | \$1,932                  |
| Dow Jones Ind. index                     | \$1,336                       | \$971                         | \$1,298                  |
| S & P 500 index                          | \$1,235                       | \$921                         | \$1,137                  |
| Nasdaq Comp. index                       | \$1,051                       | \$916                         | \$962                    |

Investors can gather several points from this eight year subset of market data:

- The seasonality factor was **clearly evident** during this time period in **all the indexes** we studied
- Returns from the winter season **substantially exceeded** those for the summer season for **every index**
- In each case, returns from the winter season exceeded the returns of being continually invested for the entire 12 months, before tax

**Seasonality & Investment Strategy.** A simple strategy of entering the S&P 500 index on the first day of November and exiting on the first day of May each year would have outperformed the total return of the S&P 500 Index during the last 8 years – as well as for the last 56 years. The excess returns would have been generated with less market risk, since an investor would be in cash for six months out of each year.

This is a remarkable finding when you realize that the majority of professional money-managers and mutual funds are unable to match the performance of the S&P 500 index over the longer term.

If the market is as efficient as many claim, and if professional money managers as a group cannot consistently beat the S&P 500 index over the longer term, the question we have as an investment manager is why does this investment anomaly exist – and why is it so powerful?

One theory is that investors and institutions receive large amounts of cash every fall and allocate a portion of those funds into the stock market. The cash comes in the form of dividend and capital gains distributions, year-end contributions by employers or employees into their 401k plans, IRAs, and profit-sharing plans, and from annual bonuses. It also comes from small businesses and partnerships that calculate their earnings for the previous year, and distribute those assets to the owners during this period. Income tax refunds are also a source of cash.

The new funds being invested increase the demand for shares, propelling stock valuations higher in the fall and early winter. By late spring those monies have been invested, and the demand for stocks decline during the summer months.

Other theories, a bit less credible, attribute the performance differences to the fact that many financial managers are less attentive to their portfolios during the summer. Or that the change in daylight hours makes the manager more or

less risk adverse, impacting returns. Others suggest most mergers and acquisitions are in the winter months, fueling stock prices.

In the end numerous theories exist. Exactly why the seasonality impact occurs is still open to academic debate.

**LSGI Fund & Seasonality Trends.** With evidence of the strong seasonality bias across all the market indexes, we were curious if this seasonal pattern also existed for the LSGI Venture Fund L.P. While we were aware of the seasonal nature of the market we had not examined the data for trends in the LSGI portfolio due to the lack of enough six-month data points to draw any reasonable conclusions.

Because we invest in the most inefficient, illiquid, and volatile part of the market on one hand we expected the trends evident in the market for larger company stocks (such as those in the S&P 500 index) would be magnified in the market for smaller company stocks.

On the other hand since our portfolio has not correlated closely with any of the indexes longer term, and the fact that we are quantitatively oriented active portfolio managers, seasonality might have less of an impact on our portfolio due to our managerial activities. From both a theoretical and practical standpoint we were curious if a 'seasonality' trend existed in LSGI Fund returns.

Examining the data from LSGI Fund from November 1, 1999 to November 1, 2007, using gross returns after all costs and expenses but before the allocation of the annual performance incentive fee, we were surprised to find a relatively large seasonality bias exists – in fact, an incredibly large bias. Data for the eight year period ending November 1, 2007 is set out in the accompanying chart.

| \$1,000 Investment Grows To              |                               |                               |                          |
|--|-------------------------------|-------------------------------|--------------------------|
| Investment period:<br>11/1/99 to 11/1/07 | Winter Season:<br>Nov. to May | Summer Season:<br>May to Nov. | Continuously<br>Invested |
| LSGI Venture Fund LP                     | <b>\$5,357</b>                | <b>\$1,424</b>                | <b>\$7,629</b>           |

Investors can gather several points from this eight year data subset:

- The seasonality factor was apparent during this time period for the LSGI portfolio
- LSGI Fund returns from the winter seasons **substantially exceeded** those for the summer seasons

**Investment Implications.** In our opinion the investment implications of the seasonality effect are truly remarkable. Note several attributes of the seasonality effect:

- The seasonality effect is present in both longer and shorter term market data, indicating the excess returns have not been arbitrated away in recent years. In theory the excess returns from this effect can still be exploited by active managers
- The size of the seasonality effect historically has been quite significant – larger than most other statistical related impacts we have examined – and the impact compounds over time
- The seasonality effect is present in all the major market indexes that we examined, even in international indexes, which indicates the effect is persistent, widespread and robust – regardless of the cause
- From the data it would appear that in general the more volatile the index or portfolio the more pronounced the seasonality effect, at least over the last eight years. The Nasdaq Composite index is the exception - it appears from the historical data the returns of that index in this period were distorted by the 2000 technology bubble

