

Technology Rich Mutual Funds and their performance during & after the 'Tech Bubble'

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Introduction:

During the late 1990s, technology related stocks experienced an unprecedented increase in stock prices, followed by a significant drop in 2000. This “bubble” in asset prices presented great investment opportunities for investors to profit from. The efficient markets hypothesis (EMH) suggests such pricing bubbles should not occur on a persistent basis. Meanwhile, mutual fund managers routinely promote their ability to pick stocks which will beat the market, spending \$514 million on advertising in 2000 (an increase of 300 percent from a decade earlier). With over 5,000 distinct funds owned by 83 million individuals in the U.S., mutual funds are among the most convenient and frequently used mechanisms for private investors (Jones and Smythe 2003) [4].

This paper examines how mutual funds with a large proportion of technology funds performed, adjusting for market risks, over the 1999 to 2002 period surrounding “the bubble” in technology stocks. The following questions are considered:

- Did buying mutual funds with a high share of technology stocks represent a potentially successful strategy to earn excess returns over the market?
- During the run-up in technology stocks 1998-2000, could a strategy of simply buying the most “technology-rich” mutual funds generate abnormal performance?
- Did technology-rich mutual fund risk-adjusted performance change after the 2000 market decline?

Overall, we find a strategy of buying portfolios (rebalanced every quarter) of mutual fund with a high proportion of technology stocks does earn abnormal risk-adjusted returns. The average quarterly excess return (alpha) for the total period from 1999Q1 to 2001Q4 was 1.61 using a market adjusted model and 1.33 using a 3 factor Fama-French model. The simple mean return was -3.13. This compares to a mean return of -2.74 for a low-tech strategy, a market adjusted alpha of -0.13 and a 3 factor adjusted alpha of 0.21. Of course, the high technology portfolio is a much more risky strategy than the low tech portfolio, with a standard deviation of 26.3 compared to 14.93 for a low-tech strategy.

The power of this strategy decreased dramatically after the NASDAQ index declined in 2000Q2, however. Post-bubble market adjusted abnormal returns are 1.65.

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This suggests there still may be some value to this strategy, but returns during the 1999 to 2000 period were much more substantial. In theory investors have recognized the failures of pricing models employed in the pre-bubble period.

However, it also appears mutual fund managers managed the bubble in prices on par than the overall market. Compared to NASDAQ returns, a portfolio of technology-rich mutual funds peaked at the same time, and sustained relatively similar losses after the bubble was burst. This suggests the EMH is validated based on these data over this time period.

Review of Literature:

The efficient markets hypothesis predicts mutual fund managers cannot beat a risk-adjusted market portfolio. Many studies have tried to support or challenge this prediction, however. Ippolito (1993) [3] finds evidence of repeated winners among fund managers and positive performance persistence. Carhart (1997) [1] refutes this finding however, finding mean and risk-adjusted returns of individual funds may show some short-term momentum effects, but overall there is no evidence skilled mutual fund managers exist. Carhart does find unexplained persistence in underperformance of the worst mutual fund managers. Davis (2001)[2] also finds unexplained poor performance persistence, particularly among small-cap funds. Wermers (2000)[5] finds positive performance for high turnover- funds engaged in active trading. The author suggests such active traders can earn abnormal returns by finding under-priced securities.

There does seem to be evidence short-term abnormal returns are possible in the mutual fund market, especially if fund managers are actively specializing and trading in technology funds. None of the existing studies reviewed examined technology funds specifically, however.

Data and Methodology:

The quarterly holdings data is provided by the Wharton Research Data Service (WRDS) based on Thomson Financial Mutual Fund and Investment Company Common Stock Holdings Databases. This data include the equity composition of each fund for each quarter from 1999 to 2003 providing data for approximately 33,000 different mutual funds with 7 million entries. Only funds with stock equity positions are included in the sample. Within each quarter there were approximately 7000 mutual funds. Some of the mutual funds listed here are international and had to be filtered by country. For each fund, every stock held is listed, including the price and number of shares at the time of the sample as well as their industry codes. Each fund, regardless of its listed

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investment category, is then ranked by the share of total equity assets of the fund invested in technology stocks.

Technology stocks are identified based on categorizations provided in the Thomson data. Initially ten portfolios of deciles were created. Due to the large number of funds in each portfolio—beyond what is a reasonable investment strategy—instead specific percentiles are chosen as representative portfolios. The specific percentiles we chose were (80-100%, 40-60% and 0-20%). From this database, we selected the top 20 mutual funds in each of the percentiles ranked by the total volume of shares held and portfolios are then produced based on these rankings. These portfolios are created for each quarter. Typically each of these mutual funds has around 2 billion dollars worth of stock holdings in any given quarter.

The monthly returns data is provided by Wharton Research Data Service (WRDS) based on Center for Research in Security Prices (CRSP) compilations of all open-ended mutual funds listed with the SEC in the U.S. This dataset is free of survivorship bias and contains data such as loading information, type of mutual fund, expenses etc. There is turnover; only one fund remained in the same portfolio for all 16 quarters. For each portfolio, mean returns is calculated using an equal weighting method based on total return for that quarter, which accounts for differential fund expenses (table 1). Therefore for each portfolio we take the return in the next quarter. Figure 1 plots the high tech portfolio versus the NASDAQ.

Table 1: Total Return

Period	Mean Quarterly Returns			
	Hi Tech	Lo Tech	Med Tech	NASDAQ
1999.2	7.2	8.7	8.0	9.0
1999.3	4.3	-4.0	-6.8	4.8
1999.4	46.5	17.5	4.2	54.0
2000.1	21.0	7.6	1.5	18.6
2000.2	-6.4	-2.1	1.3	-14.4
2000.3	-0.2	2.2	5.8	-5.1
2000.4	-39.4	-15.8	3.7	-34.4
2001.1	-28.9	-22.9	-5.4	-32.8
2001.2	13.1	11.4	4.1	16.3
2001.3	-41.5	-23.9	-14.5	-36.2
2001.4	25.9	17.2	9.5	35.0
2002.1	-4.4	-4.9	-0.1	-7.9
2002.2	-29.7	-22.6	-7.8	-27.6
2002.3	-31.4	-19.2	-15.9	-20.8
2002.4	16.9	9.7	6.6	18.2

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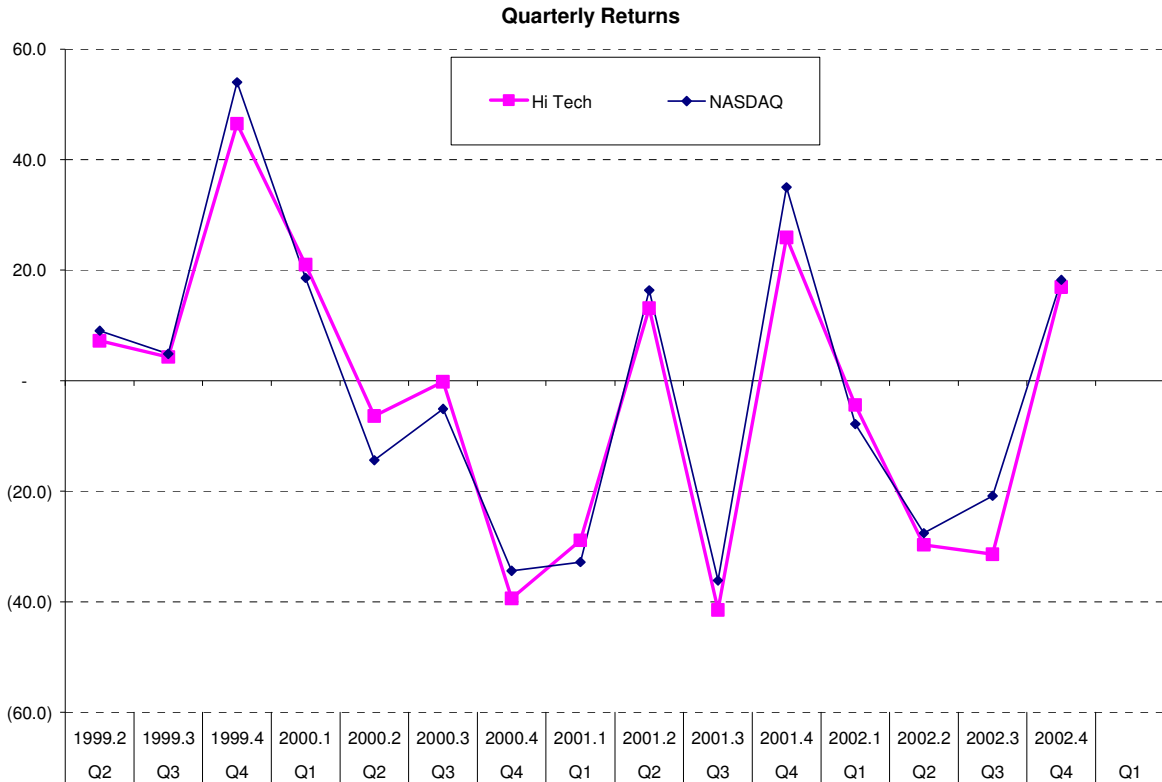


Figure 1: High Tech Portfolio versus NASDAQ

Abnormal returns for each portfolio of quarterly returns are estimated using simple CAP-M based on the S&P 500. (The same analysis is also performed using a three-factor Fama-French model.) The quarterly total returns for the preceding period for each portfolio are regressed using OLS on the market and other factors in order to estimate alpha and beta coefficients, as well as standard errors.

