Retirement Planning: Part 3: Volatility, Inflation and Withdrawals

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I f you require income from your investment portfolio, there are three different market forces that will affect your investments:

- Megatrends,
- Market cycles (see December 2000 issue), and
- Random fluctuation of the share prices,

Megatrends:

Extended bull or bear markets that are unusual in their severity or longevity are called megatrends. During the last century, we had three bull megatrends with twenty years between each:

- 1920 to 1929
- 1949 to 1962
- 1982 to 2000

We also had two bear megatrends:

- 1929-1933: An 80% drop from the end of 1928 to the end of 1932. The depression was technically over in 1933, but the bear market did not really end until World War II.
- 1966-1981: essentially no growth of the index for about 16 years.

The chart below shows the market capitalization[1] as a percent of the Gross Domestic Product (GDP) since 1924. Whenever market capitalization exceeded 80% of GDP, long and/or severe bear markets followed. The convergence of the needs of baby-boomers and the self-serving interests of the finance-media complex[2] pushed this ratio to 160% in 1998, well above its historic highs.

Market Capitalization-to-GDP Ratios
(1924 - 1998)

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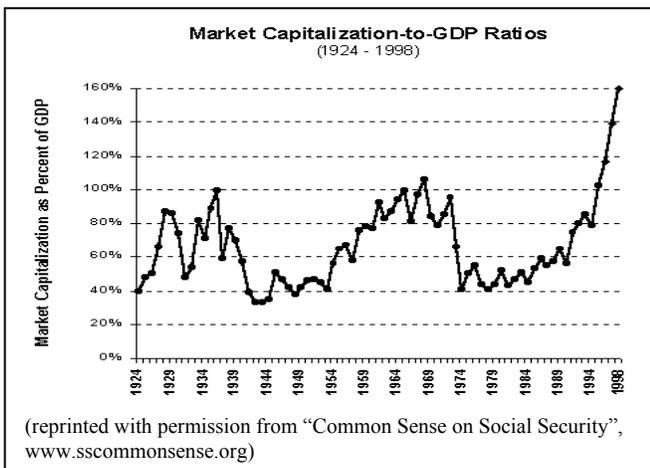
[1] Market capitalization is the number of shares traded in the stock markets times the share price.

[2] As opposed to "military-industrial complex" of the cold-war era.

After the recent market crash, it came down to around 90%, which is still near its historic highs.

Market Cycles:

We looked at the market cycles in Part I of this series. I calculated the variation of the portfolio life (the time it takes for the portfolio to deplete) based on historic average market cycles:

	Life of the Equity Portfolio, years			
Standard Financial Plan	10.0	15.0	20.0	25.0
Retire at the Start of a typical Bull Market	12.5	20.3	30.0	>35.0
Retire at the Start of a typical Bear Market	8.5	12.3	15.8	18.5

What this means is, if your standard financial plan says you'll have enough money to last you for 25 years, and then you retire at the beginning of a typical bear market, your portfolio will last only for 18.5 years. These are based on average numbers. In a bear megatrend, the situation gets significantly worse.

Why does this happen? Let's first look at dollar-cost averaging.

Dollar-Cost-Averaging:

Dollar-cost averaging (DCA) is defined as adding to, or withdrawing from your investments a set dollar amount on a periodic basis. Let's say you hold an investment that goes through a bear market cycle. The share price first goes down and then goes back up.

Example: We initially invest $500, then add to it $60 at each period. Initially, the share price is $10. During the bear market the share price goes down. From there, it gradually recovers back to $10.

Example: Buying on Dollar Cost Averaging:

Share price $	Invested $	Total cost $	Number of shares bought	Share balance	Total market value $
10	500	500	50.0	50.0	500
7	60	560	8.6	58.6	410
8	60	620	7.5	66.1	529
9	60	680	6.7	72.7	655
10	60	740	6.0	78.7	787

Since both the starting and final share price is the same, i.e. $10, all of the profit is attributable only to the mathematics of DCA. How much is the profit? Because we bought more shares when the price was low for the same $60 periodic investment, when the price went back up to $10, we had more shares to participate in the rise. At the end of the cycle, we read from the last line that our total cost is $740 and the total market value is $787. Therefore, the net *profit* due to DCA is 6.4%.

Let's flip this around: Let's say you start with $500 initially and withdraw $60 at each period. We have essentially the same table as above except we replace $60 with minus $60, because now we are withdrawing from our investment.

