

# A Primer for Canadian Do-It-Yourself Investors

By

Keith R. Betty  
"Shakespeare"

## Preface

The purpose of this web document is to serve as a primer for Canadian do-it-yourself (DIY) investors who wish to manage their own investment portfolio. It is aimed particularly at individuals who will be using their investment portfolio as the main source of retirement income. It is designed to educate investors on how to take control of their investments in a cost-effective manner.

These pages are under permanent construction and revision, as I add a sentence here and a section there, or make some format changes. Modifications other than minor format or wording changes will be shown in the [Change Log](#). Major additions will be indicated by showing an "updated" note on the navigation bar on the left. If the navigation bar is not visible, it is possible that you have not reached my home page; try [here](#).

The date on which a given section was last revised is shown at the bottom of that section.

A Microsoft Word version of the Primer is [here](#) (size approximately 1M).

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## Acknowledgements

I would like to thank the posters at "The Wealthy Boomer Discussion Forum", including George\$, Bylo, Gummy, Dibhinn, Norm R, old hand, "nfsnfs" (Norbert Schlenker), dufferdon, Zantors, ialwayslovenascar, active, DanH, steves, and many others. Together these posters have provided much of the inspiration (and many of the links) that I have included here. Particular thanks are due to Jon Chevreau and Tony Humble, who supported the forum for many years. This work, although it reflects my own views, really belongs to all of them. Any mistakes are, of course, my own.

## About the Author

Keith Betty is a retired do-it-yourself investor who uses his portfolio as his main source of income. His investment portfolio uses dividend-growth investing for Canadian stocks; exchange-traded funds (ETFs) for his U.S. and international exposure; and Real Return Bonds and a low-cost short-term bond ETF in his RRSP. More information about his investment profile can be found in [this Globe and Mail article](#), [this National Post column](#), [this Montreal Gazette column](#), [this section of a Report on Business supplement](#), and the following Global TV interview:

[Global TV interview \(mp3 audio\)](#) (1 Mbyte)

[Global TV interview \(Quicktime video\)](#) (20 Mbyte).

This site is proud to be part of the [Do-It-Yourself Financial Webring](#).

## Disclaimer

The information provided on this web site is free and worth every penny. *Caveat emptor!* The author is not a registered financial advisor, and has no official financial credentials. I am not associated with any bank, mutual fund, brokerage, or other seller of securities. The information on these web pages is provided in order to educate individual investors in modern investment techniques. The information on these web pages is presented "as is", is in no way guaranteed and the author expressly disavows any liability.

Although this site is aimed at do-it-yourself investors, the effort needed to educate oneself in investing is beyond the interest of much of the population. Therefore, if in any doubt of their own abilities, investors should consult a **qualified financial advisor** before making any financial decisions. Repeat: *if in doubt, seek advice from a qualified financial advisor.*

The author invests in the market and may, from time to time, hold securities mentioned in these web pages.

The information presented is not a recommendation to buy or sell any security. On your own head be it. Your mileage may vary. What works for me won't necessarily work for you. Use industrial-strength condoms.

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*Neither a borrower nor a lender be;  
For loan oft loses both itself and friend,  
And borrowing dulls the edge of husbandry.  
This above all: to thine ownself be true,  
And it must follow, as the night the day,  
Thou canst not then be false to any man.*

- W. Shakespeare, *Hamlet*, Act I, Scene III.

*Debts must be paid!*

- R.A. Heinlein, *Citizen of the Galaxy*.

*If you don't know who you are, the stock market  
is an expensive place to find out.*

- Wall Street saying.

## **Introduction**

The purpose of these web pages is to educate Canadian investors on the techniques necessary to manage their own investment portfolios wisely - and, hopefully, profitably. It is particularly aimed at retirees who want to "do-it-themselves" - perhaps as a new career, perhaps because they are unhappy with their current investment advisors, or even just for the fun of it. In the following web pages, I will show how the findings of Nobel prize-winning economists can be used to control risk and (with luck) enhance returns. I will discuss many financial instruments, including stocks, both as collective entities called "Exchange-Traded Funds" and individually; bonds; "unit trusts"; and options. I will show how to use dividends to fund future expenses, and, for those who wish to purchase individual stocks, I will show what characteristics a company's stock should possess.

Throughout these discussions, my philosophy will be one of **managing the risk**. I will not tell you how to get rich quick - but I hope to tell you how to keep from getting poor quick. I will not tell you to get a second mortgage on your house to fund your investments or to invest in the latest "craze"; in fact, I sincerely hope that you will find the former unnecessary and resist the latter. To use a baseball analogy, I try to obtain a long string of singles and doubles and a low strikeout percentage; the home runs I shall leave to others.

