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From: Harry M. Markopolos [Personal Privacy]

3/1/2001 2:21:04 PM

To: 'manione' [Personal Privacy]

Attachments: SEC objective meeting notes.doc, NYC based hedge fund.doc, Spread Conversion Competitor.xls

Good Afternoon Ed,

Per our telecon this morning, I've attached the three (3) files I used in my presentation at your office.

I understand my obligations under the law. I have tipped Neil R. Chelo, CFA, Portfolio Manager and Frank R. Casey, Sr. VP, Marketing, of Rampart. I have instructed them not to tip others and not to trade on this information. There are four, what I understand to be journalists, using the attached materials at MAR Hedge. According to Frank Casey, they are hoping to go to print with an explosive story in the next three weeks. They believe that over \$12 billion is committed to Bernie Madoff's hedge fund.

I am available to assist the SEC at any hour of the day or night. As I have said, I have great expertise in the derivatives arena and can provide you with facts, figures and strategies.

Regards.,

Harry M. Markopolos, CFA

[Personal Privacy]

<<SEC objective meeting notes.doc>> <<NYC based hedge fund.doc>>
<<Spread Conversion Competitor.xls>>

◆ **Objective:** In 25 minutes or less, I will prove one of three scenarios regarding Madoff's Hedge fund operation:

- 1 They are incredibly talented and/or lucky and I'm an idiot for wasting your time
- 2 The returns are real, but they are coming from some process other than the one being advertised, in which case an investigation is in order.
- 3 The entire fund is nothing more than a Ponzi Scheme.

◆ **Disclosures**

- 1 My firm has several years of experience with the exact product line being offered by Madoff. We called it PEP for Protected Equity Program. It delivered about 2/3rd of the market return with only 1/3rd of the risk. Unfortunately, people wanted higher returns in the long running bull market and the product was discontinued for lack of customer interest. I find it astounding that Madoff claims to provide 80% of the market's return with only 1/3rd of the risk. These kind of numbers seem beyond the bounds of what is reasonable for such a strategy. In down months, our PEP program experienced losses, albeit smaller losses than the market, whereas Madoff reports only 3 losing months out of 87, a claim I believe impossible to attain with the strategies he advertises.
- 2 My firm's marketing department has asked our investment department to duplicate Madoff's "split-strike conversion" strategy in the hopes of duplicating their return stream. We know from bitter experience that this is impossible but they won't listen to my firm's investment professionals. Therefore, I don't consider the two firms to be competitors. However, I would like to prove Madoff a fraud so that I don't have to listen to any more nonsense about split-strike conversions being a risk-free absolute return strategy.
- 3 My firm does not know I am here. I do not want my name released to anyone without my explicit permission.
- 4 If there is a reward for uncovering fraud, I certainly deserve to be compensated. There is no way the SEC would uncover this on their own. I have almost 13 years in the business and have traded similar type strategies.
- 5 I used the "Mosaic Theory" of acquiring bits and pieces of information over the past three months to arrive at the conclusions presented herein. I have no inside knowledge or "smoking gun" piece of hard evidence.
- 6 I have not traded on the information being presented.
- 7 My only hard evidence, is Exhibit 1, a one page document entitled "MANAGER B; The Broyhill All-Weather Fund, L.P." I have chosen to break down Exhibit 1 into four parts, A, B, C, D and have labeled them accordingly
- 8 Some of my presentation is based upon third party representations made by people affiliated with hedge fund, fund of funds, who have considerable assets invested with Madoff. They continually brag about their returns, how they are generated from access to order flow, and how Madoff gains almost perfect market knowledge based upon access to order flow. I have included the hearsay remarks in the last section of my prepared remarks, since I realize the information while useful in painting a broad picture, is not enough by itself to base an SEC enforcement action upon.

◆ **Exhibit 1 Exposed**

- 1 **Returns can't be coming from net long exposure to the market:** Part A, a split-strike conversion is long 30 – 35 stocks that track the 100 stock OEX index, short out-of-the-money (Delta < .5) OEX index call options, and long out-of-the-money (delta , -.5) OEX index put options. Part A describes a strategy that is net long stock. This means that if the market drops, this strategy loses money. However, in Part D, they show a .06 Correlation to the S&P 500's Beta. Equating Beta to Delta, we must infer that Madoff is not really net long, but somehow delta hedging with options. **Conclusion:** Madoff's returns cannot be coming from the market's action as evidenced by their reported .06 correlation (Part D) to the S&P 500 index.

