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What Number Are You Looking For?



*Any model can be tweaked to
yield a desired result.*

- Robert Caprara,
Environmental Engineer

What Number Are You Looking For?

In the 1980s, Robert Caprara was hired by the Environmental Protection Agency to design a large-scale computer model to assess the value of federal efforts to upgrade sewer-treatment plants. The model, which “analyzed every river, sewer treatment plant and drinking-water intake in the country,” produced an interesting projection: As more people connected to upgraded systems, the benefits of improved water treatment would be offset by the additional pollution load. As Caprara relates in a July 8, 2014, *Wall Street Journal* opinion piece, “The model said we had hit the point of diminishing returns.”

When Caprara presented this information to the EPA official in charge of the program, he was told to “sharpen his pencil” and rerun the data. Caprara “reviewed assumptions, tweaked coefficients and recalibrated data. But...the numbers didn’t change much.” Not satisfied, the official insisted on more pencil sharpening, and more reruns. Caprara recalls:

After three iterations I finally blurted out, “What number are you looking for?” He didn’t miss a beat: He told me he needed to show \$2 billion of benefits to get the program renewed. I finally turned enough knobs to get the answer he wanted, and everyone was happy.

Caprara doesn’t believe the EPA official was asking him to lie, but rather that the official “understood the inherent inaccuracies of these types of models,” and his essay goes on to assert that **the public should take model projections with a grain of salt**. Because assumptions are at the heart of almost every model, “by moving a bunch of these parameters to one side or the other you can usually get very different results, often (*surprise!*) in line with your initial beliefs.”

And this inherent inaccuracy is not exclusive to environmental projections; it happens in all fields of modeling, including those used in personal finance. It is possible to manipulate the variables to support desired conclusions.

The Tweak Factors in Personal Financial Models

Because so many aspects of personal finance involve numbers, the field is ripe for modeling; specific values can be placed in formulas for calculation. And for those with an affinity for this type of analysis, there are endless opportunities to keep adding inputs and revising the calculations in the hope of finding the magic formula for financial success. While the assumptions that make up financial models are long and occasionally complex, the following factors could be considered the “big five” of personal finance assumptions that are prone to tweaks and adjustments.

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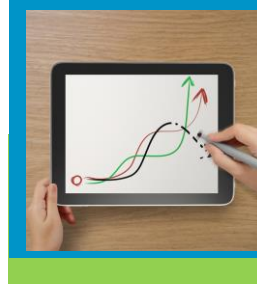
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1. **Investment returns** are perhaps the factor with the biggest impact on projections, because in theory, almost any number can be used and, under some rationale, be considered plausible. The broad range of possibilities also creates skepticism – “Is a 12% annual rate of return realistic?” Even if they are statistically valid, higher rates of return are typically associated with greater risk, and higher risk fundamentally changes the dynamic of the model.
2. **Taxation** on gains accompanies almost every financial instrument, but what kind of tax (income, short- or long-term capital gains) and at what rate? Given the almost certainty of changing tax rates, this variable is a prime candidate for selective tweaking.
3. **Inflation** is another financial constant of modern life, with a long history of fluctuations. High rates of inflation can offset high rates of return on accumulations, greatly diminishing purchasing power. Simply changing the projected rate of inflation can make great numbers seem “poorer.”
4. **Interest rates**, either applied to accumulations or for borrowing, can be tipping-point factors in financial decisions. Changing rates can alter the spread between guaranteed and non-guaranteed investment options, and adjust the costs to acquire assets, such as a home or business.
5. **The number of years** considered by the model makes a difference as well. The amortization schedule for a mortgage means early payments don’t increase equity as much as those at the end. Mortality costs for life insurance increase with age. Estimations of life expectancy and retirement age can make a huge difference in income projections. Quite often, the plan that looks great at 20 years can seem terrible by year thirty.

Some classic examples of the malleability of financial projections are models for pre-tax versus after-tax accumulation comparisons, where the outcome depends almost entirely on the assumptions about rates of return, tax treatment of the investments, and if or when tax rates change during the time of the projection. Similarly, in attempts to “prove” the superiority of buying cash value life insurance or using less-expensive term insurance and investing the difference, the “winner” in these comparisons can hinge on any one of the above factors, including the number of years considered. And because so many variables can be considered, retirement analyses are arguably the models most susceptible to tweaking – if, for some reason, the initial projection is problematic, you can always adjust one of several assumptions. In other words, “What number are you looking for?”

So...Are Computer Models Worthless?

