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ASSET PROTECTION

A Technique for Calculating the Maximum Withdrawal From Accumulated Retirement Assets

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One of the great dilemmas facing financial planners who work with retirees has to do with providing guidance to clients regarding realistic and appropriate withdrawal alternatives from accumulated assets during retirement. Compared to tools for use in determining how much a non-retiree should accumulate in assets prior to retirement, there are relatively few planning tools available to assist planners in calculating the optimal withdrawal from accumulated assets during retirement.

The purpose of this article is to provide financial planners with the tools needed, both conceptually and practically, to answer the following client question: "How much can I withdraw from my accumulated retirement assets over a given period of time?" While there are several approaches that can be used to answer this question, the advantage of the technique highlighted in this article is that it is based on simple time-value-of-money calculations that can be applied to almost any client situation. The formulas presented also are easily replicated using Excel or Lotus spreadsheets, making the withdrawal methods in this article applicable in daily client interactions.

Capital Needs Analysis: The Academic Approach

The academic approach to retirement planning generally places a great deal of emphasis on the proper use of capital needs analysis models. As Leimberg and McFadden point out,[1] the assumptions used with capital needs analysis models can have a significant impact on actions taken today by clients to meet future retirement goals. So it goes without saying that helping clients reach their financial retirement objectives involves the appropriate use of retirement capital needs analysis methods.

A retirement capital needs analysis begins when a planner accumulates relevant data from a client regarding the client's current standard of living, anticipated living standard when retired, assets saved at present to meet future objectives, and savings programs currently utilized. After accumulating these data, a planner should attempt to quantify a client's risk tolerance, time frame, and expectations.[2] A special emphasis in the data collection phase involves discussions related to rates of return that are achievable and desired both before and after retirement. A related discussion with clients regarding cost-of-living increases (i.e., inflation assumptions), both pre- and post-retirement, is a topic that should also be emphasized.[3]

There are two widely used capital needs analysis models. The first model, the annuity approach, is simple and conceptually easy to understand. The underlying assumption of the annuity approach is that a client's assets will be depleted over the course of retirement, and that at the end of retirement few, if any, assets will remain. In addition to assuming a correct rate of return level and an inflation rate, a planner must accurately approximate a client's life span. If the time horizon used is too long, the annuity approach will call for a much larger pool of investable assets at the beginning of retirement and/or a reduced payout during retirement. If the time horizon is underestimated, a client will most certainly exhaust assets, which may lead to a decreased standard of living in retirement.

Due to the shortcomings involved with the annuity approach, most planners use some type of purchasing power preservation analysis model. The key

underlying assumption behind this type of model involves an attempt to preserve assets throughout retirement. In other words, a purchasing power preservation model attempts to account for inflation before, during, and at the end of retirement. As was the case with the annuity approach, the time horizon chosen is of critical importance in this type of model; however, the fear of exhausting all resources is somewhat reduced.

Whichever method is actually used, it is important to remember that the primary purpose of a retirement capital needs analysis is to help quantify the dollar value of a pool of assets needed at a client's date of retirement that will be sufficient to provide enough income throughout retirement to meet objectives. A secondary use of a capital needs analysis involves quantifying the savings needed today in order to meet retirement income objectives in the future.

Shortcomings Associated With Capital Needs Analysis Models

The preceding discussion points to a serious shortcoming in the use of traditional capital needs analysis models, namely, these approaches assume that time remains until retirement. This assumption is critical because, in a large number of cases, capital needs models call for a client to accumulate additional assets. In order to do this, most clients must have a long time period between the date of the analysis and the point of retirement. As a result, capital needs analysis models fall short in providing useful retirement accumulation and withdrawal information for clients who are very near retirement or are already in retirement. For these individuals, the question is not how much should be accumulated for retirement, but how much income can be generated from retirement assets during retirement. At first glance, this is a difficult puzzle to unravel; fortunately, the actual solution to this dilemma is easily solved.