- 2 **Not enough options exist in open interest:** Somewhere between \$3 - \$7 plus billion are allocated to this strategy, of which Broyhill Asset Management, LLC represents only \$350 million. Call option open interest on the Chicago Board Option Exchange as of the Tuesday, May 2, 2000 close was only 102,745 contracts, representing \$7.9 billion (102,745 contracts x \$100 contract multiplier x 776.75 closing OEX index value on May 2nd). May 2nd's OEX put option open interest was \$9.5 billion (122,731 put contracts x \$100 contract multiplier x 776.75 closing OEX index value on May 2nd). Part A, 1st paragraph, last sentence, explicitly states, "The amount of calls that are sold and puts that are bought represent a dollar amount equal to the basket of shares purchased." However, these are all out-of-the-money options (Part A, 1st paragraph, 2nd to last sentence), and delta hedging takes place, which would require lots of options trading and lots of options in open interest. More low delta calls and puts would need to be utilized to delta hedge than currently exist in open interest. **Conclusion:** This hedging cannot be taking place as described. And, if only \$3 billion are allocated to this strategy, then there still aren't enough options in open interest for this type of hedging to occur, since Madoff would be at least 1/3rd of the open interest, and we know that's not the case. If a firm gets to be too big a part of any contracts open interest, it will be squashed like a bug by the market-makers.

- 3 **Performance Chart is Misleading:** Part C. Notice the Cumulative Performance Chart of Manager B is almost a straight line, rising at roughly a 45 degree angle. This chart absolutely cannot be cumulative in the common usage of the term for reporting purposes, which means "geometric returns." This chart must be some sort of arithmetic average sum, since a true cumulative return line, given the returns presented in Part B, would be exponentially rising (i.e. curved upward, at an increasing rate). **Conclusion:** The chart in Part C is misleading and the manager is misrepresenting results.

- 4 **Where exactly do the returns come from?:** Part B. Hopefully I've at least raised doubt in your mind that Madoff's returns cannot be coming from the market if the correlation to the S&P 500 Beta is only .06. I think I proved quite convincingly that there are not enough OEX options in existence to hedge a \$3 - \$7 billion portfolio. In Part A, second paragraph, last sentence, reads, "The collection of dividends on the basket of stocks constitutes an integral part of the strategy." The word "integral" sounds good, but the OEX index yields only .94%

a year. **Question:** If his returns did not come from the stock market (.06 correlation to the S&P 500) and they didn't come from the options hedging (not enough contracts exist), then where did the returns come from if the underlying index yields only .94%?

5. My firm's experience with its PEP Product do not support Madoff's claims in Part B. I find it astounding that Madoff claims to provide 80% of the market's return with only 1/3rd of the risk. My firm's ten years of actual return history with its PEP product or products similar to PEP and to Madoff, realized about 2/3rds of the markets return with about 1/3rd of the risk. Madoff's number of losing months seems beyond the bounds of what is reasonable for such a strategy. In down months, our PEP program experienced losses, albeit smaller losses than the market, whereas Madoff reports only 3 losing months out of 87, a claim I believe impossible to obtain using option income strategies. In August 1998, in the midst of the Russian Default and the Long Term Capital Management twin crises, the S&P 500 dropped 14.58%, yet Madoff earned .30%. In January 2000, the S&P 500 dropped 5.09%, yet Madoff earned 2.72%. Our current product test portfolios do not support this, and we sell, higher priced individual call options in our strategy, which should earn more money in down markets than the lower priced index calls supposedly sold by Madoff.