If models can be tweaked to produce the outcomes we want, some might consider them nothing more than exercises in self-deception, and a waste of time. But that’s an over-simplification that obscures the benefits of computer modeling in personal finance. The numbers generated by the model may be fictional, but they often assist consumers in clarifying their true financial priorities and perspectives. As Caprara explains:



Like a skilled attorney presenting a closing argument, models can distill a mountain of disparate information into a coherent whole.

If you understand the assumptions behind the numbers, computer models for personal finance can be very enlightening.

I realized that my work for the EPA wasn’t that of a scientist, at least in the popular imagination of what a scientist does. It was more like that of a lawyer. My job, as a modeler, was to build the best case for my client’s position. The opposition will build its best case for the counter argument and ultimately the truth should prevail.

Like a skilled attorney presenting a closing argument, models can distill a mountain of disparate information into a coherent whole. Thus, if you understand the assumptions behind the numbers, computer models for personal finance can be very enlightening.

First, you can assess whether you agree with the financial assumptions. Do the rates of return, taxes and inflation variables reflect your perceptions? To what extent does the model emphasize guarantees or accept risk of loss? Does “success” as defined in the model match the outcomes you are seeking with your personal finances?

Second, you may be able to discern which factors, if changed, have the greatest impact. And since almost every financial professional using computer modeling has the program on his/her laptop, it should be easy to run new scenarios with changed assumptions. For example, how much of a difference is there between a 4% and 6% annual rate of return? Or what if lower marginal tax brackets are used? The chance to adjust the assumptions may help you understand why some financial professionals advocate different approaches.

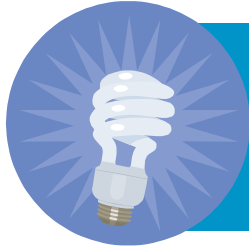
Third, understanding the assumptions can provide relative measures for considering alternatives. If a guaranteed account yields 3%, and a non-guaranteed account projects annual returns of 3.5%, you have a way to quantify whether the opportunity for greater gain is worth the risk. This is especially true of apples-to-oranges evaluations where the alternatives have several different features. The retirement income from a lifetime annuity will be different than a spend-down of accumulated assets, but in what way? The differences may give you a good idea of the proportional value of life expectancy estimates and the age at which the benefits from one option exceed the other.

Fourth, models that use historical data to inform their assumptions can offer insights about which products and strategies have been profitable in the past, and under what circumstances. The past can’t predict the future, but the cyclical nature of many financial events means history can occasionally offer broad indicators of coming events – expansions are followed by contractions, etc.

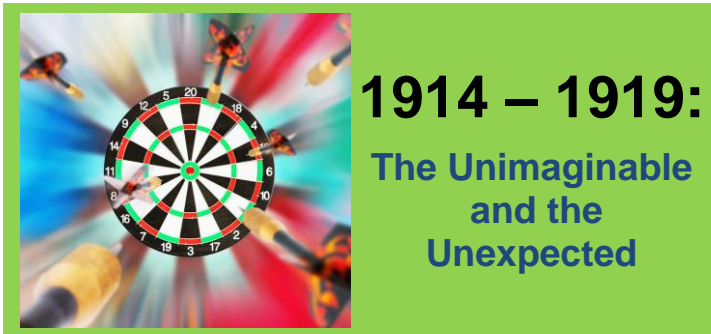
Fifth, utilizing the same modeling program over an extended period of time (several years, or a decade) can allow you to assess your own financial history, and determine if you have made progress.

What Principles Are You Looking For?

When you understand that the value in models is not found in the numbers, but in the principles and assumptions behind them, their projections can be quite helpful. Used in this fashion, consumers can reflect on their own financial priorities, decide whether their perspectives are compatible with the financial professional presenting the model, and determine appropriate strategies. You aren't looking for "magic numbers," but illustrations of how sound financial principles can be applied to your unique circumstances. ❖



BRIGHT IDEA:
Understand the assumptions and take advantage of the modeling services your financial professionals offer.



One hundred years ago, the world was successively convulsed by two global catastrophes. One was man-made, the other a natural event (although greatly influenced by human action). Both were unforeseen, and almost unimaginable.

