

A RETIREMENT INCOME STRATEGY FOR MODERATELY AFFLUENT RETIREES

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I. Introduction

Reverse mortgages are an increasingly popular financial tool. They are now accepted not only among retirees whose only asset is their home (the “house-rich cash-poor”), but also among retirees who have other assets. We focus here on those retirees who can be characterized as “moderately affluent,” whose net worth consists primarily of a home owned free and clear (or subject to very little mortgage) and a securities portfolio. The securities portfolio is typically in the form of a 401(k) account or an IRA rolled over from a 401(k) account.

These retirees are called “moderately affluent” because their assets are neither so substantial that their consumption rate has little likelihood of consuming all of the assets, nor are they so insubstantial that there is little that these planning techniques can do to prevent asset exhaustion. We believe that this description covers a large number of current and future “Baby Boomer” generation retirees.

This raises a particularly interesting question relating to retirement income: Which assets should be drawn upon first? Should the home equity be drawn upon first, allowing the securities portfolio to grow? Or, should the securities be liquidated, and exhausted, first, saving the home equity for a last resort, to be drawn upon only if the securities portfolio is exhausted? Or, is there a better way?

We propose a better way. The better way is a strategy described in greater detail below, but in this introduction we point out that it involves a “coordination” of the draws from the retiree’s securities portfolio and the draws from a reverse mortgage credit line. Market conditions determine which source is used, and when.

Before we go into further detail on our strategy, let’s examine two important issues that underlie it. First, we examine the conventional wisdom of drawing from a securities portfolio in retirement; and second, we examine the impact of volatility on the this approach.

II. Distributions to Retirees from Securities Portfolios: The Financial Planners' Solution and the Retirees' Lament

A. The Retirees' Two Central Questions. Retirees whose primary source of income is a portfolio of securities must ask the following two questions:

1. How much can I draw each year from the portfolio? and
2. How long will the portfolio last?

These questions are of increasing interest because of increasing longevity. Retirees have an increased probability of living 25 or even 30 years in retirement. For example, a person age 65 has nearly a 30% probability of reaching age 90, and about an 11% probability of reaching age 95. By contrast, a generation ago a 65-year-old had less than a 20% probability of reaching age 90 and about a 7% probability of reaching age 95.

In the case of a couple where both members are age 65, there is a 50% probability that at least one of them will reach age 90 and a 20% probability that at least one of them will reach age 95. By contrast, a generation ago the probabilities were 35% and 15%, respectively.

B. The Financial Planners' Answer: The 5% Solution. Many economists and financial planners have considered the retirees' questions.¹ The conventional wisdom advanced by many financial planners holds that distributions beginning in the first year of retirement with an amount in the range of 4% to 5% of the portfolio's value in that year, and continuing in subsequent years with annual distributions of the same dollar amount, but increased for inflation, have a reasonable probability of enabling the portfolio to last for the 25 to 30 years of a retiree's likely lifetime in retirement.² In cases where the portfolio has poor or negative investment returns in the early years of retirement, the probability of the portfolio's lasting the lifetime of the retiree is lower.³ Even in cases where the portfolio has reasonably good returns in the early years, distribution amounts beginning with 6% or more of the portfolio value are very likely to cause the portfolio to run out of money before the end of the retiree's lifetime.

C. The Retirees' Lament. We have found much anecdotal evidence that people who have recently retired find this limitation on the amount they can "safely" take to be both surprising and disappointing. They are surprised to learn that a portfolio worth, for example, \$1 million can only provide about \$50,000 per year (inflation-adjusted) on a long-term basis. They are surprised because they know that typical stock and bond portfolios yield, even in today's world of lowered expectations, an average of at

¹ See, for example, Sacks, Barry H., "Retirement Income – Will It Last a Lifetime?" *Journal of Retirement Planning*, January-February 2004, pp. 35-40 (CCH Incorporated). See, also, Ameriks, J. *et al.*, "Making Retirement Income Last a Lifetime," *Journal of Financial Planning*, December, 2001, (Financial Planning Association)..

² *Id.*

³ Clements, Jonathan, "Burning Through Money in Retirement: A Tale of Three Withdrawal Strategies," *Wall Street Journal*, April 27, 2005.

least 7% annually. So, they wonder, why can they not take an annual distribution of at least 7%, and never run out of money? The answer, of course, is volatility. Like any long-term investment, portfolios invariably have up years and down years. Distributions taken from the portfolio in “down years” can erode it so that it cannot recover sufficiently in the “up years.” This erosion is particularly damaging if the poor earnings occur in the early years of the person’s retirement.

