Non-deductible IRA's and Intermediate Holding Periods

Dr. Ronald C. Clute, Accounting, Metropolitan State College, Denver

Dr. William Reichenstein, Finance, University of North Texas

Abstract

This note examines the feasibility of using the non-deductible IRA with 10 percent early withdrawal penalty tax as an intermediate-term investment vehicle. In today's market, individuals who do not expect to be in a lower tax bracket when they withdraw funds should consider this use of the non-deductible IRA only if they place common stock in their IRA. Individuals who expect to be in a lower tax bracket often can effectively use this strategy whether they invest in bonds or stock. The attractiveness of this strategy is greatly enhanced if we return to a higher inflationary (and returns) environment and/or if marginal tax rates are increased.

Several studies (1, 2, 4, 5 and 6) have shown that the tax advantages of holding investments in a deductible IRA usually are sufficient to offset within 10 years the 10 percent penalty tax for withdrawal of funds from an IRA before retirement years[1]; an individual could place an investment in a deductible IRA for less than 10 years and, despite the penalty, be better off than if he held the same investment outside of a pension tax structure. Smith, to use one example, calculates the break-even period at less than 5 years for investors in the 30 percent or higher marginal tax bracket when the return on investment is at least 12 percent. These findings indicate that the deductible IRA is useful for intermediate-term investments even when withdrawals are subject to the 10 percent penalty.

This note extends these studies by examining the feasibility of using the non-deductible IRA as an intermediate-term investment. For individuals who do not expect to be in a lower tax bracket when funds are withdrawn, the tax advantages of the non-deductible IRA usually will offset the 10 percent penalty within 11 years when the return on investments is at least 12 percent. In today's investment horizon, it would appear that such individuals should consider this use of the non-deductible IRA only if they place common stock in their IRA.

If the individual expects to be in a lower tax bracket when funds are withdrawn, the tax advantages of the non-deductible IRA often will offset the penalty within 8 years. In today's market, such individuals can effectively use this non-deductible IRA strategy whether they invest in bonds or stock.

Tax Models

The tax models assume an initial investment of $1 of after-tax funds, an annual expected before-tax investment return of r percent, an expected marginal tax rate of t in all years prior to withdrawal and tw in the year of withdrawal, a p percent early withdrawal penalty on IRA withdrawals, and deposit and withdrawal of funds on January 1. The after-tax value of a non-deductible IRA after n years is:

$$IRA = (e^{rn} - 1)(1 - tw - p) + (1 - p) \qquad (1)$$

where e is the exponential function and e^{rn} is the value of a $1 investment that accumulates at the before-tax rate of r percent for n years[2]. The value $(e^{rn} - 1)$ is the n-year return on investment and $(1 - tw - p)$ represents 1 minus the total marginal tax rate in the year of withdrawal including the 10 percent penalty. Thus the product of the amounts in the first 2 sets of brackets is the first 2 sets of brackets is the after-tax value of the return on investment. The amount $(1 - p)$ is the after-penalty tax value of the original $1 investment; the original investment is made with after-tax funds and, therefore, it is not subject to taxation at tw.

The after-tax value of a non-IRA investment after n years is:

$$\text{non-IRA} = e^{r(1 - t)n}. \qquad (2)$$

The investment in the non-IRA (i.e., non-pension tax structure) accumulates at the after-tax rate $r(1 - t)$ for n years. A key distinction between the models is that the investment value grows at the before-tax rate if held in the non-deductible IRA and at the lower after-tax rate if the asset is held outside of a pension tax structure. Allowing returns in a pension to grow at the before-tax rate represents a substantial long-term tax benefit, and this benefit eventually offsets the penalty tax on early withdrawal.

The value of the non-deductible IRA subject to the p percent penalty exceeds the non-IRA value whenever:

$$e^{rn}(1 - tw - p) + tw > e^{r(1 - t)n}. \qquad (3)$$

Table 1 shows minimum investment horizons before the tax advantages of the non-deductible IRA can be expected to offset a 10 percent penalty for combinations of t, tw, and r. The break-even investment horizon n^* decreases as the investment return r and both tax rates (t and tw) increase. The horizon is shorter when the individual expects to withdraw funds in a low tax rate year, tw < t.

Let us consider first individuals who do not expect to withdraw funds in a lower tax rate year. The first two rows illustrate the situation for individuals in the 28 and 33 percent tax brackets -currently the vast majority of individuals interested in non-deductible IRA's. If the return on investment is 12 percent, those individuals can expect the tax advantages of the non-deductible IRA to offset the 10 percent penalty within 11 years. If the return is at least 15 percent, the penalty is offset within 9 years.

At the time of this writing, Treasury bonds were offering about 9 percent. The expected return on stocks may average 15 percent, based on the historic equity risk premium of about 6 percent.[3] This suggests that individuals who do not expect to be in a lower tax bracket when funds are withdrawn should consider the non-deductible IRA as an intermediate-term investment vehicle only if they plan to place common stock in their IRA. Investment-grade or better bonds would be a viable IRA investment if we return to the interest rate environment of the late 1970s and early 1980s.