The Capital Withdrawal Process

The amount a client can withdraw annually from a pool of retirement assets can be determined by using the following process:

- Determine the value of the pool of available assets at the beginning of retirement,
- Choose an achievable after-tax rate of return during retirement,
- Choose a realistic average rate of inflation during retirement,
- Calculate the inflation-adjusted rate of return applicable to the client,
- Determine the client's life expectancy, and
- Calculate the withdrawal.

The following discussion develops this process in more detail.

Step One: Determining the value of the pool of assets available for retirement is a relatively straightforward affair. While not all client assets will be used to fund retirement (e.g., home equity), those assets that can be used should be valued at the fair market value as of the date of analysis.

Step Two: Choosing an achievable after-tax rate of return during retirement is more difficult. While the purpose of this article is not directed at formulating a solution to this problem, it is sufficient to stress that a planner should always take into account a client's risk tolerance, expectations, time horizon, and preferences (e.g., asset class limitations) when estimating a realistic rate of return. A client's expected standard of living during retirement may also play an important role in determining an appropriate rate-of-return projection. Regardless though, it is important that a realistic rate of return be used. The appropriateness of the return can be judged using the prudent investor rules typically followed when investing and managing trusts. The prudent investor rules suggest that a rate-of-return projection is realistic if a planner can justify how a projected return can be achieved within a portfolio, given restraints, over a period of time.[4]

Step Three: Just as in the case of choosing a realistic rate of return, it is imperative that a planner choose a realistic average rate of inflation during retirement. While this may seem an easy task, the actual selection of an appropriate inflation rate is a process filled with pitfalls. Recent observers of the financial markets may be comfortable using a modest rate for inflation (e.g., 2 to 4 percent), while others, especially those who can remember the high inflation days of the 1970s and early 1980s will be tempted to use a higher rate for inflation (5 to 6 per-