Furthermore, people who have worked and built up a 401(k) account that reached \$1 million typically had annual earnings during their working years of at least \$100,000. So, they are indeed disappointed at the prospect of having to lower their living standard to that furnished by an annual income with the buying power of \$50,000 (plus Social Security).

III. A Brief Illustration of the Effect of Volatility

The effect of the volatility of portfolio earnings can be dramatic. To illustrate this effect, we examine two scenarios in which the average earnings rates over a long time period (e.g., 20 years) are identical. However, in one scenario, the higher earnings tend to occur in the early years and the lower earnings tend to occur in the later years. In the other scenario, the order of higher and lower earnings rates is reversed – lower earnings take place in the early years, and higher earnings come later.

When the early years of a retiree’s retirement have generally low or negative earnings rates in the retiree’s portfolio, drawing retirement income from the portfolio depletes the portfolio in a way that reduces its ability to recover in the subsequent years, even with generally higher earnings rates. The result is that the portfolio has a greater probability of exhaustion than if the early years have generally higher earnings rates.

Since a retiree is not able to predict whether, in the early years of his or her retirement, the portfolio will have generally lower earnings rates, the retiree should have a strategy to protect against the effects of periods with low or negative earnings rates.

IV. Description of The Coordinated Strategy

A. Purpose of the Coordinated Strategy. The strategy that we propose (the “Coordinated Strategy”) is contrary to the common wisdom. It is designed to offset the depletion of the portfolio that would occur by drawing on it in the “down” periods of its volatility cycles. In other words, the Coordinated Strategy is designed to offset the “consumption of principal” in those down periods. As a result, the Coordinated Strategy allows more of the portfolio to recover in the “up” periods of the volatility cycles. Instead of waiting until the portfolio is exhausted before drawing on the home equity, we propose a coordination of the portfolio with the home equity. We have devised a simple algorithm, outlined below, to implement the coordination.

B. The Algorithm. In summary, the algorithm provides that, at the beginning of each time period (for example, each year or each calendar quarter), the retiree determines the investment performance of the securities portfolio during the previous time period. If the performance was negative, the current period's retirement income is drawn from a home-equity-based line of credit (e.g., a reverse mortgage). If the portfolio's investment performance during the previous time period was positive, the current period's retirement income is drawn from the portfolio, but not to exceed the dollar amount of the investment return. Any shortfall, between the investment return and the current period's draw amount would be taken from the home-equity-based-credit line.⁴

V. Testing the Coordinated Strategy

We have tested the Coordinated Strategy using both historical data and using Monte Carlo simulation, and we are continuing to test it under greater ranges of assumptions and in greater varieties of situations. The results are extremely encouraging.

The tests are performed using Excel spreadsheets, with each row showing a year's (or other time period's) activity, including investment return, credit line draw (if any), and cash flow to the retiree. The tests are based on the conventional and well-accepted approach under which the total cash flow to the retiree is maintained at constant purchasing power over the entire time period for which it is being tested.⁵ In other words, after the initial year's draw, the retiree draws the same dollar amount in each subsequent year, adjusted for inflation, but only for inflation. As discussed in Section IV-B, above, the cash flow comes either from the portfolio or from the home-equity based credit line, or both, according to the Coordinated Strategy algorithm. (This approach is consistent with the spending patterns of the moderately affluent retirees, which are more likely to be affected by inflation than by the vagaries of the securities markets investment earnings.) Thus each test is expressed in terms of an initial distribution amount, which in turn is expressed as a percentage of the initial year's portfolio value. To illustrate, a 5% initial distribution rate from a portfolio with a \$1 million value in the retiree's first year of retirement income is \$50,000. Similarly, a 6% initial distribution rate from that portfolio means that the first year's distribution would be \$60,000. We have tested the strategy using initial distribution rates ranging from 5% to 8%.

The time period from which we used the historical investment return data in our testing was the 30-year period from 1973 through 2002, which includes two of the most serious downturns in the U.S. securities markets. We used this same data set, and more particularly its mean values and standard deviations, in our Monte Carlo simulation

⁴ We are indebted to Professor Peter Edmondson for pointing out that the Coordinated Strategy can be thought of as the financial equivalent of a hybrid automobile. It relies upon the portfolio (the electric motor) when the portfolio is performing well, and draws upon the credit line (the gasoline engine) when the portfolio needs a financial boost.