Before you start on the following pages, you must first put your financial house in order. This means paying off any credit card debt, establishing a savings program, building a financial reserve, contributing to your RRSP, making a will, and establishing and funding your insurance needs.

To do all those requires self-discipline: but, **until you acquire that self-discipline, you would be better off with a financial advisor than trying do-it-yourself investing.** Those without self-discipline will chase the latest investment fad, invariably buying high and selling low. I shall make money from you by doing the opposite.

I have been saving and investing for about 20 years, although my initial portfolio was concentrated in Canada Savings Bonds. During that time, I have made many investment mistakes, and have paid the price in dollars for doing so. In fact, my "Bay Street" education has probably had a higher dollar cost than did my ten years of university education. Traps for the unwary abound, particularly when the latest "hot tip" or "hot product" comes along. I have stumbled into several of these traps; when I insisted, my broker went along with it (after all, it's my money). Nevertheless, I - or my broker - made enough good decisions along the way that the magic of compounding did its work - and I was able to take early retirement from my job as a chemist. I now have the experience, and confidence, to act as my own investment advisor. My investment portfolio supplies most of my income, and does so in a way that has a risk level that is acceptable to me - and I am very risk-averse.

Let me repeat: I shall not tell you how to get rich quickly. But I hope to tell you how manage your own investments in a way that allows you to get a good return (commensurate with your risk level) under a variety of market conditions.



*My ventures are not in one bottom trusted,  
Nor to one place; nor is my whole estate  
Upon the fortune of this present year;  
Therefore my merchandise makes me not sad.*

- W. Shakespeare, *The Merchant of Venice*,  
Act I, Scene I.

## Asset Allocation

- [Developing an Investment Plan](#)
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- 

## Developing an Investment Plan

One of the first questions an investor must decide is how to divide his or her portfolio between stocks (equities), bonds, and cash. This division is known as "asset allocation", and will depend upon the investor's goals, age, current financial position, risk tolerance, what size estate he or she wants to leave, and other factors.

Because of the different tax treatment of dividends, capital gains, and bond interest income in Canada and the US, **the distribution of assets between tax-exempt and non-registered plans recommended in American references is not appropriate for Canadians**. Tax-effective asset distribution of assets for Canadians is discussed later in the section on cost control. Nevertheless, the link below, although aimed at US investors, covers many of the pertinent topics:

[Long-term investment & planning concepts](#)

Vanguard, a low-cost U.S. investment company, also has a useful guide:

[Create Your Investment Plan](#)

Another excellent on-line source that covers many investment subjects is Frank Armstrong's Internet book [Investment Strategies for the 21st Century](#).

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## Defining your Goals

The initial step in developing an investment plan must be defining your goals. Are you investing for retirement income? If so, do you need income now? Do you wish to leave an estate? What is your time horizon? How big a dollar drop in your portfolio can you tolerate without losing sleep? Only you can answer those questions.

Your portfolio may well need its composition adjusted over time. As a general rule, the risk associated with a portfolio should be reduced as the portfolio approaches termination. If you are investing for a specific event - say, a college education for a child - your investment plan should envision switching the plan to low-risk assets as the child approaches 18 years of age. If you are planning to retire and live off your portfolio's income, you will probably need to increase the portion assigned to interest-producing or dividend-producing assets as you near retirement age.

One of the main questions that investors who are investing for retirement ask, is "How much do I need?" To obtain a rough answer in today's dollars (i.e. before inflation), perform the following calculation:

1. Estimate your desired yearly income.
2. Subtract your estimated yearly CPP, OAS, and pension benefits. Take into account any reductions due to early retirement, and the OAS clawback (if applicable).
3. Multiply the result by 25.
4. If you intend to retire before you are eligible for OAS, CPP, or pension, add back enough cash to cover the years in which you do not qualify for those payments.
5. Add any extra lump sum purchases like a new car.

The resulting figure will be your investment target. If it seems unreachable with reasonable rates of return (say 4-6%, after inflation), you will have to adjust your goals.

More sophisticated calculators for retirement savings are available from [RRIFmetic](#). A tutorial on [Saving for Retirement](#) is also available.

The fundamental trade-off all investors must face is that a higher return will be associated with higher risk. It is said that an investor can either eat well or sleep well - but not both.

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## What is Risk?

The mathematics that lies behind much of the development of modern mathematical theories equates risk with portfolio variability (as measured by a statistical property called the **standard deviation**<sup>1</sup>, or its square, the **variance**). Conceptually, **risk is the**

**chance that the money will not be there when you need it.** Using the standard deviation as a risk measurement proxy makes the mathematics simpler.

In an important study called the "Brinson-Beebower Study" and later works including papers by Ibbotson and Kaplan, it has been shown that portfolio variation is principally determined by the asset allocation. Reduction of risk usually means reduction of the amount of high-risk assets in a portfolio.