6. Madoff's returns are not consistent with a publicly traded option income fund: Part B. Only 3 down months vs. the market's down 26 months during the 87 month time period presented. The low .06 correlation in Part D supports this, but the method given for return generation are not possible or even plausible. Obviously there are not enough options in existence to delta hedge Madoff's long stock position. Madoff's returns are not consistent with the only Option Income Fund that I know of that still trades on an exchange. A comparison of annual returns is listed below (data courtesy of Bloomberg, GATEX equity DES, page 3):

Year	Gateway	Madoff	S&P 500
1993	7.40	14.55	10.06
1994	5.57	13.12	1.33
1995	11.04	16.68	37.62
1996	10.83	15.96	22.96
1997	12.04	16.52	33.38
1998	12.26	15.83	28.58
1999	12.97	16.69	21.04
Annualized	10.27	15.62	19.58

Conclusion: The Madoff hedge fund returns are inconsistent with a publicly traded mutual fund using a similar stated return methodology. These returns are also inconsistent with a fund having a .06 (i.e. very little net long market exposure) correlation to the S&P 500.

◆ **HEARSAY** from several sources, all of whom are fund of fund operators with investment with Madoff's hedge fund. As you know, every Ponzi Scheme has to be "a hook" or "a story" about how really great returns are being generated.

1. **Non-existence of ECN's prior to 1998:** Madoff makes verbal claims to his investors that access to their internal order flow, which Madoff pays for, is a substantial part of the return generating process. If this is true, then where did the returns come from in the years 1993 – 1998, prior to the ascendance of ECN's? Presumably, prior to 1998, Madoff only had access to order flow on the NASDAQ which he paid for. He would have no such advantage pre-1998, on the stocks listed (Part A, 1st paragraph, sentences 3 & 4).
2. **Payment for Order Flow:** People I know who have invested with Madoff are being told that the returns are really coming from access to the Madoff B/D's internalization of order flow. If Madoff chooses to transfer the profits from the "free options" associated with his internalization of order flow to his hedge fund clients, we can easily measure the value of having access to internal order flow by using the Black Scholes Model. Current realized annualized volatility of the stocks within the OEX index is approximately 50%, the current treasury bill rate is 5.80%, the average stock price is approximately \$46. Using the current index date, the value of an at-the-money call option over the relevant time intervals of 1 minute, 5 minutes, 10 minutes, and 15 minutes appears in the chart below.

1 minute	5 minutes	10 minutes	15 minutes
3 cents	7 cents	10 cents	12 cents

- Note: cap-weighted OEX component volatility is approximately 50% annualized. I used a 253 day trading year. The SEC should be able to duplicate these results using Black-Scholes
- There is value to having access to order flow. This is in the academic literature. If I know my customers are heavy buyers of ABC Stock at 50, I can, with relative safety, purchase ABC Stock at 50.125, and risk only a 1/8th loss on the trade with some high probability. If the stock rises, I win. If it drops, I lose, but only a little. The pattern of returns is positively skewed and leads to excellent short term profits if the process can be frequently repeated.

Conclusion: Madoff's returns may be accurate, but maybe he is generating them by subsidizing his hedge fund returns by disadvantaging his broker/dealer's customer order flow. In other words, he's not providing "best execution" to his B/D customers. Is this disclosed and do his B/D customers know they are being disadvantaged? Is payment for order flow a conflict of interest when a manager takes the "free options" granted by access to order flow?

Even Worse Possibility: Madoff engages in "ticket-splitting" whereby bad fills go to the customers and good fills are allocated to the Hedge Fund. Only a close review of the time stamps and comparison to the customer records will reveal whether this is happening.

3. **Madoff is really only borrowing money from its investors at 15 ½ %:** We've had two investors tell us that Madoff is actually making a lot more money on its trades than 15 ½ % per year and that they only pass along the 15 ½ % returns as "the cost of money." My

response is why pay 15.5% interest for such a stable, low volatility investment strategy? Surely a rate of LIBOR + some more reasonable spread would result in much lower interest rates. That is of course, unless you wanted to avoid having rating agencies such as Moody's or S&P come in and look at your firm.