⁵ Guyton, J., *Journal of Financial Planning*, March 2006; Sacks, B., *Journal of Retirement Planning*, January 2004; Ameriks et al, *Journal of Financial Planning*, 2001.

testing.⁶ Also, following the convention accepted by the reverse mortgage lenders, we assumed a 4% annual increase in the value of the retiree's home.

Below we set out some examples of the results of our testing. We have tested the strategy using asset allocations over a range from 50%-50% (equities and fixed income securities) out to 80%-20%. In the illustrative examples whose results are set out below, we assumed that the portfolio was allocated 60%-40%.⁷

A. Results Using Historical Data.

1. Initial Distribution Rate: 5.5%. (a) Without using the Coordinated Strategy, the portfolio supplied the inflation-adjusted cash flow over the 30-year period, and still ended up with a value equal to about twice its initial value. In concrete terms, a \$1 million portfolio paid out \$55,000 per year in constant purchasing power and ended up with a value of about \$2 million. After 30 years, the home, initially valued at \$1 million, grew (at an assumed 4% annual rate) to \$3.24 million. Thus the retiree's net worth reached about \$5.3 million at the end of the 30-year retirement period.

(b) With the use of the Coordinated Strategy, the portfolio and the credit line together supplied the same inflation-adjusted cash flow over the 30-year period, but the portfolio ended up with a value equal to about 6.5 times its initial value. In concrete terms, the \$1 million portfolio paid out \$55,000 per year in constant purchasing power and ended up with a value of about \$6.5 million. **After 30 years, the accrued debt may have offset more than half of the home's equity, but even if it offset all of it, the retiree's net worth would still be more than \$1 million greater than without the use of the Coordinated Strategy.**

2. Initial Distribution Rate: 6.5%. (a) Without using the Coordinated Strategy, the portfolio supplied the inflation adjusted cash flow over a period of about 22 years and then was completely exhausted. (The "5% Solution" at work!) As a last resort, the home equity was tapped for the remaining 8 years of the 30-year period of the test. In concrete terms, the \$1 million portfolio, and then the home equity, paid out \$65,000 per year in constant purchasing power. The portfolio was exhausted at the end of about 22 years, and then the home equity was drawn upon to make the retirement income payments for the next 8

⁶ A Monte Carlo simulation is a mathematical method for predicting outcomes that depend on, or are influenced by, random factors. In this case, our model used randomly selected (within historical limits) return rates for a portfolio.

⁷ In the asset classes equities and fixed income securities, we have used subclasses, and for each of the subclasses, we have used data supplied by Ibbotson for the return series and for the means and standard deviations of those series.

years. Thus, assuming that the accrued debt offset about one-half the equity of the home, the retiree's net worth at the end of the 30-year period was only the value of the remaining home equity, certainly under \$2 million.

(b) With the use of the Coordinated Strategy, the portfolio and credit line together supplied the same inflation-adjusted cash flow over the 30-year period, but the portfolio, instead of being exhausted, ended up with a value of about 4 times its initial value. In concrete terms, the \$1 million portfolio ended up with a value of about \$4 million. **Whatever value the home equity had, the retiree's net worth at the end of the 30-year period was substantially larger than it was without the use of the Coordinated Strategy.**

B. Results using Monte Carlo Simulation.

In the Monte Carlo simulation, we create scenarios using "random" sequences of portfolio earnings over the time periods under consideration. Each asset subclass has its own earnings rate, and the aggregate for the portfolio is made up from the earnings of all the subclasses. However, the so-called "random" earnings are not completely random, since the frequency of the various earnings rates in the simulations reflects their frequency in the same 30-year period we used for the historical data. Also, the program includes correlation coefficients, to reflect the correlations among the performances of the various subclasses of assets.

Each "trial" runs a sequence of 30 years of investment performance for each asset subclass. Each spreadsheet is actually two parallel spreadsheets, reflecting the same investment performance, and identical in every other way as well, except that in one of them the Coordinated Strategy is used and in the other the "last resort" strategy is used. For each initial distribution rate, we run 5,000 trials. The results are expressed in terms of the frequency, i.e., the probability, of various outcomes.

Below are some examples. In all of these examples, the portfolio was allocated 60%-40% (equities and fixed income securities).