Table 2: Market and 3-Factor Portfolio Adjusted Returns

	Mean Returns			CAP-M Returns			3 Factor Fama-French Returns		
	Hi Tech	Lo Tech	Med Tech	Hi Tech	Lo Tech	Med Tech	Hi Tech	Lo Tech	Med Tech
1999-2003	-3.13	-2.74	-0.39	1.61	-0.13	0.61	1.33	0.21	1.14
Std Dev	26.31	14.93	7.93	2.35	1.10	1.25	2.77	1.55	1.02
t-stat	--	--	--	0.69	-0.12	0.49	0.48	0.14	1.11

Abnormal returns were calculated using the excess return on the market, defined as the value-weighted return on all NYSE, AMEX, and NASDAQ stocks (from CRSP) minus the one-month Treasury bill rate (from Ibbotson Associates). The three factor model also includes SMB (Small Minus Big), which is the average return on three small portfolios minus the average return on three big portfolios [SMB = 1/3 (Small Value + Small Neutral + Small Growth) - 1/3 (Big Value +

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Big Neutral + Big Growth)]. Finally HML (High Minus Low) is defined as the average return on two value portfolios minus the average return on two growth portfolios.¹

Table 3: Pre-Market Peak: Market and 3-Factor Adjusted Returns

	Mean Returns			CAP-M Returns			3 Factor Fama-French Returns		
	Hi Tech	Lo Tech	Med Tech	Hi Tech	Lo Tech	Med Tech	Hi Tech	Lo Tech	Med Tech
1999-2000	19.76	7.45	1.73	9.21	2.76	0.21	5.55	2.73	2.51
Std Dev	19.26	8.83	6.28	5.17	0.52	2.14	0.43	1.70	2.12
t-stat	--	--	--	1.78	5.28	0.10	13.03	1.61	1.18

Table 4: Post-Market Peak: Market and 3-Factor Adjusted Returns

	Mean Returns			CAP-M Returns			3 Factor Fama-French Returns		
	Hi Tech	Lo Tech	Med Tech	Hi Tech	Lo Tech	Med Tech	Hi Tech	Lo Tech	Med Tech
2000-2002	-11.45	-6.45	-1.15	-1.68	-0.44	1.65	-1.28	1.47	-0.02
Std Dev	23.92	15.24	8.59	2.02	1.27	1.68	3.39	1.97	1.93
t-stat	--	--	--	-0.83	-0.35	0.99	-0.38	0.74	-0.01

Findings:

The investment strategy proposed is simply to screen mutual funds for those with highest share of technology stocks. The ten highest percentage technology funds are formed into a portfolio and held for the proceeding quarter. The portfolio is rebalanced the based on the previous quarter’s technology ranking each quarter for 15 quarters. In a simple model there are three possible outcomes of this technology-rich mutual fund investment strategy:

- Strategy always works
- Strategy worked before tech bubble burst
- Strategy never worked

Overall, due to the small number of periods examine, few of these statistical findings are significant. However, in terms of market risk-adjusted returns (using the CAP-M), excess returns to the high tech strategy approached 20 percent per quarter in 1999 through the first quarter of 2000. But after the NASDAQ peaked and the “bubble burst”, abnormal returns declined relative to a low-tech strategy, and statistical significance disappeared. It does appear this strategy worked before the bubble burst, but not after.