TABLE 1

INFLATION-ADJUSTED RATES OF RETURN

Rates of Return	Inflation Rate																		
	1.00%	1.50%	2.00%	2.50%	3.00%	3.50%	4.00%	4.50%	5.00%	5.50%	6.00%	6.50%	7.00%	7.50%	8.00%	8.50%	9.00%	9.50%	10.00%
5.00%	0.0396	0.0345	0.0294	0.0244	0.0194	0.0145	0.0096	0.0048	0.0000	-0.0047	-0.0094	-0.0141	-0.0187	-0.0233	-0.0278	-0.0323	-0.0367	-0.0411	-0.0455
5.50%	0.0446	0.0394	0.0343	0.0293	0.0243	0.0193	0.0144	0.0096	0.0048	0.0000	-0.0047	-0.0094	-0.0140	-0.0186	-0.0231	-0.0276	-0.0321	-0.0365	-0.0409
6.00%	0.0495	0.0443	0.0392	0.0341	0.0291	0.0242	0.0192	0.0144	0.0095	0.0047	0.0000	-0.0047	-0.0093	-0.0140	-0.0185	-0.0230	-0.0275	-0.0320	-0.0364
6.50%	0.0545	0.0493	0.0441	0.0390	0.0340	0.0290	0.0240	0.0191	0.0143	0.0095	0.0047	0.0000	-0.0047	-0.0093	-0.0139	-0.0184	-0.0229	-0.0274	-0.0318
7.00%	0.0594	0.0542	0.0490	0.0439	0.0388	0.0338	0.0288	0.0239	0.0190	0.0142	0.0094	0.0047	0.0000	-0.0047	-0.0093	-0.0138	-0.0183	-0.0228	-0.0273
7.50%	0.0644	0.0591	0.0539	0.0488	0.0437	0.0386	0.0337	0.0287	0.0238	0.0190	0.0142	0.0094	0.0047	0.0000	-0.0046	-0.0092	-0.0138	-0.0183	-0.0227
8.00%	0.0693	0.0640	0.0588	0.0537	0.0485	0.0435	0.0385	0.0335	0.0286	0.0237	0.0189	0.0141	0.0093	0.0047	0.0000	-0.0046	-0.0092	-0.0137	-0.0182
8.50%	0.0743	0.0690	0.0637	0.0585	0.0534	0.0483	0.0433	0.0383	0.0333	0.0284	0.0236	0.0188	0.0140	0.0093	0.0046	0.0000	-0.0046	-0.0091	-0.0136
9.00%	0.0792	0.0739	0.0686	0.0634	0.0583	0.0531	0.0481	0.0431	0.0381	0.0332	0.0283	0.0235	0.0187	0.0140	0.0093	0.0046	0.0000	-0.0046	-0.0091
9.50%	0.0842	0.0788	0.0735	0.0683	0.0631	0.0580	0.0529	0.0478	0.0429	0.0379	0.0330	0.0282	0.0234	0.0186	0.0139	0.0092	0.0046	0.0000	-0.0045
10.00%	0.0891	0.0837	0.0784	0.0732	0.0680	0.0628	0.0577	0.0526	0.0476	0.0427	0.0377	0.0329	0.0280	0.0233	0.0185	0.0138	0.0092	0.0046	0.0000
10.50%	0.0941	0.0887	0.0833	0.0780	0.0728	0.0676	0.0625	0.0574	0.0524	0.0474	0.0425	0.0376	0.0327	0.0279	0.0231	0.0184	0.0138	0.0091	0.0045
11.00%	0.0990	0.0936	0.0882	0.0829	0.0777	0.0725	0.0673	0.0622	0.0571	0.0521	0.0472	0.0423	0.0374	0.0326	0.0278	0.0230	0.0183	0.0137	0.0091
11.50%	0.1040	0.0985	0.0931	0.0878	0.0825	0.0773	0.0721	0.0670	0.0619	0.0569	0.0519	0.0469	0.0421	0.0372	0.0324	0.0276	0.0229	0.0183	0.0136
12.00%	0.1089	0.1034	0.0980	0.0927	0.0874	0.0821	0.0769	0.0718	0.0667	0.0616	0.0566	0.0516	0.0467	0.0419	0.0370	0.0323	0.0275	0.0228	0.0182
12.50%	0.1139	0.1084	0.1029	0.0976	0.0922	0.0870	0.0817	0.0766	0.0714	0.0664	0.0613	0.0563	0.0514	0.0465	0.0417	0.0369	0.0321	0.0274	0.0227
13.00%	0.1188	0.1133	0.1078	0.1024	0.0971	0.0918	0.0865	0.0813	0.0762	0.0711	0.0660	0.0610	0.0561	0.0512	0.0463	0.0415	0.0367	0.0320	0.0273
13.50%	0.1238	0.1182	0.1127	0.1073	0.1019	0.0966	0.0913	0.0861	0.0810	0.0758	0.0708	0.0657	0.0607	0.0558	0.0509	0.0461	0.0413	0.0365	0.0318
14.00%	0.1287	0.1232	0.1176	0.1122	0.1068	0.1014	0.0962	0.0909	0.0857	0.0806	0.0755	0.0704	0.0654	0.0605	0.0556	0.0507	0.0459	0.0411	0.0364
14.50%	0.1337	0.1281	0.1225	0.1171	0.1117	0.1063	0.1010	0.0957	0.0905	0.0853	0.0802	0.0751	0.0701	0.0651	0.0602	0.0553	0.0505	0.0457	0.0409
15.00%	0.1386	0.1330	0.1275	0.1220	0.1165	0.1111	0.1058	0.1005	0.0952	0.0900	0.0849	0.0798	0.0748	0.0698	0.0648	0.0599	0.0550	0.0502	0.0455
15.50%	0.1436	0.1379	0.1324	0.1268	0.1214	0.1159	0.1106	0.1053	0.1000	0.0948	0.0896	0.0845	0.0794	0.0744	0.0694	0.0645	0.0596	0.0548	0.0500
16.00%	0.1485	0.1429	0.1373	0.1317	0.1262	0.1208	0.1154	0.1100	0.1048	0.0995	0.0943	0.0892	0.0841	0.0791	0.0741	0.0691	0.0642	0.0594	0.0545
16.50%	0.1535	0.1478	0.1422	0.1366	0.1311	0.1256	0.1202	0.1148	0.1095	0.1043	0.0991	0.0939	0.0888	0.0837	0.0787	0.0737	0.0688	0.0639	0.0591
17.00%	0.1584	0.1527	0.1471	0.1415	0.1359	0.1304	0.1250	0.1196	0.1143	0.1090	0.1038	0.0986	0.0935	0.0884	0.0833	0.0783	0.0734	0.0685	0.0636
17.50%	0.1634	0.1576	0.1520	0.1463	0.1408	0.1353	0.1298	0.1244	0.1190	0.1137	0.1085	0.1033	0.0981	0.0930	0.0880	0.0829	0.0780	0.0731	0.0682
18.00%	0.1683	0.1626	0.1569	0.1512	0.1456	0.1401	0.1346	0.1292	0.1238	0.1185	0.1132	0.1080	0.1028	0.0977	0.0926	0.0876	0.0826	0.0776	0.0727
18.50%	0.1733	0.1675	0.1618	0.1561	0.1505	0.1449	0.1394	0.1340	0.1286	0.1232	0.1179	0.1127	0.1075	0.1023	0.0972	0.0922	0.0872	0.0822	0.0773
19.00%	0.1782	0.1724	0.1667	0.1610	0.1553	0.1498	0.1442	0.1388	0.1333	0.1280	0.1226	0.1174	0.1121	0.1070	0.1019	0.0968	0.0917	0.0868	0.0818
19.50%	0.1832	0.1773	0.1716	0.1659	0.1602	0.1546	0.1490	0.1435	0.1381	0.1327	0.1274	0.1221	0.1168	0.1116	0.1065	0.1014	0.0963	0.0913	0.0864
20.00%	0.1881	0.1823	0.1765	0.1707	0.1650	0.1594	0.1538	0.1483	0.1429	0.1374	0.1321	0.1268	0.1215	0.1163	0.1111	0.1060	0.1009	0.0959	0.0909