Next consider the individual who expects to be in a lower tax bracket when funds are withdrawn, tw<t. The last three columns of Table 1 indicate that these individuals often will find that the non-deductible IRA can serve as an effective intermediate-term investment vehicle. For individuals with t = 0.28 and tw = 0.15, the break-even year for a 9 percent bond is only 7.6 years. The break-even year for an average-risk stock with 15 percent expected return is 4.6 years.

Table 2 shows the relative return on the non-deductible IRA, defined as IRA/non-IRA, for a 12 year investment horizon. Values above 1.0 indicate that the non-deductible IRA with penalty is preferable to the non-IRA. In general, the relative return exceeds 1.0 when the investment return is at least 12 percent or if the

investor will be in a lower tax bracket when the funds are withdrawn.

The advantage of the non-deductible IRA can be substantial. For example, consider an individual who is currently in the 28 percent marginal tax bracket but expects to be in the 15 percent bracket when funds will be withdrawn. Perhaps the individual (or family) expects income to be periodically affected by a labor strike or a temporary withdrawal from the labor force. For this individual, the after-tax value of stocks is expected to be worth 28 percent more if they are held in a non-deductible IRA than if they are held outside a pension. The tax benefit of allowing the funds to accumulate at the before-tax rate for 12 years more than offsets the 10 percent early withdrawal penalty.

Summary

Earlier work has shown that the deductible IRA with 10 percent penalty can be used as an effective intermediate-term investment vehicle. The tax advantages of the deductible IRA usually offset the penalty within 10 years when the investment return is 10 percent or less, and within 5 years when the return is at least 12 percent. This paper extends the analysis to include the non-deductible IRA.

Obviously, the non-deductible IRA tax advantages will not offset the 10 percent penalty as quickly as the deductible IRA. For individuals who do not expect to withdraw funds in a low tax rate year, the break-even period will usually be less than 11 years when the return on underlying asset is at least 12 percent. At the present time, the tax advantages of placing stocks in a non-deductible IRA will probably offset the penalty tax within 9 years.

For individuals who do expect to withdraw funds in a lower tax rate year, the break-even period is usually 8 years or less, and it may be closer to 5 years. Depending on the size of the tax rate differential, the break-even period for bonds with r = 0.09 may be as short as 6 years.

For stock at r = 0.15, the break-even period may be as short as 3.6 years.

The attractiveness of using the non-deductible IRA as an effective intermediate-term investment vehicle is greatly enhanced if we return to the high inflationary environment of the late 1970s and early 1980s, when expected returns were substantially higher than those of today. If the much anticipated increase in marginal tax rates occurs, this will also enhance the viability of this use of non-deductible IRA's.

Footnotes

1. The 10 percent penalty tax rate is generally applied to withdrawals from an IRA before retirement. Exceptions occur for withdrawals to meet medical hardships or for withdrawals after death.
2. For those unfamiliar with exponential notation, the key features and implications of the models can be grasped by substituting $(1 + r)^n$ for e^{rn} and $[1 + r(1 - t)]^n$ for $e^{r(1-t)n}$ in equations (1) and (2).

References

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Table 1

Break-even Holding Period

		r, Average Annual Returns					
t	tw	0.06	0.09	0.12	0.15	0.18	0.21
0.33	0.33	20.5	13.7	10.2	8.2	6.8	5.9
0.28	0.28	21.5	14.3	10.7	8.6	7.2	6.1
0.15	0.15	27.9	18.6	13.9	11.1	9.3	8.0
0.33	0.28	16.2	10.8	8.1	6.5	5.4	4.6
0.33	0.15	8.9	6.0	4.5	3.6	3.0	2.6
0.28	0.15	11.4	7.6	5.7	4.6	3.8	3.3

Break-even is the minimum investment horizon before the tax advantages of the non-deductible IRA offsets the 10 percent early withdrawal penalty tax rate. The t and tw represent the marginal tax rates (before penalty tax) in the years of initial investment and withdrawal of funds from the non-deductible IRA.

Table 2

Ratio of Non-deductible IRA to Non-IRA Values After 12 Years

		r, Average Annual Returns					
t	tw	0.06	0.09	0.12	0.15	0.18	0.21
0.33	0.33	0.93	0.97	1.04	1.10	1.24	1.37
0.28	0.28	0.93	0.97	1.03	1.10	1.19	1.30
0.15	0.15	0.92	0.94	0.97	1.01	1.06	1.11
0.33	0.28	0.96	1.02	1.10	1.21	1.33	1.48
0.33	0.15	1.04	1.14	1.26	1.40	1.57	1.75
0.28	0.15	1.01	1.08	1.18	1.28	1.40	1.54

The ratio value is defined by the ratio of equation (1) to equation (2). It shows the ratio of the after-tax (including penalty tax) of an investment in a non-deductible IRA to the after-tax value of the investment held outside a pension. The t and tw represent the marginal tax rates (before penalty tax) in the years of initial investment and withdrawal of funds from the non-deductible IRA.