¹ Factors from: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

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Notably, much of the excess return can be explained by the Fama-French three factor model. In fact, the HML factor is significant for the full 15 quarter period, as illustrated in Figure 5. This is consistent with the theory that technology firms are in the early stages of their growth cycle. Funds that invest in these firms will experience returns closely related to the HML factor for this reason.

```
Dependent Variable: Quarterly High Tech Portfolio Total Return
Source |      SS      df      MS      Number of obs =   15
-----+-----
Model | 8974.33341    3 2991.44447      F( 3, 11) = 46.27
Residual | 711.122282   11 64.6474801      Prob > F   = 0.0000
-----+-----
Total | 9685.45569   14 691.818264      R-squared   = 0.9266
                                           Adj R-squared = 0.9066
                                           Root MSE   = 8.0404
-----+-----
hitech |      Coef.   Std. Err.   t   P>|t|   [95% Conf. Interval]
-----+-----
rm_rfmarket | 1.977068   .2766981   7.15  0.000   1.36806   2.586077
small_big | .0868005   .3958623   0.22  0.830  -.7844865   .9580875
high_low | -.4210081   .19006   -2.22  0.049  -.8393274  -.0026888
_cons | 1.33277   2.769439   0.48  0.640  -4.762724   7.428263
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Figure 5: Fama-French OLS Regression

Conclusions:

This paper set out to answer three questions:

1. Did buying mutual funds with a high share of technology stocks represent a potentially successful strategy to earn excess returns over the market?
2. During the run-up in technology stocks 1998-2000, could a strategy of simply buying the most “technology-rich” mutual funds generate abnormal performance?
3. Did technology-rich mutual fund risk-adjusted performance change after the 2000 market decline?

The answer to the first two questions is affirmative, although the strategy does not provide statistically significant abnormal returns using a three-factor model for the full period. The high-minus-low factor from Fama-French explains much of the excess returns of this strategy. The third question, unsurprisingly, is also affirmative. Returns changed dramatically after the 2000 decline in the NASDAQ index. The strategy was strongly significant before the middle of 2000, but not after.

Prior research suggests overall mutual fund managers may have information or skill to outperform the market, but it is hard to predict which manager will perform in advance and much of

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the persistence in performance can be explained by other factors. This strategy does not try to find the best managers, but rather focuses on managers with specific stock picking strategies. By quarterly rebalancing, investors can pursue a focused strategy based on last quarters stock picks by sector. During the technology boom on the late 1990s, this strategy may have provided strong returns, at least compared to a low-technology strategy.

References:

1. Carhart, Mark M. "On Persistence in Mutual Fund Performance" *Journal of Finance*, Vol. 52 No. 1, March 1997.
2. Davis, Jim L. "Mutual Fund Performance and Manager Style," *Financial Analysts Journal*, January/February 2001, pp. 19-27
3. Ippolito, R. A. "On Studies of Mutual Fund Performance, 1962–1991," *Financial Analysts Journal*, January-February 1993.
4. Jones, Michael A., Tom Smythe. "The Information Content of Mutual Fund Print Advertising" *Journal of Consumer Affairs* Vol. 37 Issue 1 Page 22 June 2003.
5. Wermers, Russ. "Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transaction Costs, and Expenses," *Journal of Finance* 55, 1655-1695, 2000.

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Appendix I: Summary of Literature (From: <http://www.fundx.com/sr82.cfm>)

Authors	Year Published	Funds Covered	Dates	Periods	Persistence	Notes
Carlson	1970	Equity	1948-67	5-Yrs/10-Yrs	Partial	10-years no for risk-adjusted; 5-years, yes
Grinblatt & Titman	1989	Equity	1974-84	5-Years	Partial	Explained by expenses.
Grinblatt & Titman	1992	279	1974-84	5-Years	Yes	Weak persistence for next 5-years.
Brown, Goetzmann, Ibbotson & Ross	1992	All	1976-87	3-Years	Yes	Persistence in 2 of 3 3-year periods.
Hendricks, Patel & Zeckhauser	1993	Equity	1974-88	Quarterly	Yes	Persistence for next 2 to 8 quarters.
Grinblatt & Titman	1993	All	1976-85	Quarterly	Yes	
Goetzmann & Ibbotson	1994	728	1976-88	3-Years	Yes	Persistence for next 3-year periods
Kahn & Rudd	1994	Equity/Fixed Income	1983-90	N/A	Yes	
Brown & Goetzmann	1995	829	1976-88	1-Year	Yes	1-year persistence for best & worse; average funds not predicative
Grinblatt, Titman & Wermers	1995	All	1974-85	N/A	Yes	
Malkiel	1995	Equity	1971-90	1-Year	Partial	'70s Yes; '80s No
Elton, Gruber & Blake	1996	188 Equity	1977-93	N/A	Yes	Observe persistence for both 1-yr & 3-yr risk adjusted.
