EXHIBITS

Exhibit 1: Percentage CVaR contribution of asset 1 in function of its portfolio weight for a two-asset portfolio with asset returns that have a bivariate normal distribution with means μ_1 and μ_2, correlation 0.5 and standard deviations σ_1 and σ_2, respectively.

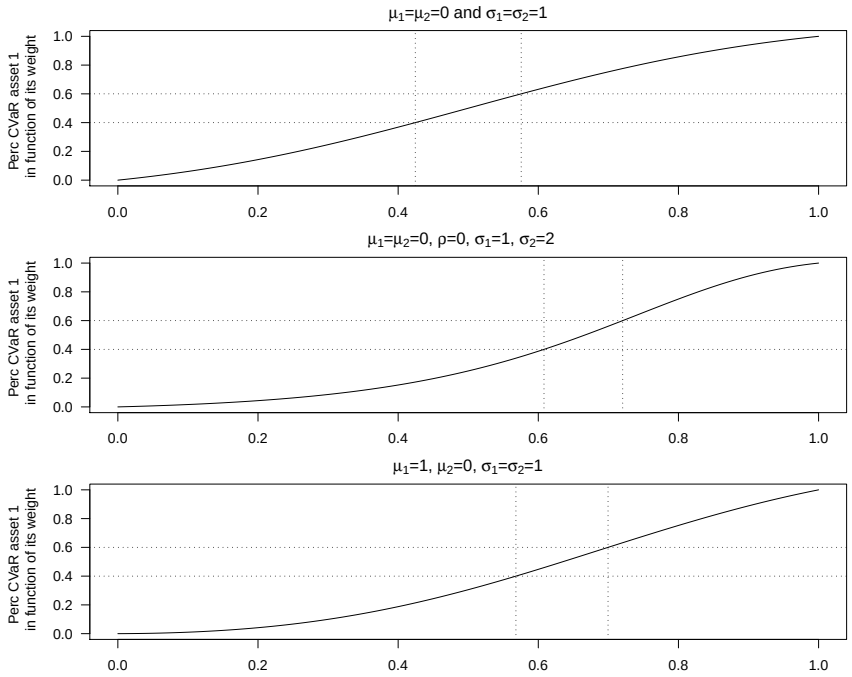

Exhibit 2: Weight and CVaR allocation of bond-equity portfolios, together with the in-sample annualized monthly mean and monthly 95% CVaR over the period January 1976-June 2010.

	Weight allocation		CVaR allocation		Ann. mean	95% CVaR
	Bond	Equity	Bond	Equity		
Equal-weight	50%	50%	3.47%	96.53%	8.90%	4.87%
60/40 weight	40%	60%	0%	100%	9.17%	5.82%
Min CVaR	96.86%	3.14%	96.86%	3.14%	7.63%	2.44%
Min CVaR concentration	77.01%	22.91%	50%	50%	8.17%	3.00%
60/40 risk allocation	72.90%	27.10%	40%	60%	8.28%	3.18%

Exhibit 3: Mean/CVaR and Mean/CVaR concentration frontiers of mean/StdDev, mean/CVaR and mean/CVaR concentration efficient portfolios. The frontier is estimated using all January 1976-June 2010 monthly returns.