**The division between high-risk assets and low-risk assets is the main determinant of portfolio risk, and the most important decision the investor makes.**

To examine why asset allocation between high-risk and low-risk assets is so important, let us consider three separate portfolios, each initially \$100000, with three different asset allocation targets:

**Table 1. Initial Allocations of Three Different Portfolios**

	<b>Income</b>	<b>Balanced</b>	<b>Growth</b>
<b>Low Risk</b>	\$75000	\$50000	\$25000
<b>High Risk</b>	\$25000	\$50000	\$75000
<b>Total</b>	\$100000	\$100000	\$100000

Let us then imagine that the low-risk assets increased by 20% in value over the same period that the high-risk assets decreased by 50%. This is approximately what occurred to bond and stock indexes (so far) over the 2000-2002 bear market:

**Table 2. Final Allocations of Three Different Portfolios**

	<b>Income</b>	<b>Balanced</b>	<b>Growth</b>
<b>Low Risk</b>	\$90000	\$60000	\$30000
<b>High Risk</b>	\$12500	\$25000	\$37500
<b>Total</b>	\$102500	\$85000	\$67500

The effect of including the low-risk asset class is to **substantially reduce the effects of a drop in the value of the high-risk asset class.** The greater the proportion of low-risk assets, the lower the effects of a major price drop in high-risk assets on the portfolio value. In this example, the low-risk assets actually increased in value when the high-risk assets decreased.

1. The standard deviation is related to the spread (width) of a set of different annual returns over a multi-year period when those returns are plotted on a graph showing probability versus return. The graph usually has the shape of the familiar "bell curve".

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## The Face of Risk

As was shown in Table 2, investors with a large portion of their portfolios in high-risk assets faced significant losses in the 2000-2002 bear market. These losses are not unprecedented, and are a direct consequence of holding a significant amount of the portfolio in high-risk assets. Investors who held a large portion of their assets in equities during the 1973-1974 bear market faced similar losses, as is shown in the following table excerpted from "The Four Pillars of Investing" by William Bernstein:

**Table 3. Risk and Return for Various High Risk/Low Risk Portfolios<sup>a,b</sup>**

Stock/Bill Composition <sup>c</sup>	Annualized Return 1901-2000 <sup>d</sup>	Total Return 1973-1974
100%/0%	9.89%	-41.38%
75%/25%	8.74%	-28.89%
60%/40%	7.93%	-20.84%
50%/50%	7.35%	-15.25%
40%/60%	6.72%	-9.47%
25%/75%	5.72%	-0.46%
0%/100%	3.86%	15.49%

- a. Bernstein, William, "The Four Pillars of Investing", p. 114.
- b. Bernstein is also the author of "The Intelligent Asset Allocator" (a superb, if advanced, reference on portfolio design) and has an excellent web site at [The Efficient Frontier](#).
- c. U.S. stocks and U.S. Treasury Bills.
- d. Returns are before inflation, which averaged about 3.6%.

Although the losses in given in Table 3 for the 1973-1974 bear market are similar to those shown in Table 2, **there is no guarantee that future returns - or future losses - will be similar to those in Table 3.** Nevertheless, the data in Table 3 show how **both the final return and the probability of loss increase with increasing allocation to stocks.** When after-inflation returns are considered, the improvement in overall return with higher equity allocations is even more dramatic.

Instead of categorizing their investments by function as "equity" or "income", investors should categorize them by risk. Higher-risk assets include stocks, income trusts, real estate and real estate trusts (REITs), royalty trusts, and high-yield ("junk") bonds. Lower-risk assets include government bonds, high-quality corporate bonds, and high-quality preferred shares. These are shown in the following table, with suggested maximum allocation ranges:

**Table 4. The Risk Table<sup>a</sup>**

<b>Risk Level</b>	<b>Description</b>	<b>Allocation Range (% of total)</b>
Very Low Risk <sup>b</sup>	Short-Term <sup>c</sup> Government of Canada Bonds, Treasury Bills, GICs; US Government Bonds	5% to 75%. Total low-risk allocation should be 75% to 25%.
Low Risk	Short-Term Provincial Bonds, Short-Term High-Quality Corporate Bonds	Up to 75%.
Moderately Low Risk	High-Quality Corporate Preferreds, Medium-Term Bonds	Up to 50%.
Medium Risk	Long-Term Bonds, Blue-Chip Stocks, Broad Equity Indexes	Up to 75% total. Up to 50% per geographical region. Total medium/high risk allocation should be 25% to 75%.
High Risk	Narrow Equity Indexes, Sector Funds, REITs, Royalty and Income Trusts, Junk Bonds	0% to 20% per sector.
Very High Risk	Naked Options <sup>d</sup> , Gold, Start-Up Companies	0% to 10%.