Gruber	1996	All	1984-94	N/A	Yes	
Carhart	1997	All	1962-93	N/A	Yes	Explained by momentum of stocks in portfolios, and expenses.
Sauer	1997	All	1976-92	N/A	Partial	Persistence by style not seen.
Phelps & Detzel	1997	Equity	1975-95	N/A	No	Persistence not seen once returns are adjusted for size and style.
Wermers	1997	All	1975-94	N/A	Yes	
Jain & Wu	2000	294 Advertised Funds	1994-96	N/A	No	Once performance was advertised, performance deteriorated.
Wermers	2001	All	1974-94	1 Yr/3 Yrs	Yes	1-year shows performance persistence; 3-years shows manager skill
Bollen & Busse	2002	230	1985-95	Quarterly	Yes	Finds persistence beyond expenses and momentum of stocks.
Ibbotson & Patel	2002	All	1978-99	1-Year	Yes	Sees persistence after adjusting for style. Limiting "winners" to top 10% = more repeat winners.
Busse & Irvine	2002	230	1985-95	Quarterly	Yes	Uses Bayesian alphas to choose funds.

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Appendix II: Additional Findings

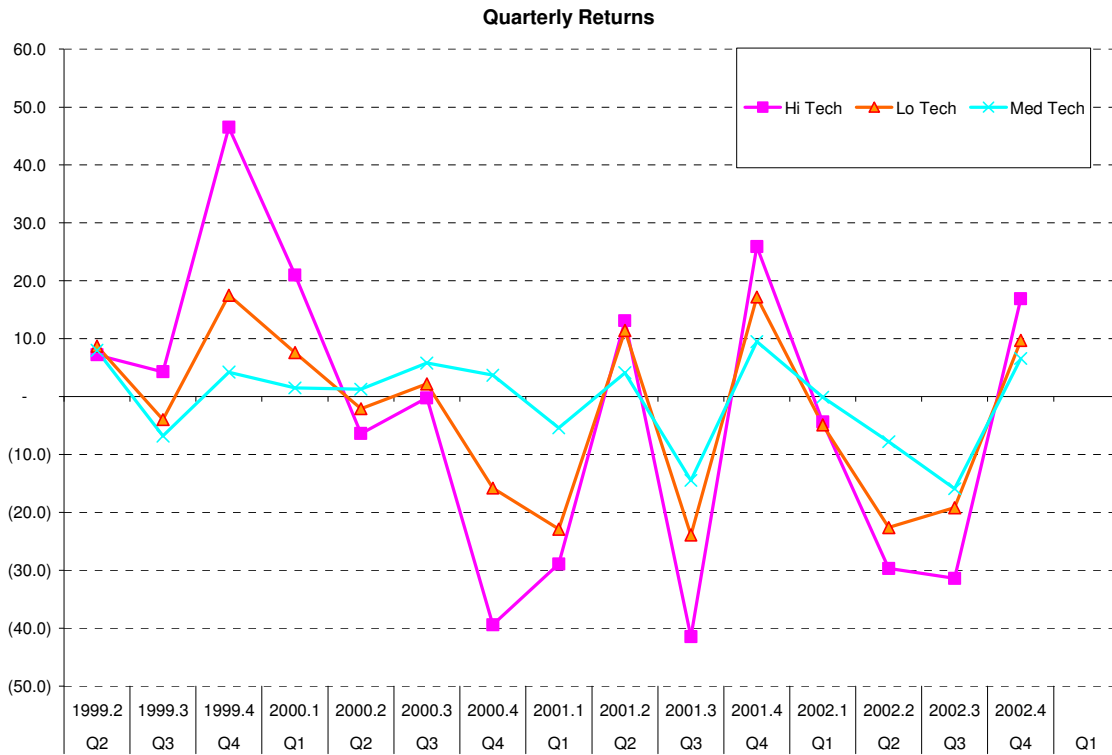


Figure 2: Quarterly Returns for All Three Strategies

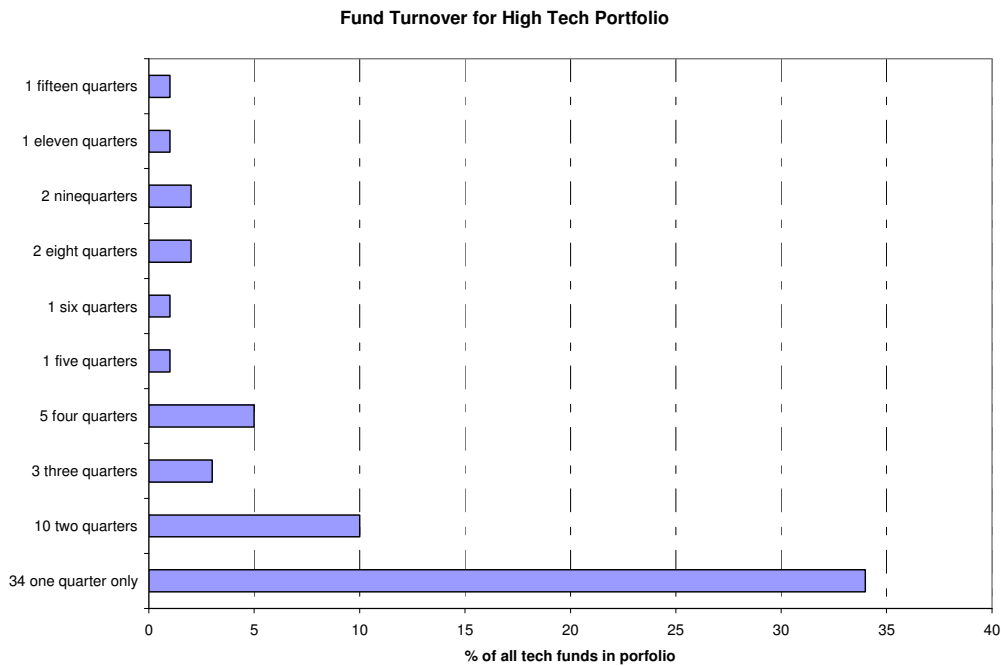


Figure 3: Fund Turnover for High Tech Portfolio

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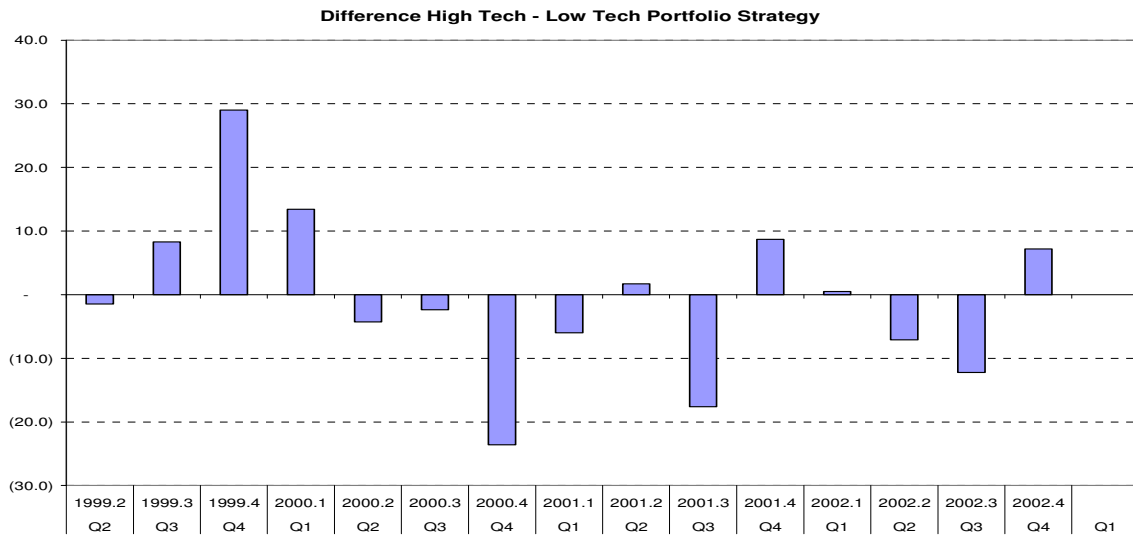


Figure 4: Difference Between Returns: High Tech Minus Low Tech

Table 6: Percent of Fund Portfolios in Tech Stocks

Period	Measure	Lo Tech	Med Tech	Hi Tech
1999.2	Selection Qtr	13%	46%	94%
	Invested Qtr	16%	47%	86%
1999.3	Selection Qtr	13%	49%	95%
	Invested Qtr	15%	60%	94%
1999.4	Selection Qtr	15%	51%	92%
	Invested Qtr	13%	48%	87%
2000.1	Selection Qtr	13%	48%	89%
	Invested Qtr	12%	50%	88%
2000.2	Selection Qtr	14%	47%	89%
	Invested Qtr	15%	45%	91%
2000.3	Selection Qtr	13%	50%	87%
	Invested Qtr	13%	46%	87%
2000.4	Selection Qtr	14%	49%	89%
	Invested Qtr	13%	38%	85%
2001.1	Selection Qtr	17%	50%	92%
	Invested Qtr	15%	42%	89%
2001.2	Selection Qtr	16%	49%	88%
	Invested Qtr	17%	47%	90%
2001.3	Selection Qtr	17%	48%	91%
	Invested Qtr	18%	38%	88%
2001.4	Selection Qtr	15%	47%	90%
	Invested Qtr	15%	48%	87%
2002.1	Selection Qtr	14%	47%	90%
	Invested Qtr	17%	43%	87%
2002.2	Selection Qtr	14%	45%	87%
	Invested Qtr	13%	37%	88%
2002.3	Selection Qtr	14%	47%	87%
	Invested Qtr	13%	40%	87%
2002.4	Selection Qtr	15%	46%	87%
	Invested Qtr	16%	47%	85%

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Appendix III: Data Summary

Period	Portfolio	Fund Name	TR%
1999.1	HiTech	COLUMBIA INTERNATIONAL STOCK FUND	0.04
1999.1	HiTech	KEMPER TARGET 2010 FUND	0.05
1999.1	HiTech	ALLIANCE TECHNOLOGY FUND/A	0.06
1999.1	HiTech	POTOMAC OTC PLUS FUND	0.1
1999.1	HiTech	KEMPER TECHNOLOGY FUND/A	0.12
1999.1	HiTech	NORTHERN TECHNOLOGY FUND	0.13
1999.1	HiTech	T ROWE PRICE SCIENCE & TECHNOLOGY FUND	0.15
1999.1	LoTech	NEW ENGLAND GROWTH FUND/A	0.05
1999.1	LoTech	INCOME FUND OF AMERICA	0.04
1999.1	LoTech	NICHOLAS FUND	0.04
1999.1	LoTech	AMERICAN BALANCED FUND	0.07
1999.1	LoTech	MORGAN STANLEY DEAN WITTER FOF:INTL/A	0.08
1999.1	LoTech	AMERICAN MUTUAL FUND	0.09
1999.1	LoTech	DODGE & COX BALANCED FUND	0.09
1999.1	LoTech	FEDERATED AMERICAN LEADERS/A	0.09
1999.1	LoTech	SELECTED AMERICAN SHARES	0.11
1999.1	LoTech	DODGE & COX STOCK FUND	0.16
1999.1	MedTech	PHOENIX-GOODWIN:BALANCED FUND/A	0.01
1999.1	MedTech	WARBURG PINCUS CAPITAL APPREC. FD/COMMON	0.04
1999.1	MedTech	COLUMBIA GROWTH FUND	0.05
1999.1	MedTech	STRONG GROWTH FUND	0.05
1999.1	MedTech	ALLIANCE GROWTH FUND/A	0.09
1999.1	MedTech	BRANDYWINE FUND	0.11
1999.1	MedTech	LORD ABBETT DEVELOPING GROWTH FUND/A	0.11
1999.1	MedTech	FEDERATED GROWTH STRATEGIES FUND/A	0.12
1999.1	MedTech	T ROWE PRICE NEW HORIZONS FUND	0.14
1999.1	MedTech	T ROWE PRICE NEW ERA FUND	0.15
1999.2	HiTech	FLAG INVESTORS COMMUNICATIONS FUND/A	-0.06
1999.2	HiTech	AIM GLOBAL TELECOMMUNICATIONS FUND/A	0.01
1999.2	HiTech	ALLIANCE TECHNOLOGY FUND/A	0.03
1999.2	HiTech	MERRILL LYNCH TECHNOLOGY FUND/A	0.04
1999.2	HiTech	SELIGMAN COMMUNICATIONS & INFORMATION FUND/A	0.04
1999.2	HiTech	MERRILL LYNCH GLOBAL TECHNOLOGY FUND/A	0.05
1999.2	HiTech	NORTHERN TECHNOLOGY FUND	0.06
1999.2	HiTech	T ROWE PRICE SCIENCE & TECHNOLOGY FUND	0.07
1999.2	HiTech	PBHG TECHNOLOGY & COMMUNICATIONS FUND	0.09
1999.2	HiTech	SELIGMAN HENDERSON GLBL TECHNOLOGY FUND/A	-0.1
1999.2	LoTech	VANGUARD WINDSOR FUND	-0.1
1999.2	LoTech	WASHINGTON MUTUAL INVESTORS FUND	-0.09
1999.2	LoTech	INVESCO TOTAL RETURN FUND	-0.08
1999.2	LoTech	T ROWE PRICE EQUITY INCOME FUND	-0.08
1999.2	LoTech	AMERICAN MUTUAL FUND	-0.07
1999.2	LoTech	MERRILL LYNCH CAPITAL FUND/A	-0.07
1999.2	LoTech	AMERICAN BALANCED FUND	-0.05
1999.2	LoTech	DODGE & COX BALANCED FUND	-0.05
1999.2	LoTech	T ROWE PRICE GROWTH STOCK FUND	-0.05
1999.2	LoTech	INCOME FUND OF AMERICA	-0.04
1999.2	MedTech	IDEX:CASE GROWTH PORTFOLIO/A	-0.1
1999.2	MedTech	ALLIANCE GROWTH FUND/A	-0.08
1999.2	MedTech	AIM BLUE CHIP FUND/A	-0.04
1999.2	MedTech	PRUDENTIAL JENNISON GROWTH FUND/A	-0.04