4. **Madoff subsidizes down months:** Hard to believe, but I've heard two investors tell me that they don't believe Madoff can make money in big down months either. However, they tell me that Madoff "subsidizes" their investors in down months, so that they will be able to show low volatility of returns. These types of stories are typical of Ponzi Schemes. These investors tell me, with straight faces, that Madoff only books winning tickets in their accounts and "eats" the losers in months where the market sells off hard.
5. **Madoff has perfect market-timing ability:** One investor told me that Madoff went 100% to cash in July 1998 and December 1999, ahead of market declines. He told me that he knows this because Madoff faxes his trade tickets to his firm and the custodial bank. However, Madoff also owns the B/D that generates the trade tickets, so that collusion between Madoff's B/D and Madoff's hedge fund could take place.
6. **Madoff does not allow outside performance audits:** One London based fund of funds representing Arab money, during the due diligence process, asked to send in a team of Big Six accountants to verify performance. They were told no, that only Madoff's brother is allowed to audit performance for reasons of secrecy. Amazingly, this London based fund of funds invested over \$200 million of their Arab client's money anyway, because the low volatility of returns was so attractive.

Concluding Remarks:

I am an expert in the field. I have doubts about Madoff's returns being true based upon the discrepancies noted in Exhibit 1. Combining the discrepancies I've noted in Exhibit 1, with the hearsay I've heard, seems to fit in with the patterns commonly found in Ponzi Schemes. Having a broker/dealer subsidiary that is also an ECN, which is then able to generate false trading tickets would also be a huge advantage. Not allowing external auditors in to verify performance would also be something a Ponzi Scheme operator would do. I have no hard evidence of fraud, just suspicions that things are not what they seem inside of Madoff. If he is generating those excellent returns, and he may well be, it is not with index option based strategies. I believe an SEC visit is warranted.

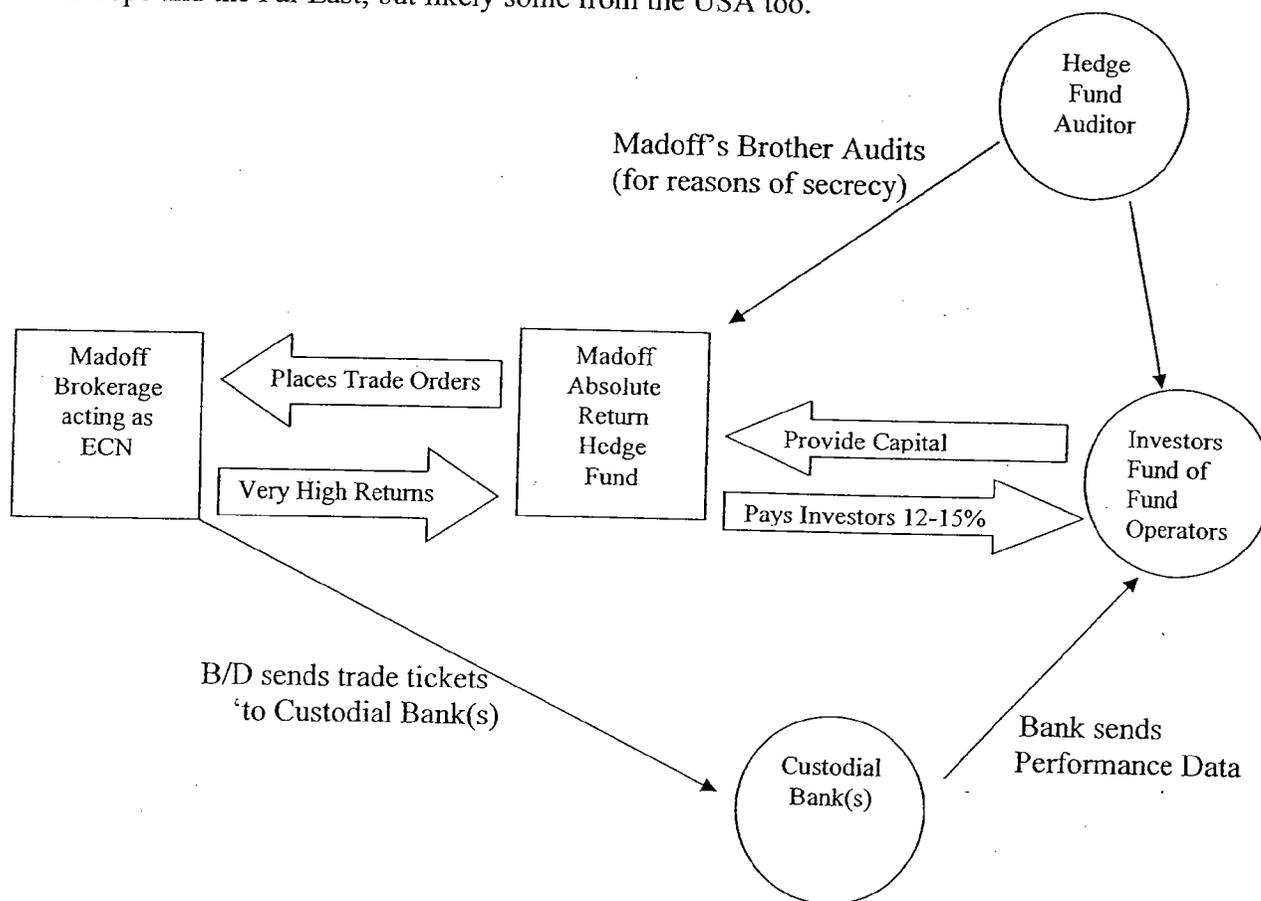
I have reviewed my suspicions with a world famous and extremely well published market professional. He concurs that this needs to be looked at. I have reviewed my suspicions with the head of one of the top professional finance organizations in the world and he concurs that this needs to be looked at. Not a single derivatives professional at my firm believes Madoff's performance numbers, yet only I have chosen to speak out, and at great risk to my professional career.