The Great War

Following the assassination of a relatively obscure national leader in August 1914, a sequence of political promises and alliances led to the beginning of World War I, known at the time as the Great War. This military conflict was a horrific mix of 18th century tactics and 20th century weaponry, and the resulting human carnage was almost beyond comprehension. In some instances a battle for a few square miles of territory inflicted hundreds of thousands of casualties. Some examples:



| | |
|---|------------------|
| 1914- 1 st Battle of the Marne | – 513,000 dead |
| 1915- Gallipoli | – 552,000 dead |
| 1916- Battle of Verdun | – 976,000 dead |
| 1916- Battle of the Somme | – 1,215,000 dead |
| 1917- 3 rd Battle of Ypres | – 585,000 dead |

When hostilities ended in November 1918, an estimated 16 million combatants from 24 countries had died in battle. France and Germany's losses were approximately 4% of their total populations. While other countries' casualties were

proportionally lower, these deaths resulted in huge lost opportunity costs – socially and economically – for every nation; most of the dead were young men who would never have families or add productivity to their respective economies.

The Great Epidemic

The carnage of the first "modern" war had been unimaginable, but the event that followed was worse. As the respective armies returned home from Europe, they unwittingly spread a deadly flu virus, commonly labeled the Spanish Flu. Over the next year, the Great Influenza epidemic would circle the globe, becoming in the words of one historian, "the greatest medical holocaust in history." If the battle statistics from World War I were mind-numbing, the influenza numbers were almost beyond comprehension.



Worldwide, the virus infected 500 million people, across every continent, from remote Pacific islands to the Arctic. Contemporary historians estimate the virus resulted in 50 to 100 million deaths – representing 3% to 5% of the world's population. Historian John Barry determined the Spanish Flu killed more people in a *year* than the Black Death plagues took in a *century*.

According to the National Archives, over 25 percent of the United States was affected by the virus, and during the outbreak, average life expectancy dropped by 12 years. Beyond the numbers, other aspects of the epidemic defied comprehension.

"Most influenza outbreaks disproportionately kill juvenile, elderly, or already weakened patients; in contrast the 1918 pandemic predominantly killed previously healthy young adults. Modern research has concluded that the virus kills through a cytokine storm (overreaction of the body's immune system). The strong immune reactions of young adults ravaged the body, whereas the weaker immune systems of children and middle-aged adults resulted in fewer deaths among those groups."

The Fallacy of Planning for What We Know

"Planning for the unexpected" seems like a clichéd oxymoron of risk management. (*Because if an event is unexpected, how can you plan for it?*) The more accurate statement about risk management for most Americans is that we attempt to plan for things we know can happen, but occur infrequently. But because we can imagine what might happen, we also sometimes act as if we can anticipate or avoid these infrequent occurrences, taking precautionary measures (like buying insurance) only when we feel it is absolutely necessary. Otherwise, "I'll take my chances."

At one level, this measured approach to insurance seems logical: why pay for protection we don't believe we will need, especially if we haven't needed it thus far? But this is a limited view of risk management.

In January 1914, even those with a hyper-awareness of risk (like insurance company actuaries) could not have imagined the world's population would be diminished by 3 to 5 percent, and that a majority of the deaths would be among those in the prime of life. There was no precedent, and no indication of what was to follow. The Great War and Great Influenza were not known dangers to be avoided, and yet, these two events would directly

impact almost one of every four persons alive at that time; they died, were wounded, or got sick.

Maximum Insurance is the Only Risk Management Program That Works

Insurance spreads risks over large groups of people, making individuals far less vulnerable to financial and material loss. For centuries, insurance has been the only practical response to individual or global catastrophes. And in order for insurance to work, to truly provide protection against risks both known and unknown, the coverage has to be comprehensive. It has to cover your assets, your income, your health, your human life value. As financial professional Garrett Gunderson puts it in his book *Killing Sacred Cows*, “A person should transfer as much risk as possible away from themselves.” Why? **“The less risk a person is exposed to, the more wealth they can generate.”** How? Through greater certainty. Gunderson:

“The more certainty we can create in our lives, the more likely we will be to produce and to take on projects that we wouldn’t otherwise consider. Conversely, the less certainty in our life, the more fear – and the more fear, the less productivity.”

This is a key point. Those who aspire to maximize their financial potential should embrace insurance as a critical component in wealth building. As one veteran financial professional puts it, insurance should be “first, full and forever,” because when the truly unexpected occurs, a half-hearted approach to risk management can be woefully inadequate.

In practice, this “maximum insurance” approach may have to be balanced by other financial necessities and affordability; many households cannot maximum insure right away. But over time, maximum insurance should be an ever-present goal.

Parallels? Why Guess? Protect.

It would be easy to dismiss the events of 100 years ago, and say times have changed. Except...

In January 2014, how many “experts” were warning about armed conflict in the Ukraine, or territorial tensions in the China Sea, and new twists in the Middle East? And what about the outbreak of Ebola in Africa?