1999.2	MedTech	T ROWE PRICE NEW HORIZONS FUND	-0.04
1999.2	MedTech	AIM VALUE FUND/A	-0.03
1999.2	MedTech	AIM CONSTELLATION FUND/A	-0.02
1999.2	MedTech	AIM WEINGARTEN FUND/A	-0.02
1999.2	MedTech	GROWTH FUND OF AMERICA	-0.02
1999.2	MedTech	NEW ECONOMY FUND	-0.01
1999.3	HiTech	FIRST INVESTORS GLOBAL FUND/A	0.19
1999.3	HiTech	T ROWE PRICE SCIENCE & TECHNOLOGY FUND	0.37
1999.3	HiTech	ALLIANCE TECHNOLOGY FUND/A	0.39
1999.3	HiTech	PBHG EMERGING GROWTH FUND	0.4
1999.3	HiTech	MERRILL LYNCH GLOBAL TECHNOLOGY FUND/A	0.43
1999.3	HiTech	INVESCO TELECOMMUNICATIONS FUND	0.52
1999.3	HiTech	NORTHERN TECHNOLOGY FUND	0.55
1999.3	HiTech	PBHG TECHNOLOGY & COMMUNICATIONS FUND	0.87
1999.3	LoTech	AMERICAN BALANCED FUND	0
1999.3	LoTech	INCOME FUND OF AMERICA	0.01
1999.3	LoTech	PUTNAM EQUITY INCOME FUND/A	0.01
1999.3	LoTech	T ROWE PRICE EQUITY INCOME FUND	0.01
1999.3	LoTech	WASHINGTON MUTUAL INVESTORS FUND	0.02
1999.3	LoTech	VAN KAMPEN COMSTOCK FUND/A	0.03
1999.3	LoTech	DODGE & COX BALANCED FUND	0.04
1999.3	LoTech	SENTINEL:COMMON STOCK FUND/A	0.05
1999.3	LoTech	VANGUARD WINDSOR FUND	0.05
1999.3	LoTech	HEARTLAND GROUP:VALUE FUND	0.2
1999.3	MedTech	T ROWE PRICE MID-CAP VALUE FUND	0.01
1999.3	MedTech	MERRILL LYNCH EUROFUND/A	0.04

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1999.3	MedTech	FIDELITY CONTRAFUND	0.16
1999.3	MedTech	AIM BLUE CHIP FUND/A	0.18
1999.3	MedTech	VANGUARD PRIMECAP FUND	0.18
1999.3	MedTech	ALLIANCE GROWTH FUND/A	0.2
1999.3	MedTech	NEW PERSPECTIVE FUND	0.2
1999.3	MedTech	AIM CHARTER FUND/A	0.21
1999.3	MedTech	T ROWE PRICE NEW HORIZONS FUND	0.26
1999.3	MedTech	MARSICO FOCUS FUND	0.31
1999.4	HiTech	CHASE GROWTH FUND	0.04
1999.4	HiTech	T ROWE PRICE MEDIA & TELECOMMUNICATIONS FUND	0.1
1999.4	HiTech	T ROWE PRICE SCIENCE & TECHNOLOGY FUND	0.12
1999.4	HiTech	ALLIANCE TECHNOLOGY FUND/A	0.19
1999.4	HiTech	SELIGMAN GLOBAL TECHNOLOGY FUND/A	0.19
1999.4	HiTech	MERRILL LYNCH GLOBAL TECHNOLOGY FUND/A	0.21
1999.4	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	0.25
1999.4	HiTech	SCUDDER TECHNOLOGY FUND	0.29
1999.4	HiTech	NORTHERN TECHNOLOGY FUND	0.3
1999.4	HiTech	FIRSTHAND FUNDS:TECHNOLOGY VALUE FUND	0.41
1999.4	LoTech	CAPITAL INCOME BUILDER	-0.01
1999.4	LoTech	HEARTLAND GROUP:VALUE FUND	-0.01
1999.4	LoTech	INVESCO TOTAL RETURN FUND	-0.01
1999.4	LoTech	T ROWE PRICE EQUITY INCOME FUND	-0.01
1999.4	LoTech	DODGE & COX BALANCED FUND	0.01
1999.4	LoTech	DODGE & COX STOCK FUND	0.01
1999.4	LoTech	MERRILL LYNCH GLOBAL ALLOCATION FUND/A	0.01
1999.4	LoTech	SCUDDER LARGE COMPANY VALUE FUND	0.01
1999.4	LoTech	SENTINEL:COMMON STOCK FUND/A	0.01
1999.4	LoTech	PUTNAM HEALTH SCIENCES TRUST/A	0.14
1999.4	MedTech	ALLIANCE GROWTH FUND/A	0.03
1999.4	MedTech	AXP BLUE CHIP ADVANTAGE FUND/A	0.03
1999.4	MedTech	PHOENIX-ENGEMANN:CAPITAL GROWTH FUND/A	0.05
1999.4	MedTech	VANGUARD US GROWTH FUND	0.05
1999.4	MedTech	AIM BLUE CHIP FUND/A	0.07
1999.4	MedTech	AIM CHARTER FUND/A	0.08
1999.4	MedTech	NEW ECONOMY FUND	0.08
1999.4	MedTech	T ROWE PRICE GROWTH STOCK FUND	0.08
1999.4	MedTech	GROWTH FUND OF AMERICA	0.14
1999.4	MedTech	T ROWE PRICE NEW HORIZONS FUND	0.15
2000.1	HiTech	FEDERATED COMMUNICATIONS TECHNOLOGY FUND/A	-0.19
2000.1	HiTech	NORTHERN TECHNOLOGY FUND	-0.12
2000.1	HiTech	T ROWE PRICE SCIENCE & TECHNOLOGY FUND	-0.11
2000.1	HiTech	FIRSTHAND FUNDS:TECHNOLOGY VALUE FUND	-0.08
2000.1	HiTech	MERRILL LYNCH GLOBAL TECHNOLOGY FUND/A	-0.08
2000.1	HiTech	T ROWE PRICE MEDIA & TELECOMMUNICATIONS FUND	-0.07
2000.1	HiTech	ALLIANCE TECHNOLOGY FUND/A	-0.05
2000.1	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	-0.05
2000.1	HiTech	FIRSTHAND FUNDS:TECHNOLOGY INNOVATORS FUND	0
2000.1	HiTech	KOPP EMERGING GROWTH FUND/A	0.11
2000.1	LoTech	DODGE & COX BALANCED FUND	-0.01
2000.1	LoTech	DODGE & COX STOCK FUND	-0.01
2000.1	LoTech	SENTINEL:COMMON STOCK FUND/A	0
2000.1	LoTech	T ROWE PRICE EQUITY INCOME FUND	0
2000.1	LoTech	T ROWE PRICE GROWTH STOCK FUND	0
2000.1	LoTech	WETZ PARTNERS VALUE FUND	0.01
2000.1	LoTech	MERRILL LYNCH GLOBAL ALLOCATION FUND/A	0.02
2000.1	LoTech	MORGAN STANLEY VALUE/A	0.02
2000.1	LoTech	NEUBERGER BERMAN GENESIS FUND	0.04
2000.1	LoTech	OAKMARK SELECT FUND	0.06
2000.1	MedTech	AIM CHARTER FUND/A	-0.06
2000.1	MedTech	ALLIANCE GROWTH FUND/A	-0.06
2000.1	MedTech	AXP BLUE CHIP ADVANTAGE FUND/A	-0.04
2000.1	MedTech	AIM BLUE CHIP FUND/A	-0.02
2000.1	MedTech	MFS RESEARCH FUND/A	-0.02
2000.1	MedTech	INVESCO DYNAMICS FUND/INV	-0.01
2000.1	MedTech	T ROWE PRICE NEW HORIZONS FUND	-0.01
2000.1	MedTech	AAL CAPITAL GROWTH FUND/A	0
2000.1	MedTech	T ROWE PRICE GROWTH STOCK FUND	0
2000.1	MedTech	T ROWE PRICE BLUE CHIP GROWTH FUND	0.01
2000.2	HiTech	FIRSTHAND FUNDS:E COMMERCE FUND	-0.14
2000.2	HiTech	ARTISAN INTERNATIONAL FUND	-0.11
2000.2	HiTech	FIRSTHAND FUNDS:COMMUNICATIONS FUND	-0.1
2000.2	HiTech	T ROWE PRICE MEDIA & TELECOMMUNICATIONS FUND	-0.1
2000.2	HiTech	ALLIANCE TECHNOLOGY FUND/A	-0.05
2000.2	HiTech	KOPP EMERGING GROWTH FUND/A	0.02
2000.2	HiTech	NORTHERN TECHNOLOGY FUND	0.02