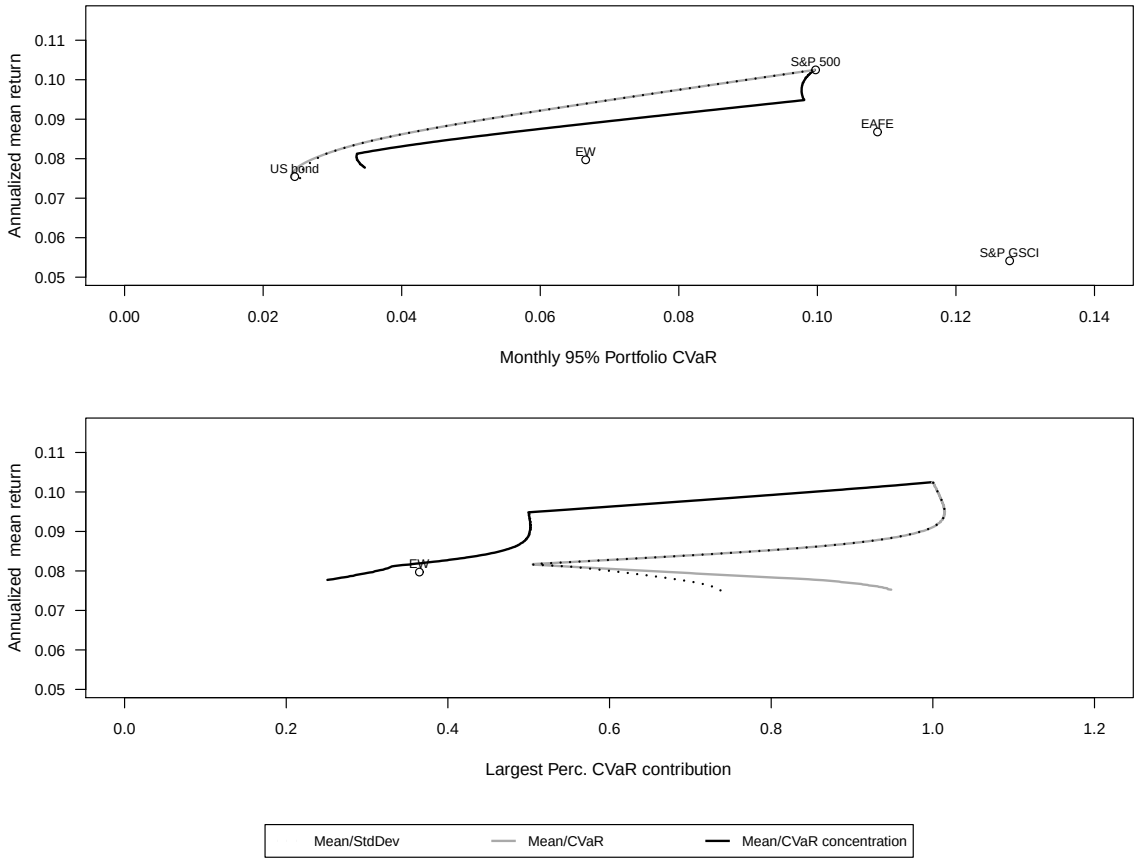

Exhibit 4: Weight and CVaR allocation of mean/StdDev, mean/CVaR and mean/CVaR concentration efficient portfolios. The frontier is estimated using all January 1976-June 2010 monthly returns.