No one is saying any of these events will equal the destruction of the Great War and the Great Epidemic. The real take-away is that historically, unexpected catastrophes occur, including ones we cannot even imagine. Then, as now, the only effective financial principle is maximum insurance. ❖

Do you have the maximum insurance for your assets, income, health, and Human Life Value?

An Economist Gets Educated...



Robert P. Murphy is an American economist, consultant and author. He has a PhD in Economics from NYU, is a fellow at the Mises Institute at Auburn University, has appeared on cable business channels, and been involved in national debates over government economic policy. When it comes to money and finance, Murphy qualifies as a pretty smart guy. *And yet, until recently, he had no clue about whole life insurance.*

As a matter of fact, Murphy knew so little about whole life insurance that he couldn’t understand one of the central scenes in the classic 1946 film, **“It’s a Wonderful Life.”** When some money comes up missing from his Building and Loan, George Bailey (played by Jimmy Stewart) is forced to ask Mr. Potter, the town’s greedy financial tyrant, for a loan. The characters have the following exchange:

GEORGE: You're the only one in town that can help me.

POTTER: I see. I've suddenly become quite important. What kind of security would I have, George? Have you got any stocks?

GEORGE: (shaking his head) No, sir.

POTTER: Bonds? Real estate? Collateral of any kind?

GEORGE (*pulls out policy*): I have some life insurance, a fifteen thousand dollar policy.

POTTER: Yes . . . how much is your equity in it?

GEORGE: Five hundred dollars.

Explains Murphy in a May 2013 blog post:

“...I knew absolutely nothing about whole life insurance; I thought all life insurance was term insurance...I had always been baffled at the scene in It’s a Wonderful Life when Jimmy Stewart’s character tries to bargain with the greedy old man, using his life insurance policy. That seemed as nonsensical to me as someone trying to raise money by pulling out his fire insurance policy.”

How the Economist Came to Understand Whole Life Insurance

A Nashville financial professional was a fan of Murphy's writing. When the financial professional discovered via a book jacket biography that Murphy lived in the same city, the two arranged to meet and talk shop. In the course of conversation, the financial professional brought up the unique financial benefits in whole life insurance. At first, Murphy was skeptical, then bewildered. But as he relates in the blog, the financial professional "seemed like a pretty sharp, no-nonsense guy, who lived in a wealthy neighborhood, and advised very wealthy clients on financial matters," so the economist kept listening, and processing.

Murphy, who's 38, sees his ignorance as a "profound statement on how much things changed in the financial world over the 20th century. I didn't know what permanent life insurance [whole life] was, even though an economist like Ludwig van Mises – about whose work I had written a Study Guide – casually mentions in several places that the average household saved via life insurance...To people my age and younger, we grew up being taught that 'saving for retirement' was basically the same thing as 'buying into IRS-approved mutual funds.'"

Murphy began studying whole life concepts and illustrations. Using analytic tools from his economics background, he deconstructed the working parts of a whole life policy and the financial logic that accompanies them. His investigation, and subsequent writings, offer interesting explanations of cash surrender values, policy loans and death benefits. Murphy also thoroughly *discredits the rationale* of several nationally-known personal finance experts who recommend buying term insurance and investing the difference. Since then, Murphy has established his own whole life program, and based on his research, written a book about ways to maximize the benefits of a whole life policy.

In a July 15, 2014, article published by the Foundation for Economic Education, Murphy wrote:

"As things currently stand, permanent life insurance offers an outlet for savings that is remarkably robust across several criteria (such as liquidity, safety, privacy, and usefulness in estate planning). By relying on a permanent life insurance policy as a main vehicle for long-term saving, a household is naturally assured of substantial financial assistance in the event of a breadwinner's death, reducing reliance on government "social insurance" programs. Yet this vehicle reaps other benefits, too: The household is much less vulnerable to stock market volatility, and (over time) can wean itself from the use of commercial lenders to finance car purchases or other major expenses. To repeat, this growing trend of using life insurance as a savings vehicle is nothing revolutionary or faddish; a century ago Americans would have considered the practice quite commonplace."

Murphy's "education" regarding whole life insurance is not unusual. It is a financial instrument that has stood the test of time, and has been around long enough to be forgotten as new ideas are introduced to the marketplace. But a closer look, by experts or consumers, reveals whole life insurance has enduring value as a financial "multi-tool" that addresses key issues for families and businesses.

