

COMPOUND INTEREST-THE SECRET TO THE WORLD'S PROBLEMS

The Money Marathon September 2012

The first of my three books, *Making a Million with Only \$2000-Every Young Person Can Do It*, was about the importance of saving early in life and the power of compound interest. The concept, simply put, was that \$2000 earned by a student, deposited in Roth IRA (which grows tax free even at withdrawal), invested in a good quality stock fund, compounding at the historical rate of growth of stocks (12% at the time I wrote the book and slightly lower now) would compound to \$1,000,000 in 54.8 years. This is eye opening for students and is why I wrote the book, hoping that it would encourage students to save and that it would make a big difference in their financial futures. The point of the book is still very important and is actually one of the 25 Truths in my new book (more on this later).

Recently, it has occurred to me that many of the problems that are confronting the country currently are problems involving the concept of compound interest. I should first note that compound interest is an exponential function, a parabola that starts to grow seemingly harmlessly at first and then skyrockets near to infinity. Albert Einstein is reported to have said that "compound interest was the most important mathematical concept he ever learned". Whether he said it or not, it underscores that compound interest is a significant concept. In the case of money, small amounts grow at a rapid compound interest rate can compound to very large numbers given some time, as is the case with my book.

Here are some of our current problems that involve the concept of compound interest.

Social Security, Medicare and the National Debt: The National Debt is about \$16 trillion. Including unfunded obligations of Medicare and Social Security primarily, the total deficit is closer to \$60 trillion, or \$534,000 per household in the United States. If every household puts up this \$534,000 we can start anew with no debt - not very likely.

Our total yearly gross domestic product (GDP) is about \$15 trillion - about equal to our total deficit. We collect about \$2.4 trillion in taxes, or 15.8% of the GDP, and spend \$3.7 trillion, or 24.8% of GDP, for an annual deficit of approximately \$1.3 trillion, clearly unsustainable.

The interesting thing to note is that these problems can be solved by smart use of compounding. Here is what I mean. If the economy could grow at a 3% compound rate instead of the current 1.5%, we could create probably 300,000 new jobs a month rather than the 150,000 currently which just keeps us even with population growth. These new jobs would lower unemployment dramatically which would save on the government outlay side and raise tax revenue dramatically. Another way to look at it is to realize that when the economy grows at 3% per year compounded, the economy would double in size in 24 years, from \$15 trillion to \$30 trillion. At 1.5%, it will take 48 years for the economy to double. If the economy grows at 3%, it will be 4 times the size in 48 years, or \$60 trillion, compared to double the size, or \$30 trillion in 48 years at 1.5%. \$30 trillion more of GDP at a 15% tax rate means \$4.5 trillion more tax

revenue than currently in that 48th year. Remember, tax revenue is currently only \$2.4 trillion. So, growing the economy with smart policies that encourage the growth of business and the economy will go a long way to solve our deficit problems. Additionally, slowing the growth of Medicare and Social Security will also make a huge difference. The small difference of adjusting Social Security to inflation rather than wages (the current practice) lowers the growth of Social Security about 1% per year which makes a huge difference in the unfunded liabilities. If smart policies would lower the growth rate of health care from 6% annually to 3% annually, it would take Medicare obligations 24 years to double as opposed to quadrupling in 24 years at 6%. Again, problem solved. (This again takes some smart policies that create competition and let consumers make choices that have a direct effect on their own pocket book.)

If you want to understand how quickly a given amount of money will double, all you need to understand is the Rule of 72 which states that the interest rate divided into 72 equals the doubling period. Therefore, at 3%, money doubles in 24 years; at 6%, money doubles in 12 years, which also means it quadruples in 24 years.