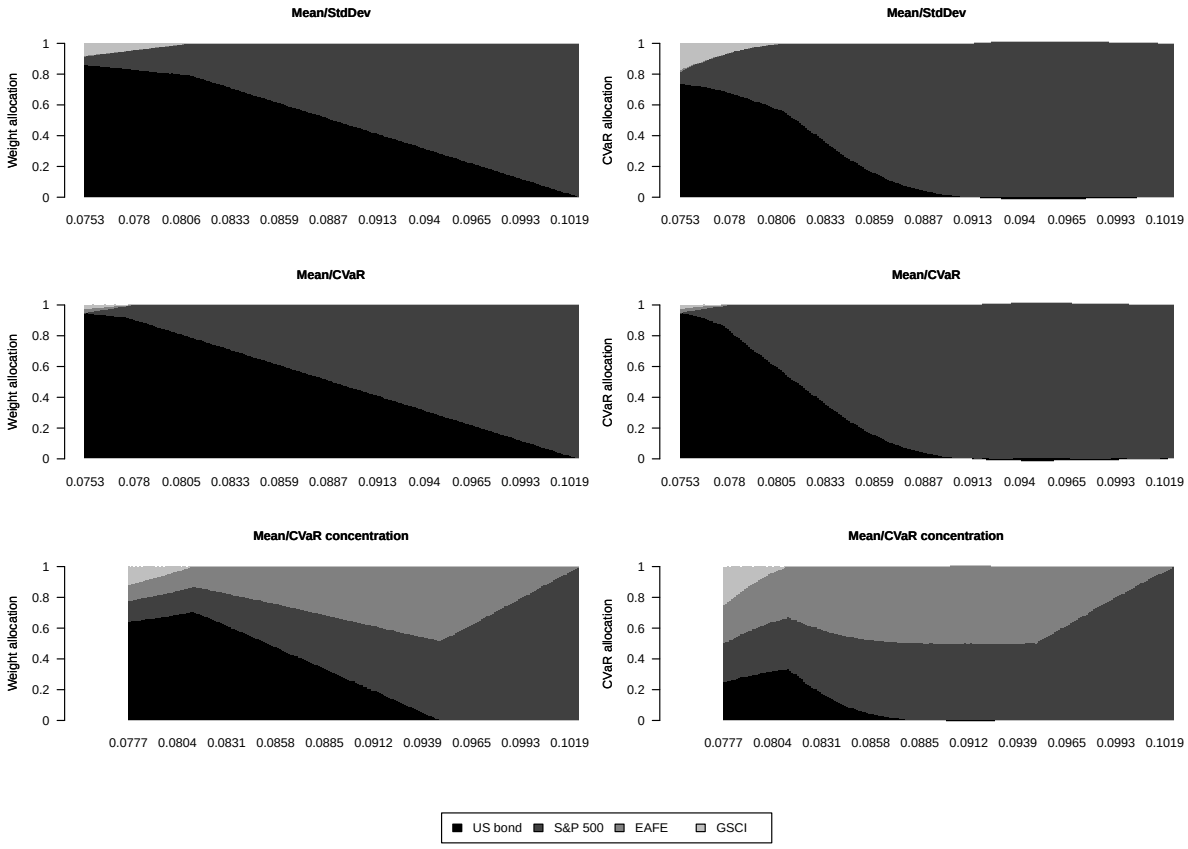

Exhibit 5: Stacked bar weight and CVaR contribution plots for the equal weight, minimum CVaR and minimum CVaR concentration portfolios invested in the Merrill Lynch US bond, S&P500, MSCI EAFE and S&P GSCI indices. The portfolios are rebalanced quarterly.