cent). Although it is not always the case, it does not hurt to be conservative in this choice; in other words, one might take the average rate of inflation over the past three years and add two or three percent to this figure.

Step Four: Calculating the inflation-adjusted rate of return applicable to a particular client at first seems like the most difficult task in the process; however, in actuality, this is a simple procedure. An inflation-adjusted interest rate is one that takes into account both a client's expected (or actual) after-tax rate of return and the expected (or actual) inflation rate. The formula for an inflation-adjusted interest rate (i.e., a serial rate) is:

$$([1 + \text{rate of return}]/[1 + \text{inflation rate}]) - 1$$

If the inflation-adjusted rate of return is going to be used in a financial calculator, such as the Texas Instruments BA II Plus, the result should be multiplied by 100. Table 1 provides inflation-adjusted rates of return for combinations of after-tax investment returns starting at 5 percent (row one) and inflation rates starting at 1 percent (column one).

Step Five: Determining a client's life expectancy can be accomplished by using an IRS-calculated unisex life expectancy table, or if the client is married, an IRS joint-and-survivor life expectancy table. It is important to note that these tables should be used as a starting point in the analysis. Other important information, including a person's ancestral life expectancy patterns, current health, occupation, and hobbies, can be used to increase or decrease a client's life expectancy. For planners who want to estimate on the conservative side, using an IRS unisex life expectancy and adding at least five years may be worth considering.

Step Six: The final step in the process involves calculating the total maximum annual dollar withdrawal amount for a client. There are two basic methods that can be used at this step. The first method assumes a depletion of all assets at the end of the client's life expectancy (i.e., end of retirement), which is referred to as an annuity capital withdrawal method. The second method adjusts withdrawals to account for inflation, with

TABLE 2

ASSET DEPLETING WITHDRAWALS AT THE BEGINNING OF THE YEAR

(Assuming $1,000 in Principal Invested)

