How the RRIF became a programmer's worst nightmare

Prior to 1990, the RRIF was a fairly simple financial entity to model from an after tax perspective. There were no "RRIF *minimum* withdrawal factors", there were just "RRIF withdrawal factors"… you *had* to draw a specified amount of money from your RRIF according to an age-related factor. The RRIF was as simple to integrate in a needs-based cash flow program as CPP payments, annuity income, loan payments or insurance premiums.

The problem faced by the programmer writing a 'goal-based' cash flow model, was easy to solve because you *always knew the amount of tax you would be paying in the upcoming yea*r. You knew what tax would be on the RRIF withdrawals since the withdrawals were fixed. Likewise for tax on CPP/OAS income, or say the tax deductibility on loan interest. Also …and this is important….the amount you withdrew from your non-registered capital had *no* effect on tax, since the withdrawals weren't taxed, just the growth.

The result of the fact that tax was pre-determined at the start of each year was that the calculation needed to solve the goal-driven paradigm was easy-   *"I need $30K to live on. How much should I draw from savings (registered and nonregistered) in order to deliver me exactly $30,000 after tax?*   Since my RRIF withdrawal was known (i.e. it was fixed for the upcoming year) and the taxable portion of my non-registered growth, pension/CPP/OAS income, etc were also known; then it was a matter of simple arithmetic to derive the cash flows. Spreadsheet programmers could create such an ATI/goal-driven plan using fairly simple math.

Then, in the late 80s-early 90s, came the nightmare. The feds announced that <u>the RRIF would no longer have a fixed withdrawal factor</u>; you could now draw *any* amount from your RRIF down to a minimum. I imagine it took about a week before the first programmer understood just what this meant for his simple cash flow spreadsheet.

The problem; since the size of the RRIF withdrawal was now flexible; was that you didn't know how much to withdraw from your RRIF from a 'needs-based' perspective. The answer to *"How much should I draw from my RRIF in order to exactly deliver me $30,000 after tax?"* was impossible to determine.   You had to drive the tax calculation in reverse!   This was the nightmare.

Two general approaches were taken to try and solve this problem. The easiest way was to discard the tax calculation and substitute an average tax rate. It was a reasonably simple task to create an 'average tax rate'-based financial planning model.

Several vendors made attempts to incorporate the true effect of tax, and came up with solutions which preserved tax accuracy… *to a point*. What they did was calculate tax in the normal fashion (top down) and report how close the *computed* after tax amount compared to the *required* after tax amount (ATI goal). It was a partial solution and led to a less than satisfactory result. When the client specifies… *"I want $30,000 net after tax"* the program calculates *"OK… your RRIF withdrawal should be 42,000, your tax paid*

will be $12,335, so you have a shortfall of $335". In other words, the solution was approximated. Since there is no exact result, consistency and credibility suffer.

These are called 'shortfall' programs and can easily be identified by the words *'shortfall'*, *'surplus'* or *'deficit'* in their output. These programs can be tweaked/optimized so as to reduce or eliminate the shortfall, however, the speed and/or accuracy are compromised. Shortfall programs are cumbersome and can be slow.

RRIFmetic was developed to address the need for a fast, easy to use, and tax-accurate solution to the 'goal-based' financial planning problem. The core of the program is the 'reverse tax engine' and it directly solves the above-mentioned problem; (that of changing the RRIF Withdrawal Rule to the RRIF *Minimum* Withdrawal Rule). While RRIFmetic is not only easy to use, it is also extremely fast, taking 2 seconds to solve -*exactly*- without resorting to 'shortfall/surplus/deficit' approximations.

This math (the reverse tax technology) is the basis for the name- 'RRIFmetic'. Since the program incorporates all forms of capital; RSP, non-reg, equity, loans, insurance, pensions, etc; the name RRIFmetic seems misleading. It is the nature of the above-mentioned interaction between tax and RRIF withdrawals which is the rationale for the name.

In fact, the program doesn't cover just the retirement phase of a person's life, you can run the program for anyone; working or retired, singles, married couples, high or low net worth…..etc. Also, many programs make a distinct break between working (saving) and retirement (depleting). RRIFmetic makes no such distinction… you can switch several times in your lifetime between the savings and depletion modes. A sabbatical; where you interrupt your savings regimen for a time; or a large capital gain during retirement (inheritance, sale of home or business); where you stop depleting your savings while you top up your capital.

Finally, a second, less scary nightmare occurred in the late 90s; the tax formulation was no longer static over time. The brackets and clawback thresholds (federal and provincial) are now indexed going forward and the provincial portion of income tax is no longer prorated to the federal tax….., each province now has its own separate TONI (tax on income) tax calculation.

So, when examining the behavior of a cash flow illustrator for retirement planning or insurance/estate planning; be aware that accurately incorporating the full impact of registered capital and it's interaction with other forms of capital (non-registered & equity), tax and net income (lifestyle) is no simple matter.

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