Objectives and Game Plan

- More on the effects of deferral, deductibility & rate differences on after-tax returns.
- Some policy issues.

Tax Planning versus Investment Expertise

Investors traditionally paid little attention to the effect of taxes on mutual fund returns. This began to change in the early 1990s when Charles Schwab & Co. introduced a series of "tax-efficient" funds and began publicizing a study quantifying the effect that taxes have on mutual fund returns. Since then, more investors have begun paying attention to a fund's taxable distributions.

Assume the following:

Pretax return - Index Fund (R):20%
Tax rate (t):40%
Inclusion rate (g):70%
Annual turnover of fund: 100% (active) 0% (index)

(1) What pretax return does an active fund manager have to earn to match the performance of the index fund? Compute results for 1, 5, 10, and 30-year horizons.

(2) If the inclusion rate drops to 50% (i.e., tcg = 20%) does that make the fund manager's job more or less difficult? Compute results for 1, 5, 10, and 30-year horizons.

(3) How can an investor minimize the active fund penalty computed above?

Tax Planning versus Investment Expertise

- What are the after-tax returns to the index fund over each horizon?
  - How do we determine this?

  - 1
  - 5
  - 10
  - 30

Tax Planning versus Investment Expertise

- What if the inclusion rate drops?
  - 1
  - 5
  - 10
  - 30

Assets with both annual taxation and tax deferral

- What would be the formula for after-tax accumulation after n periods?
- "Simplifying assumptions"
  - Constant dividend yield, D
  - Dividends taxed at a rate t
  - Constant expected capital gain return, R_C
  - Capital gains taxed upon realization at a rate gt
  - Reinvest after-tax dividends in the same stock (in a footnote, the Scholes and Wolfson book addresses a similar question but assumes dividends are invested in bonds)
  - Dividend payment made annually at the end of year

Assets with both annual taxation and tax deferral

- No taxes, accumulation would be

  $(1 + D + R_C)^n$

- If only dividends were taxed, accumulation would be:

  $X = (1 + (1\text{-}t)D + R_C)^n$

- What is your basis at the end of the holding period?

  $\text{Basis} = 1 + D(1\text{-}t) \sum^{n}_{year=1}(1+(1- t)D + R_C)^{year\text{-}1}$

- What is your after-tax accumulation with capital gain liability

  $X - (X\text{-Basis})tg = X(1\text{-}tg)+tg*\text{Basis}$

- Which simplifies to

  $(1+(1\text{-}t)D+R_C)^n(1\text{-}tg)+[1+D(1\text{-}t)\Sigma^{n}_{year=1}(1+(1- t)D + R_C)^{year\text{-}1}]tg$

Wealth accumulation depends on mix of dividends and capital gains

Investment = 1000, t=30%, anual pretax combined return $(D+R_C)=10\%$

D	R_C	g	After-tax Wealth (after 10 years)
10%	0%	1	$1,967
5%	5%	1	$2,038
0%	10%	1	$2,116
10%	0%	.5	$1,967
5%	5%	.5	$2,150
0%	10%	.5	$2,355
10%	0%	0	$1,967
5%	5%	0	$2,261
0%	10%	0	$2,594

Some policy issues

- Does it make sense to have differential treatment of ordinary and capital income?
- What are the policy options regarding capital gains?
- What information would you need to help design policy?

Some sources for the interested:

Leonard. E. Burman, *The Labyrinth of Capital Gains Tax Policy: A Guide for the Perplexed* (Brookings, 1999)

Jane Gravelle, *The Economic Effects of Taxing Capital Income* (MIT Press, 1994)

C. Eugene Steuerle, *Taxes loans and Inflation: How the Nation's Wealth Becomes Misallocated* (Brookings, 1985)

Jeffrey H. Birnbaum, Alan S. Murray, *Showdown at Gucci Gulch: Lawmakers, Lobbyists, and the Unlikely Triumph of Tax Reform*

What If Capital Income Taxation Was Indexed?

- Adjusted formula for assets with deferral (e.g., capital gain on stock)
  - With assets taxed upon realization, correcting for inflation means adjusting the basis of the asset. If the rate of return equals the inflation rate, then the investor would pay no tax on realization.
  - No exclusion (g = 1). Since inflation is one political reason for exclusion, indexing would partially eliminate the need for the preferential tax rate for capital gains.
  - $(1+R)^n - t[(1+R)^n-(1+\pi)^n] = (1+R)^n(1-t) + t(1+\pi)^n$

Effect of indexing on different vehicles

Initial investment = 1,000, holding period = 10 years

R	π	MM	MM-i	Gain	SPDA	SPDA-i	gain
10%	5%	1,967	2,261	294	2,116	2,304	189
10%	9%	1,967	2,524	557	2,116	2,526	410
5%	5%	1,411	1,629	218	1,440	1,629	189
7.5%	5%	1,668	1,922	254	1,743	1,931	189
15%	5%	2,714	3,106	392	3,132	3,321	189

"gain" = increase in after-tax wealth from indexing the tax treatment of the asset.