			Years Capital Needed						
Rate of Return	Inflation Rate	Inflation Adjusted Return	5	10	15	20	25	30	35
6.00%	3.00%	2.91%	$211.65	$113.41	$80.88	$64.79	$55.26	$49.02	$44.65
6.00%	4.00%	1.92%	$207.69	$108.79	$75.92	$59.56	$49.80	$43.35	$38.78
6.00%	5.00%	0.95%	$203.81	$104.32	$71.18	$54.63	$44.71	$38.12	$33.41
6.00%	6.00%	0.00%	$200.00	$100.00	$66.67	$50.00	$40.00	$33.33	$28.57
8.00%	3.00%	4.85%	$219.40	$122.64	$90.98	$75.59	$66.68	$61.01	$57.18
8.00%	4.00%	3.85%	$215.37	$117.82	$85.68	$69.89	$60.64	$54.65	$50.52
8.00%	5.00%	2.86%	$211.42	$113.14	$80.60	$64.49	$54.95	$48.69	$44.31
8.00%	6.00%	1.89%	$207.55	$108.62	$75.74	$59.37	$49.61	$43.14	$38.57
10.00%	3.00%	6.80%	$227.13	$132.06	$101.49	$86.99	$78.88	$75.92	$70.72
10.00%	4.00%	5.77%	$223.04	$127.06	$95.88	$80.89	$72.35	$67.00	$63.46
10.00%	5.00%	4.76%	$219.03	$122.19	$90.49	$75.06	$66.12	$60.42	$56.56
10.00%	6.00%	3.77%	$215.08	$117.47	$85.30	$69.49	$60.22	$54.21	$50.05
12.00%	3.00%	8.74%	$234.83	$141.65	$112.33	$98.87	$91.64	$87.44	$84.88
12.00%	4.00%	7.69%	$230.68	$136.47	$106.45	$92.42	$84.71	$80.10	$77.20
12.00%	5.00%	6.67%	$226.61	$131.43	$100.78	$86.21	$78.05	$73.04	$69.79
12.00%	6.00%	5.66%	$222.61	$126.53	$95.30	$80.25	$71.66	$66.28	$62.70
14.00%	3.00%	10.68%	$242.50	$151.36	$123.43	$111.09	$104.78	$101.32	$99.34
14.00%	4.00%	9.62%	$238.30	$146.03	$117.32	$104.36	$97.55	$93.68	$91.40
14.00%	5.00%	8.57%	$234.17	$140.82	$111.39	$97.84	$90.53	$86.26	$83.65
14.00%	6.00%	7.55%	$230.11	$135.75	$105.65	$91.54	$83.76	$79.09	$76.14

the assumption that the purchasing power of a client's assets at retirement will be preserved through the client's life. This withdrawal approach is referred to as the purchasing power preservation method.

An Annuity Capital Withdrawal Example

Table 2 shows asset depleting withdrawal amounts using the annuity capital withdrawal method, given assumed rate of return and inflation projections over five year periods. Figures in this table are based on the assumption that a client has $1,000 in retirement assets on the first day of retirement.

The following example describes how these calculations were made. First, find the 20-year column in Table 2. Move down the table and find the row that corresponds to a 5 percent rate of inflation, and a 10 percent after-tax rate of return. The calculated first-year withdrawal is the product of determining an annuity due payment using the following procedure.[5]

Calculator Method

PV = $1,000

I/Y = 4.76 (see Table 1)

N = 20

PMT = Compute = $75.06

Time Value of Money Formula Method

$$PMT_{ad} = \frac{PV_{ad}}{\left[\frac{1-(1+i)^{-n}}{i}\right]} * \frac{1}{(1+i)}$$

$$PMT_{ad} = \frac{\$1,000}{12.719} * \frac{1}{1.0476}$$

$$PMT_{ad} = \$75.06$$

At an inflation rate of 5 percent and a rate of return of 10 percent, a client can withdraw $75.06 (assumes $1,000 of invested principal) at the beginning of year one *if the withdrawals are needed for*

20 years. At the beginning of year two the client can withdraw $78.81 ($75.06 x 1.05). At the beginning of year three the client can withdraw $82.75 ($78.81 x 1.05). In this way the client's income during the 20-year period maintains pace with inflation; however, at the beginning of the twentieth year the client's assets will be depleted.

A Purchasing Power Preservation Model Example

For many clients the thought of depleting one's assets in a given period of time is less than comforting. The prospect of leaving an inheritance or a gift to charity is often a high priority for clients as they contemplate retirement and eventually death. And as such, the withdrawal method presented above needs to be adjusted to account for the preservation of assets at the end of retirement.