2000.2	HiTech	PBHG SELECT EQUITY FUND	0.05
2000.2	HiTech	VAN WAGONER POST-VENTURE FUND	0.19
2000.2	HiTech	VAN WAGONER EMERGING GROWTH FUND	0.2
2000.2	LoTech	AEGIS VALUE FUND	0
2000.2	LoTech	T ROWE PRICE GROWTH STOCK FUND	0.01
2000.2	LoTech	DODGE & COX BALANCED FUND	0.05
2000.2	LoTech	SENTINEL:COMMON STOCK FUND/A	0.05
2000.2	LoTech	DODGE & COX STOCK FUND	0.06
2000.2	LoTech	T ROWE PRICE EQUITY INCOME FUND	0.06

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2000.2	LoTech	PIONEER EQUITY INCOME FUND/A	0.07
2000.2	LoTech	TORRAY FUND	0.07
2000.2	LoTech	STATE STREET RESEARCH:AURORA FUND/A	0.1
2000.2	LoTech	VAN KAMPEN COMSTOCK FUND/A	0.11
2000.2	MedTech	BRANDYWINE FUND	-0.03
2000.2	MedTech	ALLIANCE GROWTH FUND/A	-0.02
2000.2	MedTech	VAN KAMPEN ENTERPRISE FUND/A	-0.02
2000.2	MedTech	PHOENIX-ENGEMANN:CAPITAL GROWTH FUND/A	0.01
2000.2	MedTech	T ROWE PRICE BLUE CHIP GROWTH FUND	0.01
2000.2	MedTech	T ROWE PRICE GROWTH STOCK FUND	0.01
2000.2	MedTech	MFS RESEARCH FUND/A	0.03
2000.2	MedTech	T ROWE PRICE NEW HORIZONS FUND	0.04
2000.2	MedTech	STRONG GROWTH FUND	0.08
2000.2	MedTech	INVESCO DYNAMICS FUND/INV	0.11
2000.3	HiTech	NORTHERN TECHNOLOGY FUND	-0.5
2000.3	HiTech	PBHG SELECT EQUITY FUND	-0.48
2000.3	HiTech	VAN WAGONER EMERGING GROWTH FUND	-0.48
2000.3	HiTech	VAN WAGONER POST-VENTURE FUND	-0.48
2000.3	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	-0.4
2000.3	HiTech	KOPP EMERGING GROWTH FUND/A	-0.38
2000.3	HiTech	PBHG LARGE CAP 20 FUND	-0.36
2000.3	HiTech	T ROWE PRICE SCIENCE & TECHNOLOGY FUND	-0.34
2000.3	HiTech	ALLIANCE TECHNOLOGY FUND/A	-0.28
2000.3	HiTech	SELIGMAN GLOBAL TECHNOLOGY FUND/A	-0.24
2000.3	LoTech	T ROWE PRICE GROWTH STOCK FUND	-0.08
2000.3	LoTech	FLAG INVESTORS INTERNATIONAL EQUITY/A	-0.05
2000.3	LoTech	DFA INVEST GRP:US 6-10 VALUE PORTFOLIO	-0.01
2000.3	LoTech	AEGIS VALUE FUND	0.03
2000.3	LoTech	SENTINEL:COMMON STOCK FUND/A	0.04
2000.3	LoTech	WELLS FARGO FUNDS:EQUITY INCOME FUND/A	0.04
2000.3	LoTech	LORD ABBETT AFFILIATED FUND/A	0.07
2000.3	LoTech	T ROWE PRICE EQUITY INCOME FUND	0.08
2000.3	LoTech	DODGE & COX STOCK FUND	0.11
2000.3	LoTech	VAN KAMPEN COMSTOCK FUND/A	0.14
2000.3	MedTech	INVESCO DYNAMICS FUND/INV	-0.25
2000.3	MedTech	STRONG GROWTH FUND	-0.23
2000.3	MedTech	MERRILL LYNCH GROWTH FUND/A	-0.19
2000.3	MedTech	PHOENIX-ENGEMANN:CAPITAL GROWTH FUND/A	-0.18
2000.3	MedTech	VAN KAMPEN ENTERPRISE FUND/A	-0.18
2000.3	MedTech	WARBURG PINCUS EMERGING MARKETS/COMMON	-0.13
2000.3	MedTech	ALLIANCE GROWTH FUND/A	-0.12
2000.3	MedTech	T ROWE PRICE NEW HORIZONS FUND	-0.12
2000.3	MedTech	GABELLI GROWTH FUND	-0.11
2000.3	MedTech	USAA S&P 500 INDEX FUND	-0.07
2000.4	HiTech	AIM GLOBAL TELECOM & TECHNOLOGY FUND/A	-0.58
2000.4	HiTech	PBHG TECHNOLOGY & COMMUNICATIONS FUND	-0.46
2000.4	HiTech	ASAF INVESCO TECHNOLOGY/A	-0.42
2000.4	HiTech	FEDERATED COMMUNICATIONS TECHNOLOGY FUND/A	-0.36
2000.4	HiTech	NORTHERN TECHNOLOGY FUND	-0.31
2000.4	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	-0.3
2000.4	HiTech	J HANCOCK GLOBAL FUND/C	-0.25
2000.4	HiTech	SELIGMAN GLOBAL TECHNOLOGY FUND/A	-0.17
2000.4	HiTech	ALLIANCE TECHNOLOGY FUND/A	-0.02
2000.4	HiTech	SELIGMAN COMMUNICATIONS & INFORMATION FUND/A	-0.02
2000.4	LoTech	BRANDYWINE FUND	-0.12
2000.4	LoTech	DREYFUS APPRECIATION FUND	-0.11
2000.4	LoTech	VAN KAMPEN GROWTH & INCOME/A	-0.08
2000.4	LoTech	VAN KAMPEN PACE FUND/A	-0.08
2000.4	LoTech	THORNBURG VALUE FUND/A	-0.06
2000.4	LoTech	LIBERTY ACORN FUND/A	-0.05
2000.4	LoTech	VAN KAMPEN EQUITY INCOME/A	-0.05
2000.4	LoTech	FEDERATED AMERICAN LEADERS/A	-0.04
2000.4	LoTech	DODGE & COX STOCK FUND	0.01
2000.4	LoTech	ALLEGHANY FUNDS:MONTAG & CALDWELL GROWTH/I	0.04
2000.4	MedTech	AIM DENT DEMOGRAPHIC TRENDS FUND/A	-0.33
2000.4	MedTech	AIM SUMMIT FUND/I	-0.32
2000.4	MedTech	INVESCO DYNAMICS FUND/INV	-0.31
2000.4	MedTech	DELAWARE GROUP:SELECT GROWTH FUND/A	-0.28
2000.4	MedTech	MFS MID CAP GROWTH FUND/A	-0.24
2000.4	MedTech	AIM CONSTELLATION FUND/A	-0.21
2000.4	MedTech	AIM BLUE CHIP FUND/A	-0.2
2000.4	MedTech	GABELLI GROWTH FUND	-0.2
2000.4	MedTech	AIM VALUE FUND/A	-0.11
2000.4	MedTech	AIM BALANCED FUND/A	-0.09
2001.1	HiTech	FEDERATED COMMUNICATIONS TECHNOLOGY FUND/A	0.08
2001.1	HiTech	USAA SCIENCE & TECHNOLOGY FUND	0.09
2001.1	HiTech	NORTHERN TECHNOLOGY FUND	0.1
2001.1	HiTech	SCUDDER TECHNOLOGY FUND/I	0.1
2001.1	HiTech	PBHG TECHNOLOGY & COMMUNICATIONS FUND	0.11
2001.1	HiTech	SELIGMAN GLOBAL TECHNOLOGY FUND/A	0.11
2001.1	HiTech	FIRSTHAND FUNDS:TECHNOLOGY LEADERS FUND	0.12
2001.1	HiTech	FIRSTHAND FUNDS:TECHNOLOGY VALUE FUND	0.14
2001.1	HiTech	ENTERPRISE GRP INTERNET FUND/A	0.23
2001.1	HiTech	FIRSTHAND FUNDS:E COMMERCE FUND	0.23

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2001.1	LoTech	VAN KAMPEN AGGRESSIVE GROWTH/A	0
2001.1	LoTech	LIBERTY GROWTH & INCOME FUND/A	0.01
2001.1	LoTech	BRANDYWINE FUND	0.02
2001.1	LoTech	DREYFUS APPRECIATION FUND	0.03
2001.1	LoTech	PIONEER VALUE FUND/A	0.03
2001.1	LoTech	GMO TRUS CORE FUND/II	0.04