◆ **Location:** New York Region

◆ **Who:** Madoff Hedge Fund

◆ **How Much is Involved:** between \$7- \$10 billion

◆ **Investors (unknowing victims):** fund of funds, mainly off-shore money, lots of it from Europe and the Far East, but likely some from the USA too.



◆ **Product Line:** Absolute Return, earns 15% a year, at a steady pace of 1 – 1.5% a month, makes money in all market conditions (up markets, flat markets, down markets) using U.S. equities.

- Generally this style involves buying a 30 – 35 stock replicating basket that corresponds to the S&P 100 (OEX). In other words, they buy large-capitalization names, and weight them so that they track the OEX index fairly closely.
- They use their broker-dealer's order flow to judge which stocks are going up, and which stocks are going down. They then selectively buy the stocks, sell out-of-the-money OEX index calls against them, and buy a protective out-of-the-money OEX index put.
- They collect dividends on the stocks. The OEX currently yields about .94%.

- D. Earned over 15 ½% a year for over seven years with extremely low standard deviation of 4.3% versus the S&P 500 which earned over 19 ½% but with 12.9% annual standard deviation over the same time period. This program, earned 80% of the market's return with only one third of the risk. Think about it! Is this really possible, or is it too good to be true? **(I have attached an excel spreadsheet comparing and contrasting Madoff's program to the S&P 500 index.)**
- E. Only 3 down months vs. the market's down 26 months during the same period, with a worst down month of only - 1.44% (April 1993) vs. the market's worst down month of -14.58% (August 1998).
- F. Has a Return to Risk Ratio of 3.62, earning 3.62% for every 1% of risk (15.62% annual return divided by 4.32% annual standard deviation = 3.62) whereas the market he's trying to replicate only has a ratio of 1.52 (19.58% annual return divided by 12.88% annual standard deviation)
- G. The reason given for these unbelievable returns comes from access to their Broker/Dealer's Order flow. Knowing the quantity of shares bid for at given price levels, Madoff's broker dealer arm can take advantage of the knowledge to trade against in setting up their positions. In other words, they can buy stock ahead of customers at a slightly higher price, safe in the knowledge that at a slightly lower price they have one of their customer's bids. If they buy a stock and it drops immediately, they just sell it to their customers.