The purchasing power preservation model, presented below, takes into account a client's wish to maintain the purchasing power of assets at the end of retirement by keeping pace with inflation. This method requires additional calculations to arrive at the correct withdrawal amount. Planners must first determine the future value of the existing pool of assets using the client's life expectancy and assumed inflation rate (step one). Second, planners need to determine the present value of the amount calculated in step one using the client's rate of return projection (step two). Third, this amount is subtracted from the client's pool of assets to determine the client's useable resource base (step three), and finally, the annual maximum withdrawal is calculated using the appropriate inflation-adjusted rate of return (step four).

The following example illustrates how this method of calculating withdrawals works. Assume again that a client has a pool of retirement assets equal to $1,000 with a 20-year withdrawal projection. Also assume an after-tax rate of return during retirement of 10 percent and an inflation rate of 5 percent. As such, the inflation-adjusted rate of return is calculated to be 0.0476 (see Table 1).

The first step in the process involves solving for the future value of $1,000 in twenty years assuming an inflation rate of 5 percent. This works out to $2,653.30. In other words, a client needs $2,653.30 at the end of 20 years in order to maintain the purchasing power of $1,000 today.

Step two involves finding the present value of this amount, discounting back over 20 years, using the client's after-tax rate of return as the discount factor (i.e., 10 percent). The result is $394.40. This is the amount a client must put aside today, earning 10 percent for the next 20 years, in order to guarantee that the pool of assets today ($1,000) will be available, accounting for inflation, at the end of retirement.

Step three requires the calculation of the client's useable resources during retirement. Subtracting $394.40 from $1,000 leaves the client with $605.60 useable for the generation of income during retirement.[6]

Step four, calculating the maximum annual withdrawal, requires solving for a payment as follows:

Calculator Method

PV = $605.60

I/Y = .0476

N = 20

PMT = $45.45

Time Value of Money Formula Method

$$PMT_{ad} = \frac{PV_{ad}}{\left[\frac{1-(1+i)^{-n}}{i}\right]} * \frac{1}{(1+i)}$$

$$PMT_{ad} = \frac{\$605.50}{12.719-} * \frac{1}{1.0476}$$

$$PMT_{ad} = \$45.45$$

In this case, the client can withdraw $45.45 at the beginning of the first year. At the beginning of the second year the client can withdraw $47.72, and at the beginning of year three the client can withdraw $50.11. This inflation adjustment continues until this sub-account is depleted at the beginning of the twentieth year.

Table 3 simplifies this withdrawal calculation process by showing possible outcomes using the purchasing power preservation method. The first row shows hypothetical inflation rates, while the first column indicates potential rates of return. Since

the present value of the capital being preserved is subtracted from the existing funds available at the beginning of the retirement period, the first-year withdrawal should be the same regardless of whether the retirement period is one, five, or twenty years. In other words, a planner or counselor simply needs to know how many years a client wishes to take withdrawals. At an assumed rate of return of 10 percent and an inflation rate of 5 percent, a client with a one-year capital withdrawal time horizon can take the same first-year withdrawal as a client with a 20-year time horizon. The only difference between clients, using this method, is that a client with a longer time horizon (e.g., 20 years) will continue to receive an inflation-adjusted payment at the beginning of each period throughout the time period, which effectively increases cash flow earned throughout retirement. Note that it is possible to have a negative withdrawal. This indicates that a client would actually need to contribute cash to the asset base, rather than take withdrawals, in order to maintain the future purchasing power of the principal assets.