2001.1	LoTech	MASSMUTUAL INSTL FUNDS: CORE EQUITY FUND/S	0.04
2001.1	LoTech	VAN KAMPEN EQUITY INCOME/A	0.04
2001.1	LoTech	VAN KAMPEN GROWTH & INCOME/A	0.06
2001.1	LoTech	LIBERTY ACORN FUND/A	0.14
2001.1	MedTech	VAN KAMPEN TECHNOLOGY/A	0.04
2001.1	MedTech	AIM SUMMIT FUND/I	0.05
2001.1	MedTech	AIM CONSTELLATION FUND/A	0.07
2001.1	MedTech	MFS STRATEGIC GROWTH FUND/A	0.08
2001.1	MedTech	SELIGMAN GROWTH FUND/A	0.09
2001.1	MedTech	J HANCOCK LARGE CAP VALUE FUND/A	0.12
2001.1	MedTech	INVESCO DYNAMICS FUND/INV	0.13
2001.1	MedTech	MFS NEW DISCOVERY FUND/A	0.14
2001.1	MedTech	PBHG GROWTH FUND	0.18
2001.1	MedTech	MFS MID CAP GROWTH FUND/A	0.24
2001.2	HiTech	PBHG TECHNOLOGY & COMMUNICATIONS FUND	-0.52
2001.2	HiTech	T ROWE PRICE SCIENCE & TECHNOLOGY FUND	-0.46
2001.2	HiTech	FIRSTHAND FUNDS: TECHNOLOGY VALUE FUND	-0.45
2001.2	HiTech	MERRILL LYNCH GLOBAL TECHNOLOGY FUND/A	-0.44
2001.2	HiTech	FIDELITY SELECT TECHNOLOGY	-0.43
2001.2	HiTech	GOLDMAN SACHS INTERNET TOLLKEEPER/A	-0.43
2001.2	HiTech	FIDELITY SELECT COMPUTERS	-0.41
2001.2	HiTech	FIDELITY SELECT ELECTRONICS	-0.4
2001.2	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	-0.38
2001.2	HiTech	DEUTSCHE FLAG COMMUNICATIONS/A	-0.23
2001.2	LoTech	VANGUARD SMALL CAP INDEX/INV	-0.22
2001.2	LoTech	LIBERTY ACORN FUND/A	-0.19
2001.2	LoTech	AIM WEINGARTEN FUND/A	-0.18
2001.2	LoTech	T ROWE PRICE SMALL CAP STOCK FUND	-0.15
2001.2	LoTech	ALLIANCE GROWTH & INCOME/A	-0.14
2001.2	LoTech	LORD ABBETT AFFILIATED FUND/A	-0.14
2001.2	LoTech	AXP STOCK FUND/A	-0.13
2001.2	LoTech	PIONEER VALUE FUND/A	-0.12
2001.2	LoTech	MERRILL LYNCH BALANCED CAPITAL FUND/A	-0.1
2001.2	LoTech	T ROWE PRICE EQUITY INCOME FUND	-0.08
2001.2	MedTech	INVESCO DYNAMICS FUND/INV	-0.39
2001.2	MedTech	PBHG GROWTH FUND	-0.35
2001.2	MedTech	PHOENIX-ENGEMANN: CAPITAL GROWTH FUND/A	-0.32
2001.2	MedTech	PUTNAM GROWTH OPPORTUNITIES FD/A	-0.26
2001.2	MedTech	J HANCOCK LARGE CAP VALUE FUND/A	-0.25
2001.2	MedTech	BEAR STEARNS S&P STARS PORTFOLIO/A	-0.2
2001.2	MedTech	HARBOR FUNDS CAPITAL APPRECIATION FUND	-0.2
2001.2	MedTech	WELLS FARGO FUNDS: LARGE COMPANY GROWTH/A	-0.2
2001.2	MedTech	PIONEER GROWTH SHARES/A	-0.19
2001.2	MedTech	OPPENHEIMER GLOBAL/A	-0.18
2001.2	MedTech	AMERICAN GAS INDEX FUND	-0.09
2001.3	HiTech	DEUTSCHE FLAG COMMUNICATIONS/A	0.06
2001.3	HiTech	KINETICS INTERNET FUND	0.09
2001.3	HiTech	SELECT SECTOR SPDR: TECHNOLOGY	0.24
2001.3	HiTech	AIM GLOBAL TELECOM & TECHNOLOGY FUND/A	0.26
2001.3	HiTech	MORGAN STANLEY INFORMATION/A	0.28
2001.3	HiTech	NORTHERN TECHNOLOGY FUND	0.29
2001.3	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	0.32
2001.3	HiTech	PBHG TECHNOLOGY & COMMUNICATIONS FUND	0.33
2001.3	HiTech	FIDELITY SELECT TECHNOLOGY	0.35
2001.3	HiTech	FIRSTHAND FUNDS: TECHNOLOGY VALUE FUND	0.37
2001.3	LoTech	BRANDYWINE FUND	0.01
2001.3	LoTech	DREYFUS APPRECIATION FUND	0.05
2001.3	LoTech	DODGE & COX BALANCED FUND	0.08
2001.3	LoTech	FEDERATED AMERICAN LEADERS/A	0.08
2001.3	LoTech	FEDERATED STOCK TRUST	0.1
2001.3	LoTech	PIONEER VALUE FUND/A	0.1
2001.3	LoTech	SELECTED AMERICAN SHARES	0.1
2001.3	LoTech	DODGE & COX STOCK FUND	0.12
2001.3	LoTech	AIM BASIC VALUE FUND/A	0.13
2001.3	LoTech	LIBERTY ACORN FUND/A	0.18
2001.3	MedTech	PILGRIM INTERNATIONAL VALUE FUND/A	0.09
2001.3	MedTech	WM GROWTH FUND/A	0.09
2001.3	MedTech	PILGRIM WORLDWIDE GROWTH FUND/A	0.11
2001.3	MedTech	PBHG GROWTH FUND	0.14
2001.3	MedTech	WELLS FARGO FUNDS: LARGE COMPANY GROWTH/A	0.17
2001.3	MedTech	J HANCOCK LARGE CAP VALUE FUND/A	0.18
2001.3	MedTech	PILGRIM MID CAP GROWTH FUND/A	0.21
2001.3	MedTech	FREMONT MUTUAL FDS: US MICRO CAP FUND/INSTL	0.23
2001.3	MedTech	ARTISAN MID CAP FUND	0.24
2001.3	MedTech	PBHG EMERGING GROWTH FUND	0.26
2001.4	HiTech	PBHG TECHNOLOGY & COMMUNICATIONS FUND	-0.08
2001.4	HiTech	CREDIT SUISSE GLOBAL TECHNOLOGY/A	-0.07
2001.4	HiTech	MORGAN STANLEY INFORMATION/A	-0.07

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2001.4	HiTech	NORTHERN TECHNOLOGY FUND	-0.07
2001.4	HiTech	HARTFORD GLOBAL TECHNOLOGY FUND/A	-0.05
2001.4	HiTech	SELIGMAN COMMUNICATIONS & INFORMATION FUND/A	-0.04
2001.4	HiTech	BERGER INFORMATION TECHNOLOGY/INSTL	-0.03
2001.4	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	-0.02
2001.4	HiTech	FEDERATED COMMUNICATIONS TECHNOLOGY FUND/A	-0.02
2001.4	HiTech	SELIGMAN GLOBAL TECHNOLOGY FUND/A	0.01
2001.4	LoTech	AIM WEINGARTEN FUND/A	-0.03
2001.4	LoTech	NUVEEN RITTENHOUSE GROWTH FUND/A	-0.03
2001.4	LoTech	AIM GLOBAL HEALTH CARE FUND/A	-0.01
2001.4	LoTech	AIM LARGE CAP GROWTH FUND/A	-0.01
2001.4	LoTech	SELECTED AMERICAN SHARES	-0.01
2001.4	LoTech	WACHOVIA FUNDS:QUANTITATIVE EQUITY FD/A	-0.01
2001.4	LoTech	NUVEEN LARGE-CAP VALUE FUND/A	0
2001.4	LoTech	JANUS BALANCED FUND	0.01
2001.4	LoTech	AIM BASIC VALUE FUND/A	0.04
2001.4	LoTech	BARON GROWTH FUND	0.04
2001.4	MedTech	MFS MID CAP GROWTH FUND/A	-0.08
2001.4	MedTech	BEAR STEARNS S&P STARS PORTFOLIO/A	-0.07
2001.4	MedTech	CREDIT SUISSE CAPITAL APPRECIATION/A	-0.06
