

## The Personal Income Tax (*b*) : Capital Gains : Accrual versus Realization

Suppose, for simplicity, that a person holds shares in a stock that does not change in price by as much as a penny, for a whole year : the price of the stock is constant at \$2 a share from August 31 2005, when the person bought the shares, until August 31 2010. On August 31 2010 the shares jump in price to \$5. Then the price remains at \$5. On August 31 2015 the person sells the shares ( for the market price of \$5 each ).

There has been a capital gain here of \$3 a share. When did it happen? The capital **accrued** on August 31 2010 : that's when the shares went up on the market. The person **realized** those capital gains on August 31 2015 : that's when she sold them.

The Haig–Simons definition says that capital gains should be included in income when they accrue : that is, under Haig–Simons principles they count as part of income for 2010. The Canada Revenue Agency (CRA) definition says that they should be included in income ( or some fraction of them should be included in income ) when they are realized : under CRA principles some fraction of them counts as part of income for 2015.\*

*Q : Why do Haig and Simons include capital gains in income on accrual?*

*A :* Because it's consistent with their definition of income as the amount of consumption a person can afford, if the value of her wealth were not to change. An increase in the price of your stocks means that you could cash in some of your shares, consume the proceeds, and still have the same wealth as before. Whether you choose to do so, or choose to hold on to the stock, are not Haig's or Simons's concerns : they are interested in the command over economic resources that you have, not what you choose to do with it.

*Q : What would happen if the shares were to fall in price?*

*A :* Then there's a capital loss, to be subtracted from your income. If capital gains were taxed on accrual, then this loss would be subtracted in the year in which it occurs ; when they are taxed on realization (as is the practice in Canada, the United States, and virtually everywhere), then the loss is subtracted in the year the shares are sold.\*\*

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\* What is the *inclusion rate*? That is, what fraction of capital gains are included in your taxable income? That inclusion rate has moved around a lot in recent years ; it changed twice in the calendar year 2000 alone. If the gains were realized on or before February 27 2000, 75 percent of them have to be included in income ; if they were realized between February 28 and October 17 2000, 66.67 percent have to be included ; if they were realized after October 17 2000, then 50 percent are included.

\*\* Losses can also be carried forward or backwards if you don't have enough other income to subtract them from in the year in which they are realized, but that's a complication I don't want to get into.

*Q : Where would I get the cash to pay my taxes, if my capital gains were taxed on accrual, and if I didn't want to sell any of my shares?*

A : Presumably, valuable shares are a pretty effective form of collateral. People could borrow the money quite using the stock as collateral, so they could pay taxes on accrual, and still hold on to the shares if they felt the stock was going to keep on going up in price.

*Q : But then a person would have to pay interest on the money she'd borrowed to pay the taxes on the accrued capital gains that she had not yet realized. Wouldn't that cost the taxpayer?*

A : Reverse the question : viewed from the Haig-Simons perspective, there is a substantial advantage to a taxpayer if she does not have to pay taxes until realization. Taxation of capital gains on realization is effectively an **interest-free loan** to the taxpayer from CRA.

For another standard of comparison, suppose that a person's salary ( or a portion of it ) for some year were deposited into some savings instrument, with an explicit provision that the person could not withdraw any money for twenty years. When would she have to pay income tax on the salary, now or when she withdrew it? In Canada, the answer is "now". The advantage of deferral applies only to accrued capital gains, not wages, salary or interest income.

*Q : Is that such a big advantage?*

A : It's not trivial. At a 4 percent interest rate, the present value of a dollar ten years from now is about 67 cents. So waiting ten years to sell an asset reduces the capital gain by one-third — and then you only have to include half of the realized capital gain in taxable income. So for someone whose marginal tax rate is 40 percent, the effective tax rate on a capital gain which has been deferred ten years is about 13 percent.

With capital losses, there is a disadvantage to postponing realization : the present value of the loss falls, the longer realization is deferred.

But the owner of the asset gets to choose when to sell her shares. This actually can prove an enormous advantage. By selling losing positions early, and postponing selling winning positions, a person may be able to postpone paying any taxes.

For example, suppose someone had \$100,000 in salary income in 2015. Suppose as well that the person purchased a very large "long" position in some stock, early in 2015 ( for example, she could buy a call option on the stock). At the same time, she also purchases an equally large "short" position, so that, on net, she is taking no risk ( and can't be making or losing any money ). Taking a long and short position in commodity or currency futures would serve equally well here. In December 2015, either the asset has gone up in value, or it's gone down. If it's gone down, sell the "long" position, and if it's gone up sell the short. In either case, this will generate a substantial capital loss, which was realized in 2015. This loss can be used to reduce taxes paid in 2015 ( in the United States, there are now pretty tight limits on using capital losses to offset wage and

salary income, but this strategy would have worked wonderfully in the United States prior to their tax reform of 1986 ). The person still has her “winning” position. She can sell that in January 2016. This realized capital gain will raise her taxable income for 2016. But, after she sells this position, she can buy a very large long, and an equally large short, position in some other asset. In December 2016, she sells whichever position in this new asset that has gone down in value. If her holdings are large enough, the capital losses realized on this losing position will be large enough to offset all taxable income she has earned in 2016. So by the end of 2016, she has avoided all tax for two years. She also has a winning position in the asset she bought in 2016. She can sell that in January 2017, and then do the same trick over gain, finding another asset, and simultaneously buying a long, and a short, position in that asset. Behaving in this way, she can avoid all income taxes indefinitely.