Calculating the First-Year Withdrawal

Calculating the first-year withdrawal using the purchasing power preservation method is based on the inflation-adjusted growth of the assets available after subtracting the present value of the amount needed to preserve the capital on an inflation-adjusted basis. Any number of years can be used as the number of periods within a time-value-of-money calculation if Table 3 is utilized. It is important to keep in mind that estimating an appropriate rate of return and inflation projection is critical to the success of any such calculation. The following example provides a further illustration of how Table 3 can be applied to different client scenarios:

Application One Assumptions:

- 6% Rate of Return
- 3% Rate of Inflation
- $1,000 in Principal Invested
- Withdrawals over 10 Years

Step One: Calculate Future Value of $1,000 at 3% Inflation Rate

TABLE 3

INFLATION ADJUSTED WITHDRAWALS AT THE BEGINNING OF THE PERIOD

(Assuming $1,000 in Principal Invested)

		Inflation Rate								
		3.00%	**3.50%**	**4.00%**	**4.50%**	**5.00%**	**5.50%**	**6.00%**	**6.50%**	**7.00%**
	5.00 %	$19.05	$14.29	$9.52	$4.76	$0.00	($4.76)	($9.52)	($14.29)	($19.05)
	5.50%	$23.70	$18.96	$14.22	$9.48	$4.74	$0.00	($4.74)	($9.48)	($14.22)
	6.00%	$28.30	$23.58	$18.87	$14.15	$9.43	$4.72	$0.00	($4.72)	($9.43)
	6.50%	$32.86	$28.17	$23.47	$18.78	$14.08	$9.39	$4.69	$0.00	($4.69)
	7.00%	$37.38	$32.71	$28.04	$23.36	$18.69	$14.02	$9.35	$4.67	$0.00
	7.50%	$41.86	$37.21	$32.56	$27.91	$23.26	$18.60	$13.95	$9.30	$4.65
	8.00%	$46.30	$41.67	$37.04	$32.41	$27.78	$23.15	$18.52	$13.89	$9.26
Rate of Return	**8.50%**	$50.69	$46.08	$41.47	$36.87	$32.26	$27.65	$23.04	$18.43	$13.82
	9.00%	$55.05	$50.46	$45.87	$41.28	$36.70	$32.11	$27.52	$22.94	$18.35
	9.50%	$59.36	$54.79	$50.23	$45.66	$41.10	$36.53	$31.96	$27.40	$22.83
	10.00%	$63.64	$59.09	$54.55	$50.00	$45.45	$40.91	$36.36	$31.82	$27.27
	10.50%	$67.87	$63.35	$58.82	$54.30	$49.77	$45.25	$40.72	$36.20	$31.67
	11.00%	$72.07	$67.57	$63.06	$58.56	$54.05	$49.55	$45.05	$40.54	$36.04
	11.50%	$76.23	$71.75	$67.26	$62.78	$58.30	$53.81	$49.33	$44.84	$40.36
	12.00%	$80.36	$75.89	$71.43	$66.96	$62.50	$58.04	$53.57	$49.11	$44.64
	12.50%	$84.44	$80.00	$75.56	$71.11	$66.67	$62.22	$57.78	$53.33	$48.89
	13.00%	$88.50	$84.07	$79.65	$75.22	$70.80	$66.37	$61.95	$57.52	$53.10
	13.50%	$92.51	$88.11	$83.70	$79.30	$74.89	$70.48	$66.08	$61.67	$57.27
	14.00%	$96.49	$92.11	$87.72	$83.33	$78.95	$74.56	$70.18	$65.79	$61.40

Solution: $1,344

Step Two: Discount Future Value 10 Years at 6% Rate of Return

Solution: $750

Step Three: Subtract Discounted Value from Principal Invested

Solution: $250

Step Four: Calculate Annual Withdrawal Using Inflation-Adjusted Interest Rate Using the $250 in Assets as Withdrawal Source

Solution: See Table 4

Application Two Assumptions:

- 6% Rate of Return
- 3% Rate of Inflation
- $1,000 in Principal Invested
- Withdrawal over 1 Year

Step One: Calculate Future Value of $1,000 at 3% Inflation Rate

Solution: $1,030

Step Two: Discount Future Value One Year at 6% Rate of Return

Solution: $972

Step Three: Subtract Discounted Value from Principal Invested

Solution: $28

Step Four: Calculate Annual Withdrawal Using Inflation-Adjusted Rate of Return Using the $28 in Assets as Withdrawal Source

Solution: $28

Discussion

In the perfect financial planning world, clients would meet with their financial planner very early in the retirement planning cycle. For instance, a young married couple would meet with their planner and conduct a retirement capital needs analysis at least 20 to 30 years prior to retirement. The results of this analysis would indicate both the total amount of assets needed when the couple retires and the amount of annual savings needed to accumulate the required capital assets. Over time the client(s) and planner would work to ensure that sufficient assets are, in fact, available at retirement.

