FIN 411 -- Investments

Calculation of *ex post* investment opportunity sets for Rochester-area stocks, 1983-90
- show the effects of including a high quality corporate bond to the set of possible investments
- show the "efficient set" compared with the location of individual stocks
- show what happens when 1983-86 returns are used to construct an "efficient" portfolio for 1987-90
- show how a "naive" equal-weighted strategy yields reasonable results

Avg Return vs Std Deviation Rochester Stocks, 1983-90

(1) Use 21 stocks' returns to compute *ex post* efficient set
  - i.e., best combinations of mean & std deviation of return to portfolios that could have been achieved by fixed weight portfolios of these stocks -- if weight is < 0, then short-sell

(2) Notice how efficient set shifts to left if you allow people to also buy a high-grade corporate bond

(3) Notice how individual stocks are well to the right of the efficient set -- diversifiable risk
Avg Return vs Std Deviation
Rochester Stocks, 1983-90

Note that the portfolio implied by the 1983-86 efficient set is not efficient ex post from 1987-90

- Could be estimation error in means and/or standard deviations (highly likely)
- Or, it could be that the "true" means & standard deviations changed between subperiods
- Equal-weighted stock & bond portfolio (EW) is reasonably efficient
Avg Return vs Std Deviation
Rochester Stocks, 1989-91

Use daily returns to estimate efficient set for Rochester area stocks (not exactly the same stocks as in the prior examples)

- no Corp Bond return on a daily basis, so this is omitted
- equal-weighted portfolio of all stocks is close to efficient set

Efficient Set for Rochester Stocks:
Daily Returns, 1989-91

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**Ex Post Investment Opportunity Sets: Summary**

Due to estimation errors in means, standard deviations & covariances of returns, it is probably not worth it to invest resources into calculating "optimal" portfolio weights based on historical estimates of these parameters

- simply spreading money around, e.g., equal-weighted portfolios, achieves most of the benefits of diversification without the costs of computing "optimal" weights

**Ex Post Investment Opportunity Sets: Questions**

(1) Why not use all available data to estimate means & covariances?

(2) What other kinds of information might you use to help your form a well-diversified portfolio?

**Ex Post Investment Opportunity Sets: Questions**

(3) Would a portfolio of Rochester-area stocks be well-diversified? *Why, or why not?*

(4) Should an employee buy a lot of stock in his/her own company? *Why, or why not?*