Left out in the description of the above strategy are details which would make it less than practical. But the strategy shows the tremendous advantage that can be gained from the facts that capital gains and losses are taxed on realization, not on accrual, in Canada, and that people can **choose** when to realize gains and losses.

*Q : If you don't actually sell the asset, how do you ( and CRA ) know what the capital gains were during the year?*

*A :* This of course is not a problem for widely traded assets such as common stocks or bonds. For these there is an active market, and you could simply look up what was the price at the close of trading on December 31 : subtract the price at the opening of trading on January 2 ( or the price when you bought the asset, if you bought it during the year ) and you have the (nominal) accrued capital gain for the year.

But it would be an important issue for closely held assets, such as shares in a small business, real estate, works of art, race horses and autographed baseball cards.

However, this is not an unsolvable problem. (If it were unsolvable, then you wouldn't get a tax credit for donating a valuable painting to the Art Gallery of Ontario ; you'd have to wait until the AGO sold the painting.)

Two relatively simple solutions. One : when you actually sell the asset, “pro-rate” the capital gain over the period it was held. That is, if you bought a painting for \$3000 in 1987, and sold it for \$7000 in 1999, it would just be assumed that the painting appreciated at a constant rate. Then you'd have to find out what is that rate : what fraction  $g$  solves the equation  $3000(1+g)^{12} = 7000$ ? (the answer is : about 7.32 percent per year). And then, when you finally sell the asset, you'd owe the same tax as you would have had to pay if you'd paid tax each year on the 7.32 percent appreciation in the valuation of the painting. So you'd pay the tax on realization, but the tax would be the tax on the accrual each year from 1987 to 1999, with interest due.

Another solution : the “claiming race” principle. Each year you would tell CRA how much you thought your painting had gone up in value, and pay tax on those estimated accrued capital

gains. Doesn't that give you an incentive to tell them that the painting has actually fallen in value, and you get to claim a capital loss? That's where the "claiming race" part comes in. In estimating how much the painting has gone up, you are putting a value on the painting. If you deliberately understate the value, then CRA will let someone else buy it for the "lowball" value you've placed on the painting. That is, the rules of self-assessment would be : you tell CRA a value for the asset ; you pay taxes on the increase in your self-assessed value ; anyone who wants can buy the asset for the value you assessed it at ( maybe with a ten percent premium ). The threat of having to sell the asset at a low price would eliminate any incentive to underestimate the capital gains.

*Q What about capital gains due to interest rate fluctuations?*

*A* There is a bit of a problem here. Suppose that someone buys a fixed-interest-rate security to use as an annuity. That is, she buys a ten-year note, with a face value of \$100,000, and a coupon rate of 6 percent, and plans to clip the coupons each year until the bond matures, and then cash it in and re-invest the principal. Now if the interest rate falls below 6 percent, then the market price of the bond will increase. So a capital gain has accrued on this bond, due to the fall in the interest rate. Under Haig's and Simons's principles, the owner of the bond would have to pay tax on this accrued capital gain, even if she was planning to hold the bond to maturity and clip the coupons.

Of course, the value of the bond will start to fall again. This has to happen, because it's going to be worth \$100,000 ( the face value ) the day that it matures. So the owner will also get to claim some capital losses in the future if interest rate decreases "gave" her some putative capital gains at present.

Moreover, the problem could be avoided simply by designating special, non-tradable securities for people who simply wanted a secure, long-term fixed-interest asset, and who were not planning on selling the asset. Such assets ( not too different from Canada Savings Bonds ) would not be traded, owners would have to hold them to maturity, and owners of the assets would not be liable for any accrued capital gains.

*Q : So taxation on realization provides a benefit to people who earn capital gains, compared to taxation on accrual?*

*A* : Right — at least when the capital gains are positive. When you have capital losses, you're better off claiming them as soon as possible. (At least, if you have other income that year from which to subtract those losses.) But taxpayers get to choose when to sell assets. Other things equal, they will sell losing positions early, and postpone selling assets on which they have earned large positive capital gains.

