**Portfolio Management; Fall 2008**

# Monticello Fund

## Darden Case Recommendations

**Boyle, Steve**
**Fogal, Tamara**
**Scherer, Allison**
**Yang, Rachel**

FIN 5055

**Question 1 - Discuss how Majocha should formulate a strategy for achieving the team's goal of outperforming the S&P 500.**

Steve Mojocha was in a tough situation. He was due at a fund managers meeting and needed to present just how his team could outperform the S&P 500 for the second consecutive year. His team had varying views on just how this would be accomplished. Some were willing to take on more risks than others and clashed on which of the six stocks would best allow them to achieve their goal. They obviously cannot see into the future, but they can use statistics to determine what the securities are expected to do in the coming year. They can do this by calculating the CAPM for each security to determine the best portfolio for the upcoming year. By looking at the CAPM, they can determine which security is expected to have a higher return than the expected S&P 500 return. And also comparing the CAPM to the SML line they can determine which stocks are currently over and under valued which is crucial information when choosing their portfolio. To find the CAPM, they can take the risk-free rate times the beta of the security, which is multiplied by the expected return of the S&P 500 minus the risk-free rate. They can also determine which securities have the best correlation to lower the diversifiable risk. The goal is to outperform the S&P 500 while taking the least amount of risk.

**Question 2 - Discuss the risk/return characteristics of the 50%/50% portfolio of Mylan Labs and Placer Dome portfolio, comparing it with the individual companies' risk/returns.**

The Mylan/Placer portfolio creates a lower standard deviation than the Mylan and Placer individually. The standard deviation for Mylan is 39.4% and Placer is 43.2%. The Mylan/Placer portfolio's standard deviation is 33.8%, which is significantly less than the securities by themselves. This lowers the risk while not giving up much return. The

anticipated return for Mylan is 20.7% and Placer is 19%. The anticipated return for Mylan/Place is 19.9%. Moreover, one the most important pieces of information when looking at the combined portfolio is that the two stocks are negatively correlated. This means the two stocks behave differently, when one goes up the other will go down. This is crucial when building a portfolio and can greatly help in reducing diversifiable risk while maintaining return. Furthermore, when the Mylan/Placer portfolio CAPM is compared to the SML line it is considered an undervalued stock, indicating it is poised to generate a return for the investor. And if they get in now they can realize that return before the market corrects itself.

**Question 3 – See Exhibit 1**

**Question 4 - Discuss the appropriateness of using T-bonds versus T-bills to compute the market premium.**

We chose the long-term Treasury Bond rather than the T-Bill because of the length of the investment. Our investment projections are based on data from over 4 years; the longer Risk-free rate of the Treasury Bond is more statistically accurate because of the larger population data. If we chose T-Bills, they are for short-term investments of less than 5 years, which is not a comparable time frame for our portfolio mix. Though in both data sets, we have information from 1926-2003, the short-term investment rate may be more volatile or reactive to market prices.

**Question 5 - See Exhibit 2**

**Question 6 - Comment on the arguments of Bose, Maguire, Hill and Khtikian in the context of your graphs. Explain which measure of risk you think is more appropriate for the Monticello Fund.**

Bose and Maguire both agreed that Micron Technologies was the best company to invest in because of its poor performance the past few years. They believe it is positioned to rebound and perform better the upcoming year. Looking at the Exhibit 2, Micron is significantly overvalued, meaning that the fund is well below the Security Market line. This would suggest that the company is not expected to return the anticipated return for the upcoming year.

Khtikian disagrees with Bose and Maguire, stating that investing in Micron creates substantially higher risk than is needed in order to outperform the S&P 500. Again, the goal is to outperform the S&P 500 with taking the lowest risk possible. Khtikian believes that they should look at the ratio of anticipated returns relative to the standard deviations of past returns. Doing this, Khtikian finds that Boise Cascade and NY Times are the best companies to be investing in. Although they are not as overvalued as Micron Technologies is, they are still below the Security Market Line, suggesting that they too will under perform from the required returns. However, they are much closer to the SML line and Boise Cascade in particular did have a significant increase when comparing their CAPM to the anticipated annual return. The returns were 13.32% and 10.80% respectively. Whereas, the two returns for the New York Times were 10.55%

(CAPM) and 9.0% (anticipated annual return). There was an increase in return but not as substantial as Boise Cascade.

Hill agrees with Khtikian in that they should look at anticipated returns should be "normalized by the associated risk of the stock", but instead of looking at standard deviation, they should use the beta of each security. This would be the CAPM equation. He believes that Mylan Labs and Placer Dome are the best companies to be invested in. The chart would agree with Hill's findings. Both Mylan and Placer are located above the Security Market Line, suggesting that both will outperform their required returns.