Reality:

- 1) These numbers really are too good to be true. And every time I've thought a company's or a manager's numbers were "too good to be true," there has been fraud involved. Yes, access to order flow is worth something but this worth can be measured in pennies per share.
- 2) Having your buy-side subsidiary front-run your broker/dealer arm's customers while buying stock seems illegal.
- 3) Yes, Madoff can make more intelligent short-term bets via their access to order flow. However, short-term forecastability does not lead to long-term knowledge of where the stocks that he buys are headed. Short-term he may know there are a lot of IBM shares to buy, but that doesn't lead to knowledge of where IBM will be trading next month.
- 4) Madoff's out-of-the-money OEX index puts do offer protection against systemic market declines. However, his 30 - 35 stock portfolio has individual company risk in it and should experience more frequent and more sizeable losses than what his performance record indicates.
- 5) Assuming Madoff
 - A. has perfect knowledge of order flow over a time horizon of ___ minutes.
 - B. The average stock is priced at \$46, has an annualized standard deviation of 45%
 Then the value of Madoff's knowledge, using the Black-Scholes options pricing model is ___ cents.

- 1) This same investor (in item 4 above) has brokerage statements sent directly to their custodian in order to verify performance. However, this manager has a brokerage arm and it is this brokerage arm that is mailing the statements. Outside brokers are not used in order to maintain secrecy. *[lack of independent oversight]*
- 2) Another investor, this one based in Europe and investing money on behalf of an Arab country, asked to send in a team of Big Six auditors during the due-diligence process to verify performance. They were told that “only my brother is allowed to audit us, due to the proprietary investment process we employ.” This European Fund of Funds invested a few hundred million of their Arab client’s money anyway because of the steady returns. *[Shades of Barings Bank and Nick Leeson, where there is no independent oversight.]*
- 3) A marketing executive who has placed client money with this firm, tells us that this manager actually is merely borrowing money at 12% - 15%, and keeping the rest of the returns for itself. This has been confirmed by another investor. Both of these sources also say that when the market has a steep sell-off, this manager books only winning trades in their accounts, and subsidizes their steady 1 – 1 ½ % returns per month during those periods *[How is this legal? Why not borrow money at Libor plus some small spread instead?]*

What I can do to help the SEC

- ◆ I can provide you with detailed questions for your audit teams. In fact, I would be willing to accompany a team undercover under certain conditions (new identity, disguise, proper compensation) and willing to sign a non-disclosure agreement and serve under the command & control of the SEC. In return, I need complete anonymity. I would take a leave of absence from my firm. Only my wife would know where I am, but I would have no contact with her or anyone else that I know while on assignment. I feel that my personal safety of myself and my family may be in danger if I assist the SEC.
- ◆ I can provide the SEC with simple mathematical formulas that value short-term “free options” that result when a party has access to order flow. I can prove that long-term strategies that purport to profit from these “free short-term options “ will not meet the steady 1 – 1.5% returns supposedly generated by the firm in question.