2001.4	MedTech	PBHG GROWTH FUND	-0.06
2001.4	MedTech	MFS EMERGING GROWTH FUND/A	-0.05
2001.4	MedTech	MFS STRATEGIC GROWTH FUND/A	-0.04
2001.4	MedTech	SELIGMAN CAPTAL FUND/A	-0.04
2001.4	MedTech	AXP STRATEGY AGGRESSIVE FUND/A	-0.03
2001.4	MedTech	HERITAGE CAPITAL APPRECIATION TRUST/A	-0.03
2001.4	MedTech	INVESCO DYNAMICS FUND/INV	-0.03
2002.1	HiTech	MORGAN STANLEY TECHNOLOGY/A	-0.39
2002.1	HiTech	MERRILL LYNCH GLOBAL TECHNOLOGY FUND/A	-0.32
2002.1	HiTech	MORGAN STANLEY INFORMATION/A	-0.32
2002.1	HiTech	MUNDER FUNDS FUTURE TECHNOLOGY/A	-0.31
2002.1	HiTech	T ROWE PRICE SCIENCE & TECHNOLOGY FUND	-0.3
2002.1	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	-0.28
2002.1	HiTech	PUTNAM TECHNOLOGY FD/A	-0.27
2002.1	HiTech	NORTHERN TECHNOLOGY FUND	-0.26
2002.1	HiTech	SELIGMAN COMMUNICATIONS & INFORMATION FUND/A	-0.26
2002.1	HiTech	SELIGMAN GLOBAL TECHNOLOGY FUND/A	-0.26
2002.1	LoTech	ALLIANCE GROWTH & INCOME/A	-0.17
2002.1	LoTech	HARTFORD CAPITAL APPRECIATION FUND/A	-0.15
2002.1	LoTech	LORD ABBETT AFFILIATED FUND/A	-0.11
2002.1	LoTech	DAVIS NEW YORK VENTURE/A	-0.1
2002.1	LoTech	PIONEER VALUE FUND/A	-0.08
2002.1	LoTech	T ROWE PRICE EQUITY INCOME FUND	-0.08
2002.1	LoTech	EATON VANCE TAX MANAGED VALUE/A	-0.07
2002.1	LoTech	DODGE & COX STOCK FUND	-0.06
2002.1	LoTech	MORGAN STANLEY LIQUID ASSET	0
2002.1	LoTech	MORGAN STANLEY JAPAN/A	0.04
2002.1	MedTech	MFS MID CAP GROWTH FUND/A	-0.38
2002.1	MedTech	J HANCOCK SMALL CAP EQUITY FUND/A	-0.24
2002.1	MedTech	INVESCO DYNAMICS FUND/INV	-0.23
2002.1	MedTech	MFS STRATEGIC GROWTH FUND/A	-0.22
2002.1	MedTech	AXP STRATEGY AGGRESSIVE FUND/A	-0.21
2002.1	MedTech	MFS EMERGING GROWTH FUND/A	-0.21
2002.1	MedTech	CREDIT SUISSE CAPITAL APPRECIATION/A	-0.2
2002.1	MedTech	MFS LARGE CAP GROWTH FUND/A	-0.2
2002.1	MedTech	NEEDHAM GROWTH FUND	-0.2
2002.1	MedTech	WELLS FARGO FUNDS:LARGE COMPANY GROWTH/A	-0.17
2002.2	HiTech	FIRSTHAND FUNDS:TECHNOLOGY VALUE FUND	-0.37
2002.2	HiTech	FIRSTHAND FUNDS:TECHNOLOGY INNOVATORS FUND	-0.36
2002.2	HiTech	J HANCOCK TECHNOLOGY FUND/A	-0.34
2002.2	HiTech	FIRSTHAND FUNDS:E COMMERCE FUND	-0.33
2002.2	HiTech	MORGAN STANLEY TECHNOLOGY/A	-0.32
2002.2	HiTech	MUNDER FUNDS FUTURE TECHNOLOGY/A	-0.31
2002.2	HiTech	PBHG TECHNOLOGY & COMMUNICATIONS FUND	-0.3
2002.2	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	-0.29
2002.2	HiTech	NORTHERN TECHNOLOGY FUND	-0.26
2002.2	HiTech	SELIGMAN GLOBAL TECHNOLOGY FUND/A	-0.26
2002.2	LoTech	AIM BASIC VALUE FUND/A	-0.21
2002.2	LoTech	ALLIANCE GROWTH & INCOME/A	-0.2
2002.2	LoTech	PIONEER VALUE FUND/A	-0.19
2002.2	LoTech	LIBERTY ACORN FUND/A	-0.17
2002.2	LoTech	DODGE & COX STOCK FUND	-0.16
2002.2	LoTech	EATON VANCE TAX MANAGED VALUE/A	-0.16
2002.2	LoTech	AIM CHARTER FUND/A	-0.14
2002.2	LoTech	FEDERATED KAUFMANN FUND/A	-0.14
2002.2	LoTech	DAVIS NEW YORK VENTURE/A	-0.13
2002.2	LoTech	DODGE & COX BALANCED FUND	-0.09
2002.2	MedTech	PBHG EMERGING GROWTH FUND	-0.29
2002.2	MedTech	ALLIANCE MID CAP GROWTH/A	-0.24
2002.2	MedTech	ARTISAN INTERNATIONAL FUND	-0.22
2002.2	MedTech	REYNOLDS FUNDS BLUE CHIP GROWTH FUND	-0.21
2002.2	MedTech	MFS MID CAP GROWTH FUND/A	-0.19
2002.2	MedTech	GE FUNDS:PREMIER GROWTH EQUITY FUND/A	-0.17
2002.2	MedTech	GE INSTL:PREMIER GROWTH EQUITY FUND/I	-0.17

Technology Rich Mutual Funds and their performance during & after the ‘Tech Bubble’

2002.2	MedTech	WASATCH FUNDS:ULTRA GROWTH FUND	-0.17
2002.2	MedTech	BARON IOPPORTUNITY FUND	-0.13
2002.2	MedTech	HERITAGE CAPITAL APPRECIATION TRUST/A	-0.13
2002.3	HiTech	JANUS GLOBAL TECHNOLOGY FUND	0.05
2002.3	HiTech	PBHG TECHNOLOGY & COMMUNICATIONS FUND	0.13
2002.3	HiTech	SELIGMAN COMMUNICATIONS & INFORMATION FUND/A	0.13
2002.3	HiTech	NORTHERN TECHNOLOGY FUND	0.14
2002.3	HiTech	USAA SCIENCE & TECHNOLOGY FUND	0.15
2002.3	HiTech	DREYFUS PREMIER TECHNOLOGY GROWTH FUND/A	0.17
2002.3	HiTech	SELIGMAN GLOBAL TECHNOLOGY FUND/A	0.17
2002.3	HiTech	MORGAN STANLEY TECHNOLOGY/A	0.23
2002.3	HiTech	MUNDER FUNDS FUTURE TECHNOLOGY/A	0.25
2002.3	HiTech	J HANCOCK TECHNOLOGY FUND/A	0.27
2002.3	LoTech	AXP NEW DIMENSIONS FUND/A	0.05
2002.3	LoTech	EATON VANCE TAX MANAGED VALUE/A	0.05
2002.3	LoTech	JANUS GROWTH AND INCOME FUND	0.05
2002.3	LoTech	LONGLEAF PARTNERS FUND	0.06
2002.3	LoTech	DAVIS NEW YORK VENTURE/A	0.07
2002.3	LoTech	LIBERTY ACORN FUND/A	0.07
2002.3	LoTech	PIONEER FUND/A	0.07
2002.3	LoTech	AIM BASIC VALUE FUND/A	0.08
2002.3	LoTech	ALLIANCE GROWTH & INCOME/A	0.08
2002.3	LoTech	DODGE & COX STOCK FUND	0.08
2002.3	MedTech	EATON VANCE INFORMATION AGE/A	0.04
2002.3	MedTech	FREMONT MUTUAL FDS:US MICRO CAP FUND	0.06
2002.3	MedTech	EVERGREEN EMERGING MARKETS GROWTH/A	0.07
2002.3	MedTech	SEI INTL TR EMERGING MARKETS EQUITY	0.07
2002.3	MedTech	GE FUNDS:PREMIER GROWTH EQUITY FUND/A	0.08
2002.3	MedTech	HERITAGE CAPITAL APPRECIATION TRUST/A	0.08
2002.3	MedTech	LIBERTY UTILITIES FUND/A	0.13
2002.3	MedTech	PBHG EMERGING GROWTH FUND	0.14
2002.3	MedTech	BARON IOPPORTUNITY FUND	0.15
2002.3	MedTech	VAN KAMPEN TECHNOLOGY/A	0.15