The Monticello Funds objective is to "identify and invest in companies that are well- positioned for growth but inexpensively valued." We believe that using the CAPM, or Hill's suggested measurement, is the best measure to use for their portfolio. This measurement will allow them to find the funds that are undervalued and posed to beat their anticipated return and thus outperform the return for the S&P 500.

**Question 7 - Recommend and justify two or three stocks to add to the Monticello portfolio.**

We suggest the team invest in Mylan Labs, Placer Dome and Micron Technologies. We chose Mylan Labs and Placer Dome because both are considered undervalued. They are expected to have returns higher than their required returns. This satisfies the Monticello portfolio in finding companies with high growth potential that are undervalued. We choose Micron Technologies because, although it has a high beta, or higher risk, and is considered overvalued, it is still expected to return higher than any other company. Bose and Maguire also believe that there is a chance that the company

can rebound and outperform despite the findings.  We would put a smaller percentage in Micron than in Mylan and Placer; by designing the portfolio in this manner, it will lower the risk of investing in Micron while expecting to receive higher overall return.

**Model for Estimating Anticipated Return for Proposed Stocks**

| Company name | Current price | Dividends per share 2004 | Dividend growth rate | Anticipated 2007 Earnings per share | Anticipated 2007 PE | Anticipated annual return (2004–2007) |
|---|---|---|---|---|---|---|
| Boise Cascade | $33.40 | $0.60 | 0% | $2.02 | 23.5 | 10.80% |
| Boston Beer | 17.54 | 0.00 | 0% | 1.00 | 24 | 8.20% |
| Micron Technologies | 15.25 | 0.00 | 0% | 0.30 | 83 | 13.00% |
| Mylan Labs | 23.55 | 0.12 | 5% | 1.46 | 24 | 10.90% |
| New York Times | 46.01 | 0.60 | 4% | 3.76 | 16.5 | 9.00% |
| Placer Dome | 16.43 | 0.10 | 15% | 0.75 | 30 | 8.80% |

**Summary of Data for Monthly Returns**

| | Boise Cascade | Boston Beer | Micron Tech | Mylan Labs | New York Times | Placer Dome | Mylan/Placer |
|---|---|---|---|---|---|---|---|
| Average Monthly Return | 0.7% | 1.7% | 1.4% | 1.8% | 0.9% | 1.6% | 1.7% |
| Annualized Mean | 8.2% | 20.2% | 16.6% | 20.7% | 11.0% | 19.0% | 19.9% |
| Annualized Std. Deviation | 31.2% | 31.7% | 76.2% | 39.4% | 25.8% | 43.2% | 33.8% |
| Variance | 0.0082 | 0.0085 | 0.0480 | 0.0130 | 0.0055 | 0.0155 | 0.0058 |
| Std. Deviation | 9.08% | 9.20% | 21.90% | 11.39% | 7.43% | 12.43% | 7.62% |
| CV | 3.80 | 1.57 | 4.59 | 1.90 | 2.35 | 2.27 | -0.0026 |
| Beta (Raw) | 1.14 | 0.46 | 2.19 | 0.26 | 0.72 | 0.25 | 0.26 |
| Anticipated Ann Ret | 10.8% | 8.2% | 13.0% | 10.9% | 9.0% | 8.8% | 41.3% |
| CAPM | 13.32% | 8.84% | 20.25% | 7.52% | 10.55% | 7.45% | 7.48% |
| Correlation | | | | | | | -0.184736 |