N	Month	Net Return		S&P 500 Price Index	S&P 500 Price Return	S&P 500 Price Return
1	January-93	1.44%		438.78		
2	February-93	1.17%		443.38	1.05%	
3	March-93	1.96%		451.67	1.87%	
4	April-93	-1.44%		440.19	-2.54%	
5	May-93	2.14%		450.19	2.27%	
6	June-93	1.01%		450.53	0.08%	
7	July-93	1.41%		448.13	-0.53%	
8	August-93	3.01%		463.56	3.44%	
9	September-93	0.02%		458.93	-1.00%	
10	October-93	2.09%		467.83	1.94%	
11	November-93	0.22%		461.79	-1.29%	
12	December-93	0.71%	14.55%	466.45	1.01%	7.06%
13	January-94	1.76%		481.61	3.25%	
14	February-94	-0.03%		467.14	-3.00%	
15	March-94	1.84%		445.77	-4.57%	
16	April-94	1.86%		450.91	1.15%	
17	May-94	0.88%		456.41	1.22%	
18	June-94	0.36%		444.27	-2.66%	
19	July-94	1.98%		458.26	3.15%	
20	August-94	0.70%		475.50	3.76%	
21	September-94	0.71%		462.71	-2.69%	
22	October-94	2.02%		472.35	2.08%	
23	November-94	-0.44%		453.69	-3.95%	
24	December-94	0.79%	13.12%	459.27	1.23%	-1.54%
25	January-95	1.83%		470.42	2.43%	
26	February-95	1.03%		487.39	3.61%	
27	March-95	1.09%		500.71	2.73%	
28	April-95	1.81%		514.71	2.80%	
29	May-95	2.07%		533.40	3.63%	
30	June-95	0.57%		544.75	2.13%	
31	July-95	1.19%		562.06	3.18%	
32	August-95	0.08%		561.88	-0.03%	
33	September-95	2.15%		584.41	4.01%	
34	October-95	1.88%		581.50	-0.50%	
35	November-95	1.12%		605.37	4.10%	
36	December-95	0.73%	16.68%	615.93	1.74%	34.11%
37	January-96	1.75%		636.02	3.26%	
38	February-96	0.85%		640.43	0.69%	
39	March-96	1.71%		645.50	0.79%	
40	April-96	0.72%		654.17	1.34%	
41	May-96	1.83%		669.12	2.29%	
42	June-96	0.27%		670.63	0.23%	
43	July-96	2.37%		639.95	-4.57%	
44	August-96	0.35%		651.99	1.88%	
45	September-96	1.33%		687.31	5.42%	
46	October-96	1.35%		705.27	2.61%	
47	November-96	1.93%		757.02	7.34%	
48	December-96	0.47%	15.96%	740.74	-2.15%	20.26%
49	January-97	3.08%		786.16	6.13%	
50	February-97	0.92%		790.82	0.59%	
51	March-97	0.90%		757.12	-4.26%	
52	April-97	1.85%		801.34	5.84%	

N	Month	Net Return		S&P 500 Price Index	S&P 500 Price Return	S&P 500 Price Return
53	May-97	0.90%		848.28	5.86%	
54	June-97	1.50%		885.14	4.35%	
55	July-97	0.87%		954.29	7.81%	
56	August-97	0.43%		899.47	-5.74%	
57	September-97	2.23%		947.28	5.32%	
58	October-97	0.51%		914.62	-3.45%	
59	November-97	1.77%		955.40	4.46%	
60	December-97	0.46%	16.52%	970.43	1.57%	31.00%
61	January-98	1.04%		980.28	1.02%	
62	February-98	1.58%		1049.34	7.04%	
63	March-98	2.11%		1101.75	4.99%	
64	April-98	0.45%		1111.75	0.91%	
65	May-98	2.15%		1090.82	-1.88%	
66	June-98	1.58%		1133.84	3.94%	
67	July-98	1.05%		1120.67	-1.16%	
68	August-98	0.30%		957.28	-14.58%	
69	September-98	1.11%		1017.01	6.24%	
70	October-98	2.26%		1098.67	8.03%	
71	November-98	1.00%		1163.63	5.91%	
72	December-98	0.18%	15.83%	1229.23	5.64%	26.67%
73	January-99	2.41%		1279.64	4.10%	
74	February-99	0.17%		1238.33	-3.23%	
75	March-99	2.50%		1286.37	3.88%	
76	April-99	1.42%		1335.18	3.79%	
77	May-99	1.15%		1301.84	-2.50%	
78	June-99	2.27%		1372.71	5.44%	
79	July-99	0.46%		1328.72	-3.20%	
80	August-99	1.06%		1320.41	-0.63%	
81	September-99	0.94%		1282.71	-2.86%	
82	October-99	1.28%		1362.93	6.25%	
83	November-99	1.50%		1388.91	1.91%	
84	December-99	0.41%	16.69%	1469.25	5.78%	19.52%
85	January-00	2.72%		1394.46	-5.09%	
86	February-00	0.17%		1366.42	-2.01%	
87	March-00	2.90%		1498.58	9.67%	
		Madoff		S&P500	Comps	
	Monthly Standard Deviation	0.83%		3.86%	4.6 X's	
	Average Monthly Return	1.24%		1.51%	1.2 X's	
	Annual Standard Deviation	4.32%		12.88%	3.0 X's	
	Average Annual Return	15.62%		19.58%	1.25 X's	
	Return / Risk Ratio	3.62		1.52		
	# of down Months	3		26	8.7 X's	
	Percentage Down Months	3.4%		29.9%		