

the risk and return for each investor profile. The risk and return of the constrained model correspond to the points illustrated in Figure 4.2. The unconstrained model correspond to the mid-point of each group unconstrained efficient frontier in Figure 4.2. This table shows the return relative to the unconstrained mean-variance model. The table illustrates the greater percentage reduction in risk at the profile and growth profile which both lose twelve percent in return a sixteen and fifteen percent reduction in risk. The smallest changes occur at the extremes of the efficient frontier.

Constrained Mean-Variance Model		Unconstrained Mean-Variance Model		Difference in Risk and Return	
Risk	Return	Risk	Return	Risk	Return
2.71	7.57	2.65	7.56	-0.02	-0.002
3.75	8.90	4.16	9.84	0.10	0.09
5.10	10.35	6.07	11.79	0.16	0.12
6.91	12.01	8.12	13.71	0.15	0.12
10.18	14.74	10.57	15.66	0.04	0.06

Comparisons for Mean-Variance Model
The constraints show that every index is invested in except the up Bond Index. This has increased the utilization of asset class in the unconstrained model to nine in the constrained model thereby diversified portfolio. Table 4.7 summarizes the asset investment for

Merrill Lynch U.S. 30 - MSCI
3-5 15 yr Day EAFE Russell Russell S&P S&P Goldman
Yr. and Treasury Equity 2000 2000 BARRA BARRA - REIT Commodity
Govt Bills Index Growth Value Growth Value ALL Index

Capital Preservation	5.0	0	81.0	1.1	0.8	0.6	4.2	2.4	0.7	4.5
Income	5.0	0	62.0	2.8	1.4	1.4	7.1	5.5	6.8	8.0
Income and Growth	5.0	0	47.0	4.1	2.1	2.1	5.0	19.8	5.7	9.3
Growth	5.0	0	30.0	5.2	2.6	2.6	2.8	36.4	4.3	10.7
Aggressive Growth	5.0	0	2.0	6.0	4.3	4.3	4.3	59.1	2.1	12.9

Table 4.7 Constrained Mean-Variance Asset Allocation

This table shows the percentages of the investment allocated to each asset class. The Merrill Lynch 3-5 Year Government Bond index maintains a five percent investment. U.S. 30-Day Treasury Bills still account for a large portion of the investment in the less risky investment profiles. International stocks, small cap growth and value and large cap growth all maintain a low investment percentage, with equal allocation between small cap growth and value, for each profile. The investment in real estate and commodities generally maintains about fifteen percent of the total investment, except in the case of the capital preservation profile.

To better depict the asset allocation among the investor profiles, each one is represented by a pie chart.

Figure 4.3 shows the constrained mean-variance asset allocation for the investor who prefers the least amount of risk.

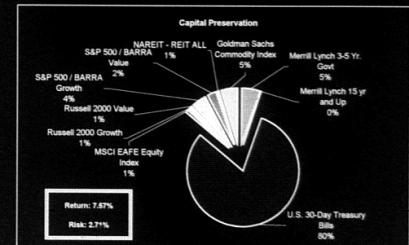


Figure 4.3 Capital Preservation

Figure 4.4 depicts the investment mix for the constrained model for a person willing to accept slightly more risk by moving money from cash and into equity.

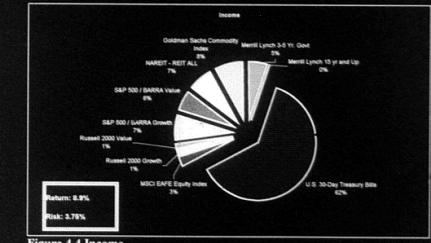


Figure 4.4 Income