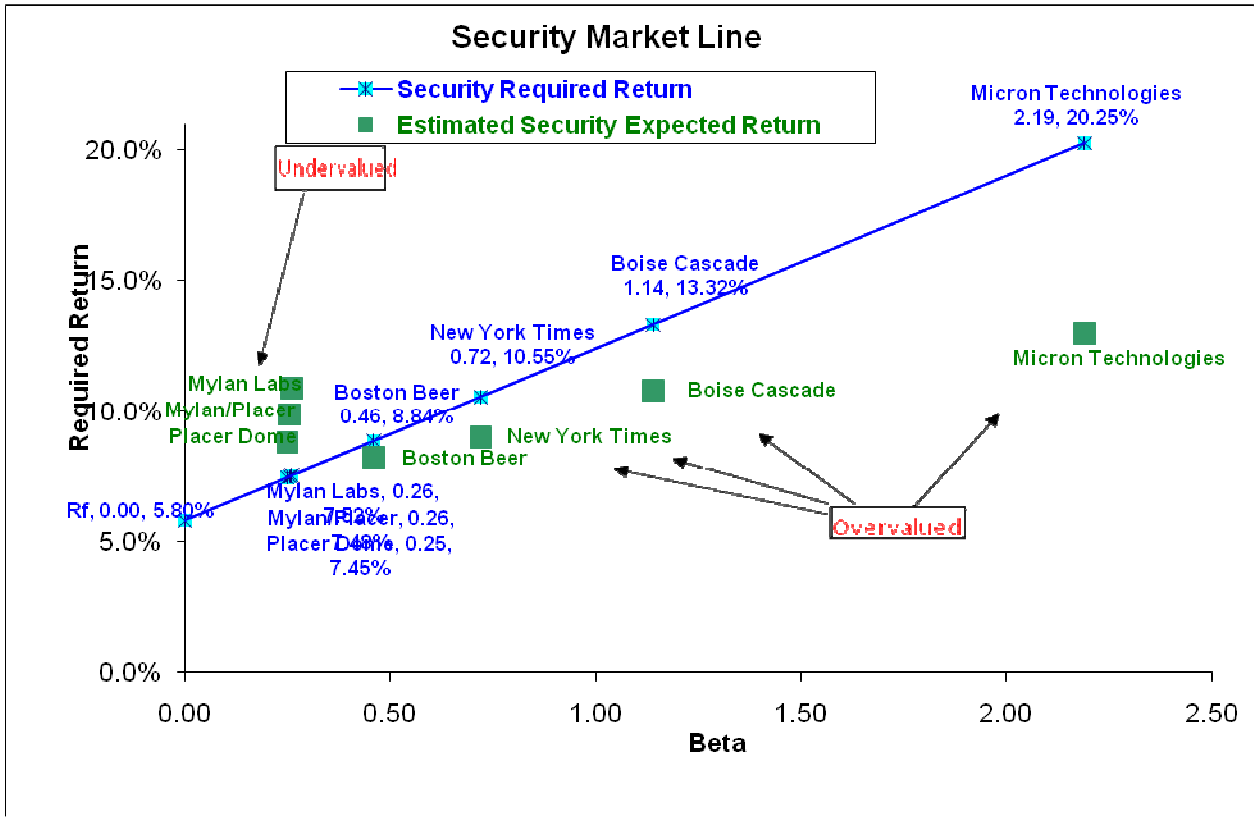
**Characteristics and Returns for Proposed Stocks**

| Company name | Industry | Average ann Return | Annualized std. deviation | Beta estimate Raw (Slope of Regr) | Value Line | Dividend Yield | PE Ratio |
|---|---|---|---|---|---|---|---|
| Boise Cascade | Paper products | 8.20% | 31.20% | 1.14 | 1.20 | 1.80% | 27 |
| Boston Beer | Alcoholic beverages | 20.20% | 31.70% | 0.46 | 0.55 | 0.00% | 22.9 |
| Micron Technologies | Semiconductors | 16.60% | 76.20% | 2.19 | 1.70 | 0.00% | NMF |
| Mylan Labs | Pharmaceutical | 20.70% | 39.40% | 0.26 | 0.70 | 0.51% | 18.9 |
| New York Times | Newspapers | 11.00% | 25.80% | 0.72 | 0.90 | 1.30% | 23.1 |
| Placer Dome | Gold and silver | 19.00% | 43.20% | 0.25 | 0.40 | 0.61% | 28.3 |

Exhibit 2

| | Beta | Req Return | Exp Return |
|---|---|---|---|
| Boise Cascade | 1.14 | 13.32% | 10.80% |
| Boston Beer | 0.46 | 8.84% | 8.20% |
| Micron Technologies | 2.19 | 20.25% | 13.00% |
| Mylan Labs | 0.26 | 7.52% | 10.90% |
| New York Times | 0.72 | 10.55% | 9.00% |
| Placer Dome | 0.25 | 7.45% | 8.80% |
| **Mylan/Placer** | 0.26 | 7.48% | 9.85% |

| | |
|---|---|
| $R_M$ | 12.4% |
| $R_F$ | 5.8% |



| Company name | Average ann Return | Annualized std. deviation |
|---|---|---|
| Boise Cascade | 8.20% | 31.20% |
| Boston Beer | 20.20% | 31.70% |
| Micron Technologies | 16.60% | 76.20% |
| Mylan Labs | 20.70% | 39.40% |
| New York Times | 11.00% | 25.80% |
| Placer Dome | 19.00% | 43.20% |
| **Mylan/Placer** | **19.9%** | **33.78%** |
| | y-axis | x-axis |

Q3 Risk & Return Chart