State and City Pension Problems: As you have probably read, several cities in California declared bankruptcy because they could no longer afford their pension obligations. Some states like California and Illinois have terrible pension issues that they have not addressed. Missouri is actually in reasonably good shape. The problem with defined benefit pensions is that public employee pensions have promised big amounts, funded by small amounts that are based on large projections of the compounding interest rate. To use a simple example, let us say that a very small city (very, very small) has one young employee that it promises a \$50,000 benefit at retirement. For simplicity sake and to tie into the concept of my book, let's assume that this employee will retire in 54 years (admittedly longer than usual) and that he needs a million dollars at retirement to provide a large enough pool of funds to provide the retirement benefit. In order to minimize the ongoing expense of this benefit, the city decides it will fund that retirement with a \$2000 one-time contribution and assume it will grow at 12% per year. If in fact the \$2000 does grow at 12% for 54 years, everything works out fine. But let's look at an extreme worse case. In that case, instead of growing at 12%, the money doesn't grow at all. (Obviously, this is not likely but it helps make a point.) If the money doesn't grow at all, at retirement, the city needs a pool of money of \$1,000,000 and it only has \$2000 so it has to ante another \$998,000 at that time. That is a huge surprise and obligation, but it underscores the risk of creating a defined benefit pension. In practice, pension plans might count on an 8% return, but in today's low rate environment, the return might turn out to be 6% or 5% which creates a huge shortfall to be pickup by taxpayers.

According to Moody's Investment Company, the total unfunded liability of state pension plans is \$766 billion at an 8% assumed rate of growth. However, if they use a 5.5% rate of growth, the unfunded liability of states grows to \$2.2 trillion. Remember, states have to balance their budgets unlike the federal government so this is a huge ticking time bomb. States and cities may need to both phase out pension obligations and create defined contribution plans, like 401ks that don't create unfunded liabilities, or be willing to be more conservative with projected growth rates and therefore be more willing to put more money into these pension funds annually.

Unfortunately, what the federal government and some state and cities do reminds me of a scene from the movie, *Dumb and Dumber*, where the two main characters are trying to return a briefcase to a young lady but before they are able to find her they discover the briefcase has \$1,000,000 in cash inside. They decide that it wouldn't hurt to spend a little of the money and just write an IOU. In a few short days of lavish spending, they spend all the money but as they point out to the lady on returning the brief case, the IOUs are all good. One of the dummies picks up one of the IOUs and says to the lady "don't lose this one it is worth \$200,000 for the Lamborghini I bought." Of course, the IOUs are worthless, but they were willing to deceive themselves by spending the money and writing an IOU - sound familiar?

Population growth: Even world population growth is a compounding issue. The world has approximately 7 billion people today, and developed countries that have basic safety nets and reasonable educational programs (the developed world) actually don't grow much faster than their current population. However, undeveloped countries have many more children primarily to take care of the parents in old age and help with the meager agricultural sustenance required to live. You might think that if we could educate everyone and raise the standard of living for most of the countries in the world, the world population growth would slow. However, exponential growth is such a powerful concept that if even one country grows their population exponentially, world population still grows exponentially.

Hopefully, this shows that it is important to understand the power of compound interest as it relates to personal wealth creation and as it relates to many of the world's issues. If Albert Einstein thinks it is important, then we should too.

Postscript: I mentioned that Compound Interest is one of my truths in my new book, *25 Truths: Life Principles of the Happiest and Most Successful Among Us*. This book has just been republished by Harrison House located in Tulsa and is now available on Amazon and will be available this month at many different bookstores around the country (that is the hope at least). Additionally, I am planning to speak to student groups in high schools and junior highs around northwest Missouri on the topic of character and values – both primary topics of the book. Recently, there has been a great deal of discussion around our country about a "crisis in character", and my hope is to have meaningful discussion with students on this subject.

Remember every investor's situation is unique; and it is important to review your specific situation with a financial professional.

Ed Douglas is a Certified Financial Planner/Consultant, Chairman Emeritus of Citizens Bancshares and author of three books, *Making a Million With Only \$2000-Every Young Person Can Do It*, *The Money Marathon: 7 Simple Steps to Financial Freedom*, and his book, *25 Truths: Life Principles of the Happiest and Most Successful Among Us*, available at www.eddouglas.com and on Amazon. Ed may be contacted for financial planning services or seminars based on his books at ed@eddouglas.com or 660-646-2066 or at his office at 601 Locust.

25 Truths: TRUTH NUMBER 19: Exercise, Exercise, Exercise.

Ed's books are available at eddouglas.com, Hy-Vee, Amazon, or Boji Stone.