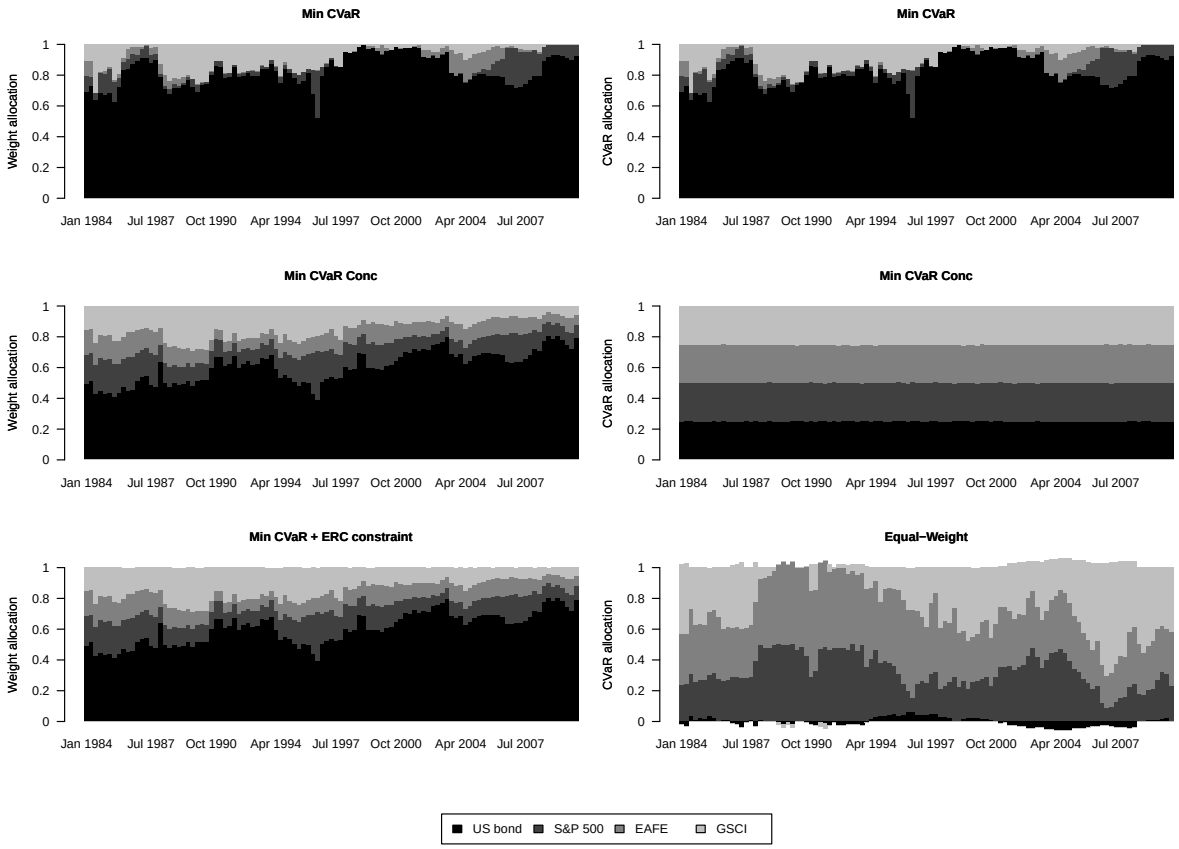

Exhibit 6: Monthly CVaR of the risk budget optimized portfolios invested in the Merrill Lynch US bond, S&P 500, MSCI EAFE and S&P GSCI indices. The portfolios are rebalanced quarterly.

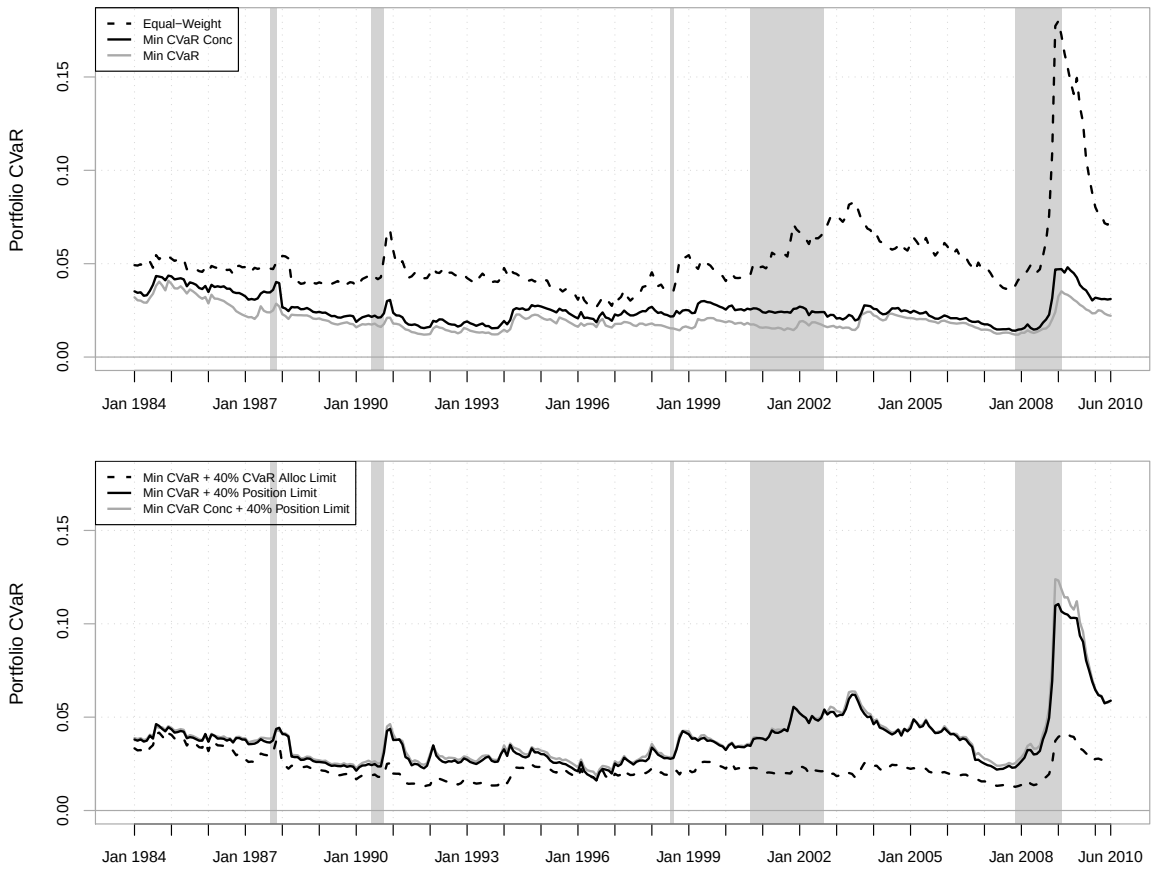

Exhibit 7: Relative performance of the risk budget optimized portfolios versus the equal-weight portfolio invested in the Merrill Lynch US bond, S&P 500, MSCI EAFE and S&P GSCI indices. The portfolios are rebalanced quarterly. The shaded regions indicate a bear market regime.