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Whole Life vs. Buy Term and Invest the Difference

Robert Murphy's take on this subject:

"Many financial planners scoff at permanent life insurance as a horrible savings vehicle; instead they would recommend that their clients 'buy term and invest the difference,' meaning that they would provide for their strict life insurance needs with a cheaper term policy (rather than a more expensive permanent policy) and use the extra money to acquire a larger share of mutual funds. This advice typically overlooks the ironic fact that in an accounting sense, someone who takes out permanent life insurance is engaging in 'buy term and invest the difference' with the portfolio managers of the life insurance company running a very conservative mutual fund. If and when the life insurance company exceeds the (very modest) expectations underlying its contractually guaranteed growth targets in the policy, the company will also issue dividends to its policyholders. The glib 'demonstrations' that financial gurus put forth to prove the superiority of 'buy term and invest the difference' typically compare apples to oranges - for example, by looking at historical returns on an equity-based mutual fund that has none of the contractual guarantees that a permanent life insurance policy possesses."

Murphy understands that comparing whole life to other options is not as simple as some make it seem. The unique blend of features in whole life makes it a financial "multi-tool" unlike any other. ❖

Whole life insurance is intended to provide death benefit protection for an individual's entire life. With payment of the required guaranteed premiums, you will receive a guaranteed death benefit and guaranteed cash values inside the policy. Guarantees are also based on the claims paying ability of the issuing insurance company. Dividends are not guaranteed and are declared annually by the issuing insurance company's board of directors. Cash value accumulation is offset by insurance and company expenses.

Are American Women Prepared to Become Personal CFOs?



Future generations may change, but right now one of the distinctions of American society is that most women will be alone, physically and financially, during the last phases of their lives. In personal finance, the last man standing will probably be a woman, which means women should be prepared to assume the role of chief financial officer for their households (if they haven't already).

The principal reason for this demographic reality is that women live longer than men. In the United States, the average

difference is about four years. But, according to the Administration on Aging, (aoa.gov/naic/may2000/factsheet/olderwomen.html) women from the Baby Boom generation tended to marry men older than themselves, which further expanded the difference in life expectancy. Seven out of 10 women born between 1946 and 1964 are expected to outlive their husbands, and Candace Bahr* states that, on average, women will survive their husbands by fifteen years. Other numbers indicate that half of Baby Boomer wives are widows by age 60. And currently, almost 80% of all elderly living alone are women.

The inescapable conclusion of this data is that, at some point, most women, even those with a husband and children, will become solely responsible for their financial well-being. And while they may be up to the task, other information indicates the transition to personal CFO is often bumpy.

A surviving spouse (husband or wife) who has limited previous engagement with the family finances will be challenged by these new financial responsibilities. Both parties should know the family's assets, and the provisions to assume control of them in the event one person dies or is incapacitated. To that end, **both spouses should strive to establish and maintain strong relationships with the family's team of financial professionals.** Failing to do so often means the surviving spouse will not only assume all financial responsibilities, but be compelled to find new professional assistance.

This appears to be particularly true for widows. A 2011 Spectrem Group survey reported that "70% of widows are unhappy enough to fire the couple's advisor after their husband dies." Kathleen Rehl, a former Certified Financial Planner and author of *"Moving Forward on Our Own,"* believes there's a simple reason for the high abandonment rate: "Many of these advisors are very competent, but they never had a relationship—or a strong connection—with the woman in the couple."

Simple Succession Plans

Imagine coping with the loss of a husband, then having to find new professionals to pick up the financial pieces. Yet a few prudent steps taken today can often eliminate this issue.

On the homefront:

- **Establish a common repository** (like a safe, or a digital "vault") **for legal and financial documents. This is especially important for originals, like wills, insurance policies, and marriage licenses.**
- **Provide written instructions for accessing other financial assets** (retirement accounts, securities, etc.) **and include passwords. Make sure each spouse knows the location and contents of this information.**

For your financial team:

- **Make sure both spouses attend planning sessions and annual reviews.**
- **Give honest assessments of your relationship with your insurance agent, broker, attorney or accountant. If one spouse feels uncomfortable with any part of the relationship, you may need to change advisers.**

- **If you're a woman, are you prepared to become the household CFO?**
- **If you're a husband who takes care of the household finances, have you prepared your wife to become the CFO?**

* Candace Bahr is a CPA and CFA who is a Managing Partner with Bahr Investment Group in Carlsbad, CA. She is affiliated with and contributes articles to the Women's Institute for Financial Education (WIFE) at wife.org, including the article "Why Women Need Retirement Planning More Than Men."

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