1. Initial Distribution Rate: 5.5%. (a) Without using the Coordinated Strategy, the portfolio (and where necessary, as a last resort, the home equity credit line) supplied the retiree with inflation-adjusted cash flow over the 30-year period. Portfolio exhaustion occurred in about 1,000 of the trials; in other words, about 20% of the trials ended up with the retiree's portfolio being exhausted at some time before the end of the 30-year period, and therefore used, as a last resort, the home-equity-based credit line. The retiree's overall net worth at the end of the 30-year period, consisting of the portfolio's value plus the home equity, spans a wide range of outcomes. In particular, a retiree starting with a \$1

million portfolio and \$1 million of home equity ends up with a mean value net worth at the end of the 30-year period, in the 5,000 trials, of about \$8.7 million, with a standard deviation of about \$6.7 million. Thus, for most of the trials, the value of the retiree's overall net worth at the end of the 30-year period is between about \$2 million and about \$15 million.⁸

(b) With the use of the Coordinated Strategy, the portfolio and the home-equity-based credit line together supplied the retiree with the same inflation-adjusted cash flow over the 30-year period. Portfolio exhaustion occurred in only about 5% of the trials. The retiree's overall net worth at the end of the 30-year period, consisting of the portfolio's value plus the home equity, spans a range slightly wider than in the trials without the Coordinated Strategy. In particular, the mean value of the retiree's overall net worth in the 5,000 trials is about \$9.7 million, with a standard deviation of about \$7.3 million. Thus, for most of the trials, the value of the retiree's overall net worth at the end of the 30-year period is between about \$2.4 million and about \$17 million.

2. Initial Distribution Rate: 6.5%. (a) Without using the Coordinated Strategy, the portfolio (and where necessary, as a last resort, the home equity credit line) supplied the retiree with inflation-adjusted cash flow over the 30-year period. Portfolio exhaustion occurred in about 1,700 of the trials; in other words, about 35% of the trials ended up with the retiree's portfolio being exhausted at some time before the end of the 30-year period. As in the case of the lower initial distribution rate, the retiree's overall net worth at the end of the 30-year period, consisting of the portfolio's value plus the home equity, spans a wide range of outcomes. In particular, starting with a \$1 million portfolio and \$1 million of home equity, the retiree's mean value net worth at the end of the 30-year period, in the 5,000 trials, is about \$6.3 million, with a standard deviation of about \$5.7 million. Thus, for most of the trials, the value of the retiree's overall net worth at the end of the 30-year period is between about \$600,000 and about \$12 million.

(b) With the use of the Coordinated Strategy, the portfolio and the home-equity credit line together supplied the retiree with the same inflation-adjusted cash flow over the 30-year period. Portfolio exhaustion occurred some time before the end of the 30-year period in about 14% of the trials.

⁸ It is important to re-emphasize the obvious result that the range of likely outcomes of the residual net worth, at the end of 30 years, is extremely wide. This, of course, reflects the wide range of possible outcomes of securities portfolios over such a period of time, augmented by the fact that the portfolios are being drawn upon. Furthermore, it is necessary to point out that the component of net worth that comes from the remaining home equity depends upon the accrued debt, which in turn depends upon interest rates that are variable. Since our analysis is still a work in progress, we plan to make refinements in the modeling and simulating of interest rates for the reverse mortgage credit lines. Nonetheless, the securities portfolio is generally the larger component of the mean value of the overall net worth.

Again, the retiree's overall net worth at the end of the 30-year period spans a wide range of outcomes. In particular, starting with a \$1 million portfolio and \$1 million of home equity, the retiree's mean value net worth at the end of the 30-year period is about \$7.5 million, with a standard deviation of about \$6.4 million. Thus, for most of the trials, the value of the retiree's overall net worth is between \$1.1 million and \$13.9 million.

The important conclusions to draw from these examples are the following:

A. The use of the Coordinated Strategy substantially increases the probability of retiree's portfolio's survival over a 30-year retirement period, as compared with the last resort strategy. This is particularly important to provide the retiree with liquidity during his or her retirement years. It also eliminates the risk that, if a reverse mortgage is needed at some later date, the need will not occur at a time when the interest rates are high (thereby reducing the amount of credit available) and eliminating the risk that the home value will have decreased.

B. The use of the Coordinated Strategy generally increases the mean value of the retiree's overall net worth at later times, even though the home equity may be lower than it might be if the Coordinated Strategy is not used.