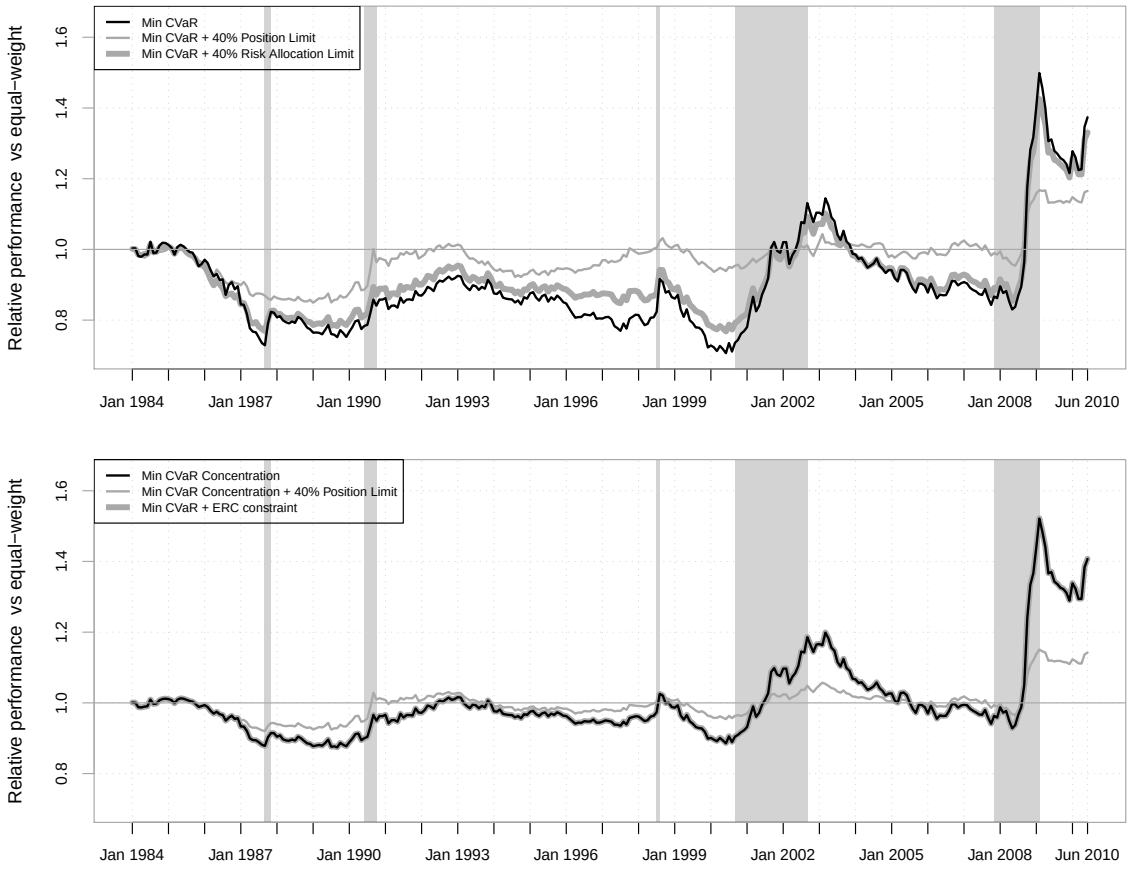

Exhibit 8: Stacked bar weight and CVaR contribution plots for the constrained minimum CVaR portfolios invested in the Merrill Lynch US bond, S&P500, MSCI EAFE and S&P GSCI indices. The portfolios are rebalanced quarterly.