TABLE 4

ANNUAL WITHDRAWALS USING AN INFLATION-ADJUSTED INTEREST RATE

Year	Beginning Value	Annual Withdrawal	Net Value	Year End Value	Year End Value of Capital Preserved
1	$250	$28	$222	$235	$795
2	$235	$29	$206	$218	$843
3	$218	$30	$188	$199	$893
4	$199	$31	$168	$178	$947
5	$178	$32	$146	$155	$1,004
6	$155	$33	$122	$130	$1,064
7	$130	$34	$96	$102	$1,128
8	$102	$35	$67	$71	$1,195
9	$71	$36	$35	$37	$1,267
10	$37	$37	$0	$0	$1,344 (*See Step 1*)

Then, upon retirement, a monthly, quarterly, or yearly withdrawal would occur as originally outlined in the retirement capital needs analysis.

Unfortunately, the scenario above is truly the "perfect world." In actuality, few financial planning clients begin saving towards retirement at a sufficiently early age.[7] Worse still, many financial planning clients fail to realize the need for planning until they begin to advance in age. Fewer still actually contemplate the capital needed to sustain their current standard of living in retirement.[8] Combined, these factors lead to a large number of financial planning clients engaging planners and retirement counselors at an age that may allow insufficient time for the accumulation of an optimal level of retirement assets.

Instead of having the opportunity to work with a client over an extended period of time building retirement assets, it is more than likely that the typical financial planner or retirement counselor will be forced into a situation of working with clients who are very near or already in retirement. In other words, the ability of an advisor to conduct a thorough capital needs analysis that allows for enough time to implement recommendations is limited in most cases.

What realistic outcomes await an advisor and client who conduct a capital needs analysis when the client is near or already in retirement? If the client has already accumulated sufficient assets, many positive outcomes can occur; however, in cases where it is determined that insufficient assets have been accumulated only distressing outcomes and recommendations exist. For example, a planner may be forced to recommend that a client (a) return to the workforce, (b) reduce his or her current standard of living, or (c) do both. The likely outcome for the advisor who gives this advice is equally negative, namely, the probable loss of a client.

It is for these reasons that this article stresses the importance of conducting a capital withdrawal analysis first, rather than a capital needs analysis, for clients who are very near or already in retirement. One may find that although a client's accumulated assets are less than would have been recommended under a traditional retirement capital needs analysis, the potential outcomes and recommendations for a client may seem less harsh, ultimately leading to an opportunity on the part of an advisor to assist the client in meaningful ways. For instance, clients may conclude independently that they need to return to the workforce to supplement income, or they may determine that they need to reduce their current level of consumption. Clients may also determine that in order to meet their maximum withdrawal goals, they may want to invest for higher rates of return. In any case, the advisor's role changes from the bearer of bad news to the provider of alternatives, which is always a preferable situation.

Summary

This article provides financial planners and retirement counselors with the conceptual and practical tools necessary to conduct a capital withdrawal analysis under both annuity and purchasing power preservation assumptions. The techniques presented are based on simple time-value-of-money principles and are easily transferred to spreadsheet applications. Ultimately, the concepts presented in this article can be used by advisors to determine the maximum amount of withdrawals from a client's accumulated retirement capital that can be realistically made over any given period of time. ■

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5. Income is generally assumed to be received at the beginning of a period. Savings contributions and other calculations are presumed to be made at the end of a period.

6. Conceptually it may help to think of the client as having two accounts during retirement. The first account is funded with $605.60 earning 10%. All withdrawals will occur from this one account, and at the end of 20 years the account will be depleted. The second account is funded with $394.40, which was the result of determining the present value of the $1,000 in principal in 20 years. This account will be used to fund inheritances, charitable donations, and additional living expenses if the client outlives his or her IRS life expectancy.

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