| Annual Returns - Invested 6 Months a Year |                               |                               |                          |
|---|-------------------------------|-------------------------------|--------------------------|
| Investment period:<br>11/1/99 to 11/1/07  | Winter Season:<br>Nov. to May | Summer Season:<br>May to Nov. | Difference in<br>Returns |
| LSGI Venture Fund LP                      | <b>23.3%</b>                  | <b>4.5%</b>                   | <b>18.8%</b>             |
| Russell 2000 index                        | <b>9.2%</b>                   | <b>-0.5%</b>                  | <b>9.7%</b>              |
| Dow Jones Ind. index                      | <b>3.7%</b>                   | <b>-0.4%</b>                  | <b>4.1%</b>              |
| S & P 500 index                           | <b>2.7%</b>                   | <b>-1.0%</b>                  | <b>3.7%</b>              |
| Nasdaq Comp. index                        | <b>0.7%</b>                   | <b>-1.1%</b>                  | <b>1.8%</b>              |

- If the historical seasonality trend continues, we would expect it to be more pronounced in the LSGI portfolio than in the major market indexes since the LSGI portfolio is much more volatile than the major market indexes

Keep in mind the eight years of data may not reflect long term trends and may not be statistically significant. The time periods covered by the data include three very volatile periods – one was the technology bubble in 2000, the events

of September 11<sup>th</sup>, and the energy spike after the hurricanes in 2005. These volatile periods will potentially distort long term trends.

**Summary.** As an active portfolio manager using: (1) quantitative methods to identify attractive investment opportunities, with (2) a well defined sell discipline, in (3) the most inefficient part of the market we assumed that the seasonality impact on our portfolio would be minimal. We were wrong. The winter six month period beginning November 1<sup>st</sup> generated annual returns 18.8% better than the summer period. We would call this disparity 'significant'.

Our study of historical data indicates that over the longer term the six 'winter' months will most likely be the most productive period for LSGI investors from a total return standpoint. As financial journalist Mark Hulbert points out, the "indicator is thus in the rarefied ranks of those select few market timing systems that truly appear to work."

### **Controlling risk: Sell Losing Positions Quickly**

When balancing the risk/reward relationship an active manager needs to have a well thought out risk management strategy. No matter how attractive an investment may seem, and no matter how strong the probabilities are stacked in your favor, at some point the odds will not support your investment decision. At that point, if a stock or portfolio does not perform as expected, a manager should have a strategy on how to respond.

We respond to these situations by cutting our losses short and letting our winners run. This risk management strategy plays into the long term price persistence trends noted above. And it also plays into the fact that companies with high relative strength tend to outperform, while companies with weak relative strength do not. In periods of weak performance we raise the cash level of the portfolio. This also has the added benefit of preserving capital in market downturns.

### **Why investors don't take advantage of market inefficiencies**

The historical data clearly indicates that undervalued small and microcap stocks with above average relative strength have historically outperformed the market by a significant amount. Investors have difficulties managing funds in this sector for the following reasons:

- The liquidity of many small and micro-cap firms is limited
- It is hard to establish or sell any sizeable position without impacting the share price
- The cost to analyze a small company is very high compared to the dollars that can be invested
- As a percentage of assets, any position a large investment management firm can take in small and micro-cap firms will have little impact on total portfolio performance
- Regulations limit how much of a small cap firm can be purchased without making SEC filings
- Most individuals have little understanding as to how to identify an attractive small or micro-cap firm for purchase
- Little unbiased and reliable analyst coverage exists
- Many associate small companies with 'penny stocks' and manipulation and/or fraud
- Micro and small cap firms are much more volatile than the market
- Losses "hurt" investors three times more than gains are pleasurable
- Most individuals equate these companies with "high risk"
- Few funds effectively invest in this sector, and media attention is focused on larger and better known firms
- Most individuals have little concept of the excess returns that can be earned in this sector, and the long term impact on their net worth. Note Warren Buffett's Berkshire Hathaway was a micro-cap in 1965.

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Like the early prospectors in Michigan's Copper Country who found great challenges and difficulties, and in some cases great wealth<sup>6</sup>, the small capitalization sector is rich with opportunities for those who dare to prospect therein.

Small companies are, in every sense of the word, the investor's Mother Lode.

Market inefficiencies are the tools with which to mine.

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<sup>6</sup> Shareholders in successful mining ventures in the Keweenaw Peninsula could do quite well. Henry Hobart, school teacher at Clifton (a ghost town located near Eagle River), wrote on February 3, 1864 that: "Many have made a fortune her investing their money in stock. This is an easy way but it also an easy way to lose a fortune. But it is said that a man must run some risk if he wishes to make anything." Hobart references the wealth created by investing in mining stocks numerous times in his diary – and indicates that he purchased shares in the North Cliff mine during this time period. See: Hobart, "Copper Country Journal, The Dairy of a Schoolmaster, 1863-1864" (republished 1991).