*Q : Are there any efficiency consequences of the timing of taxation of capital gains?*

A : Yes, the **lock-in** effect. When capital gains are taxed on realization, the advantages of deferring taxes tend to lock investors in to a winning position. This interferes with the ability of asset markets to allocate investment efficiently.

Suppose that most people believe that there is a higher return to building a new ipad factory than to building a new furniture factory. If people's beliefs are right, then it would be efficient for the market to induce people to invest in ipad firms rather than furniture firms. In the absence of tax considerations, the market should work this way. If ipod firms will earn me 10 percent per year on my investment, and furniture firms 8 percent, then I will invest my money in ipod firms. The price of ipad firms will rise, and that of furniture firms will fall to maintain equilibrium in the capital market. But the investors' behaviour which causes these price changes will allocate funds to the firms which are expected to be most profitable.

Now suppose that I own shares in a furniture factory. If there were no tax considerations, and if I expected furniture manufacturing to yield less than ipad manufacturing, then I would sell my shares, and buy shares in an ipad firm.

However, what if I had held my shares in the furniture company for several years, and what if the furniture market had been strong previously? Then capital gains would have accrued, as my shares in the furniture company went up in price. I don't have to pay taxes on those shares until I sell them. Selling the furniture company shares to buy shares in an ipad company ( or to set up my own ipad company ) will increase my tax liability this year. I am, to some degree, **locked in** to successful investments I made in the past. It may be better to hold on to an asset appreciating at 8 percent than to move into an asset expected to appreciate at 10 percent and have to pay taxes on my past gains.

The lock-in effect reduces mobility of funds from previously-successful investments to new investments. Its effects may be reduced somewhat by intermediaries. If my furniture company goes out and buys an ipad factory, then my funds have been shifted into the more profitable industry, without triggering any realization of capital gains. But this means that the lock-in effect is encouraging the growth of conglomerates, even in cases where there is no economic rational for mergers (except for dodging taxes).

Notice that the lock-in effect is due entirely to the practice of taxing capital gains on realization, rather than on accrual. If taxes are due in the year in which gains accrue, then it makes no difference for my current liability whether I sell or hold the shares in the furniture company.

*Q : Is taxation on realization, rather than accrual, the only advantage to the Canadian treatment of capital gains, compared to the Haig-Simons standard?*

A : No, there's another big advantage, and it's kind of an obvious one. Instead of paying taxes on 100% of your capital gains (when you realize them), you pay tax on 50% of them. That is, if you sell an asset for \$6000 more than you paid for it, then you have to report \$3000 as part of your taxable income (50 % of the gain), not 100%. This **inclusion rate** has varied in Canada over the

years, as the first footnote of this section explains. It is also less than 100 % in many countries : 40% in the United States, and 0 in some European countries.

As well, capital gains on the sale of a person's house are totally exempt from income taxation. But this preference is discussed in the section on the personal income tax and housing.

*Q : Is there any respect in which the income from capital gains is treated less favourably in Canada than it would be using Haig-Simons principles?*

A: Haig-Simons principles suggest that only **real** capital gains should be taxed. That is, suppose that the value of a person's shares in some company increases during the year by 8%, and that the general price level increases by 3% during the year. The person's real wealth has increased only by 5%, not 3%. Since the Haig-Simons definition is usually understood as the amount a person could spend while keeping constant the **real** value of her wealth, then only (accrued) capital gains in excess of the inflation rate should be taxed.

[That formula is actually a slight approximation. If the value of my shares increase from \$1000 to \$1080 during the year, an increase of 8 percent, and if the price level increases by 3 percent, then my real wealth at the end of the year is

$$\frac{1080}{1.03}$$

since the new end-of-year price index is 3 percent higher than the beginning-of-the-year price level. So the person's real capital gain is

$$\frac{1080}{1.03} - 1000$$

which can be calculated as \$48.54, or 4.85 percent of her initial wealth. The formula used above — subtracting the 3 percent inflation from the 8 percent gain — gives an answer of \$50.00 in capital gains, so it's only an approximation. The approximation is based on the mathematical formula

$$\frac{1 + g}{1 + \pi} = \frac{1 + \pi}{1 + \pi} + \frac{g - \pi}{1 + \pi}$$

where  $g$  is the rate of (nominal) capital gain, and  $\pi$  is the inflation rate. If  $\pi$  is pretty small, then the fraction  $(g - \pi)/(1 + \pi)$  is pretty close to  $g - \pi$ .]

Note that this taxation of the nominal, rather than the real, capital gain, is much more of a problem for the investor in times of high inflation (such as the late 1970's).

Also, this problem will **not** be removed by indexing the tax system for inflation. And it applies to interest income, as well as capital gains. If a person earns interest of 8 percent on a certificate of deposit, and the inflation rate is 3 percent, then her real interest rate is (approximately) 5 percent ; the other 3 percent is, in effect, offset by the decline in the real value of her principal.