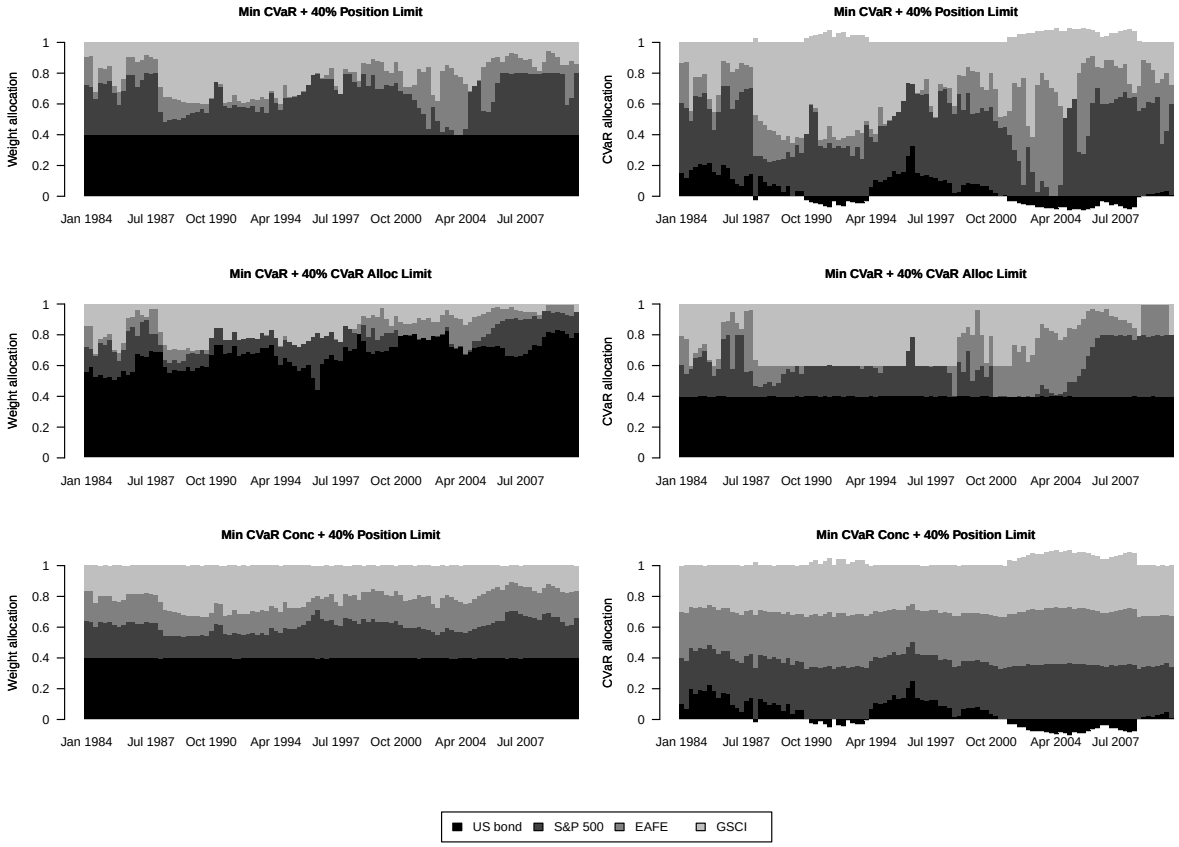

Exhibit 9: Summary statistics of monthly out-of-sample returns on investment strategies over the period January 1984 - June 2010.

	Equal Weight	Min CVaR				Min CVaR Concentration	
			40% Position Limit	40% CVaR Alloc Limit	ERC		40% Position Limit
Full period (in %)							
Ann. Mean	7.32	8.07	7.74	7.99	8.22	8.23	7.63
StdDev	3.01	1.31	2.53	1.54	1.67	1.67	2.44
Hist CVaR	7.42	2.34	6.15	2.95	3.35	3.35	5.91
HI of Hist C_iCVaR	0.06	0.21	0.09	0.16	0.12	0.12	0.07
Portfolio turnover	1.26	2.14	3.55	2.64	1.74	1.74	1.51
Bear stock market (in %)							
Ann. Mean	-24.36	6.31	-17.25	-0.66	-3.81	-3.79	-16.52
StdDev	4.46	1.73	3.76	2.05	2.15	2.15	3.63
Hist CVaR	13.71	3.30	11.04	5.36	6.28	6.27	10.80
Normal/Bull stock market (in %)							
Ann. Mean	13.37	8.40	12.51	9.64	10.52	10.52	12.24
StdDev	2.33	1.21	2.00	1.39	1.49	1.49	1.93
Hist CVaR	4.09	2.04	3.50	2.26	2.38	2.37	3.38
Drawdowns higher than 10%							
Credit crisis*	0.48	0.09	0.37	0.13	0.15	0.15	0.38
Dot-com bubble burst**	0.25		0.19				0.17
Asian-Russian crisis***	0.12						
Black Monday****	0.11		0.12				

* May-Oct 2008 for the Min CVaR strategy, June 2008-Feb 2009 for all other styles. ** Sep 2000-Sep 2002.

*** April-Aug 1998. **** Sep-Nov 1987.