Example: Withdrawing on Dollar Cost Averaging:

Share price $	Invested $	Total cost $	Number of shares bought	Share balance	Total market value $
10	500	500	50.0	50.0	500
7	-60	440	-8.6	41.8	290
8	-60	380	-7.5	33.9	271
9	-60	320	-6.7	27.3	245
10	-60	260	-6.0	21.3	213

How much is the profit? Because we had to sell more shares when the price was low for the same $60 periodic withdrawal, when the price went back up to $10, we had less shares to participate in the rise. At the end of the cycle, we read from the last line that our total cost is $260, the total market value is $213, and therefore net *loss* due to DCA is a whopping 18.1%.

Granted, this example may be somewhat extreme to prove my point. However, you don't have to be a finance professor to see that you can deplete a good portion of your portfolio, as you will endure three or four bear markets during your retirement.

Can you imagine starting your retirement in 1989 in Japan? The stock markets there lost 65% with occasional rallies since then. If you had retired in the second largest economy in the world with all your money in the Nikkei index and needed to live off that, you would either be forced to reduce your withdrawals significantly, or run out of money in a very short time. There, the bond yields were not (and still are not) far above zero; so a balanced portfolio would not have helped you much either. Can it happen here too?

I will suggest ways of reducing the effects of bear markets on your investments in my future articles. For example, I outlined one of these techniques in my earlier article "Crash Proof your Capital: Growth Rate Averaging", April 1997 issue. We will revisit it and compare it to the last 100 years of stock market history. It does not eliminate the risk, but reduces it greatly during the early years of your retirement.

Random Fluctuations:

In addition to megatrends and market cycles, share prices fluctuate randomly. Using my retirement simulator spreadsheet, first I ran different cases with random fluctuation turned off. Then I ran the same cases a few hundred times with random fluctuation turned on. At best, portfolio life increased by 9.4%. At worst it decreased by 7.5%. So random fluctuations do make a difference on the longevity of your portfolio.

Inflation:

The first hurdle happens if the start of your retirement coincides with the start of a bear market. The second hurdle, the inflation, affects your portfolio in later years of your retirement.

You may have some control over when you retire (with respect to market cycles) or work part time for a few years after your retirement. But several years later, you don't have these choices. This is when inflation hits you; when you are most vulnerable.

If you are withdrawing $60,000 from your portfolio now, you need to withdraw about 120,000 in 20 years at 3.5% annual inflation.

On a year-to-year basis, you may not notice the effect of inflation. However over time, inflation is a real portfolio buster in two ways: Firstly, you withdraw more and more from your investments to meet your increasing living expenses. Secondly, to fight inflation, central banks occasionally increase short-term interest rates. This invariably pushes down the share prices, which in turn reduces the value of your investments at least temporarily. In the final analysis, not only do you end up withdrawing increasingly larger amounts from your investments, but also you do so from a shrunken asset base.

Income Taxes:

I only looked at the effects of different investment strategies related to the last one hundred years of market history. Taxes are outside my scope. However, it is important that you know this: if you started your career at age 25, received 3% annual increase, at 30% average tax rate, and then retired at age 60 with an income of 70% of your final earnings at 20% average tax rate, and you lived till age 90, *then until age 49 all your earnings would go to pay your life-time income taxes*. If you want to estimate your age of emancipation from income-tax-slavery, please send me an e-mail for my complimentary spreadsheet.

I mentioned in my previous article that you should not plan on withdrawing more than 4% of your portfolio except in certain circumstances. To put it in perspective, Ontario Municipal Employees Retirement fund (OMERS) had a net payout of about 1.2% of portfolio assets in 1998. Also the Harvard Endowment foundation model (this model is used in many similar plans in U.S.A) allows a maximum withdrawal rate of 4% plus dividends. This should give you some idea as to how professionals set their withdrawal limits. I

rather use them as my guide than the optimistic stock market projections that I see far too often in financial plans.

In my next article, I will look at the 100 years of history of as applied to your retirement portfolio:

- investing in "cash",
- an asset mix of 50% cash and 50% equities,
- an "average" mutual fund, which underperforms the index over the long term by about 2% to 3%,
- the effect of dividends and how they can enhance your portfolio longevity.

I received hundreds of comments and e-mail messages from readers about this topic. I appreciate them. I tried to answer each one. Keep them coming.

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Note: My retirement spreadsheet model that incorporates the market cycles is still available for the Canadian MoneySaver readers. Send me an e-mail: cotar@home.com or download it from the Canadian MoneySaver website, www.canadianmoneysaver.ca

Another note: In the past, I used to write about my sample mutual fund portfolios. I stopped doing that because the time difference between when I do my research and you read it was too long for my comfort. Now you can follow my sample portfolios on the Canadian MoneySaver website in my "Fingerprinting" pages updated biweekly.