- a. The risk categories and allocation maxima are the author's, and are based on his opinion and risk tolerance. Other opinions, including the reader's, might vary.
- b. Conventionally, federally-guaranteed securities are often defined as "zero risk".
- c. Short-term bonds are considered to be those with maturities of 5 years or less. Medium-term bonds have maturities of from greater than 5 years to 10 years. Long-term bonds have maturities of greater than 10 years.
- d. An option is the right (not the obligation) to buy or sell a stock or index at a future date. A "naked option" is one with insufficient cash to cover it.

As discussed below, risk can also be reduced by including several different asset classes in a portfolio.

In general, **a higher return is associated with a greater amount of risk.** Investors are said to be **rewarded for the risk.** As was shown in Table 3, equity (i.e. stock) portfolios usually produce a higher rate of return than do bond portfolios, but also have a higher standard deviation. That extra return is not guaranteed - stocks can, and do, go down - so risk-averse investors (most of us) should limit the amount of stocks (or high-risk assets) in a portfolio to less than 100%. Including a modest (25%) low-risk (bond) portion will reduce portfolio return only slightly while reducing volatility significantly. In general, **from 25% to 75% of the portfolio should be in low-risk assets.**

In the asset accumulation stage, portfolio risk is relatively unimportant (assuming the investor has a stable job and sufficient emergency funds), and return is all-important. During asset withdrawal in retirement, however, risk is of very high importance, since the money may not be there when you need it. As will be seen in the section on portfolio construction and evolution, the differing importance of risk means that portfolio construction will vary with the age of the investor.

*There are certain things that cannot be adequately explained to a virgin either by words or pictures. Nor can any description that I might offer here even approximate what it feels like to lose a real chunk of money that you used to own.*

- Fred Schwed, *Where Are the Customers' Yachts?*

## **Risk Control**

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### **The Three D's**

Despite the modern advances including Modern Portfolio Theory (described below) and its later development, the Fama-French Three Factor Model (described below and in the section on Foreign Investments), there remains considerable room for variation and innovation in portfolio management. In the end, an approach must be found that works for the individual. My own approach, which works for me but might not be suitable for others, involves what I will call the "three D's": **Discipline, Diversification, and Dividends.**

**Discipline** involves risk management (especially avoiding losses) and cost and spending control. It also occasionally means having the courage to go against the crowd, buying what everyone is selling and selling what everyone is buying - something far more difficult than it appears. Discipline in investing has to be learned, and the lessons are usually expensive.

**Diversification** requires subdivision of the portfolio into a large number of different and independent components.

**Dividends** are used to maintain a minimum acceptable level of income, regardless of market conditions.

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## Diversification and Risk Management

Asset allocation is predominately a **risk management** strategy. To quote Sir John Templeton, **the role of the manager is to manage the risk**. As pointed out by John Bogle in [The Four Dimensions of Investment Return](#), which is included in his book "Common Sense on Mutual Funds", the precepts involved with portfolio management are: risk; costs; time; and returns. The latter can not be managed. Although lack of cost control will damage a portfolio, improper risk control can destroy it. **Manage the risk first**. That means selling, in part or in whole, an asset that has become too risky, and accepting the tax consequences.

**The major impediment to making money is losing it.**

The first precept of risk management is **effective diversification**. The principles were developed by Harry Markowitz (who received the Nobel Prize for the work), and are deemed "Modern Portfolio Theory" (MPT). Markowitz showed that it is possible to reduce the overall volatility of a portfolio by adding to it assets that moved in different ways. Basically, the downward movement in one asset class can be at least partially cancelled out by the upward movement in another asset class.

The relationship between the movement of various asset classes is defined by the **correlation coefficient**, which can range from +1 to -1. Assets with a large positive correlation coefficient - say, 0.7 or more - tend to move in the same direction. An asset with a negative correlation would move in the opposite direction. A correlation coefficient near zero means that assets move independently; such assets are said to be **uncorrelated**. Investors thus should design a portfolio that meets their expected return while including a variety of uncorrelated or weakly-correlated assets. In practice, it is difficult to find negatively-correlated assets that offer a positive return. Assets that should be included in most portfolios are: Canadian stocks; Canadian bonds; US stocks; and international stocks.

It is also possible to subdivide equities not only by country, but by company size (capitalization), by industry sector, or by "growth" (rapidly-growing companies) or "value" (companies that are trading at a lower than average price when measured by certain ratios). Researchers Eugene Fama and Kenneth French have shown that higher returns obtained with small-capitalization ("small-cap") and value stocks than are obtained with large-capitalization ("large-cap") or growth stocks, which dominate the major market indices. This result, which has been shown to hold for several different time periods and for different international markets, is incorporated in what is called "the Fama-French Three Factor Model". Thus, the investor can boost his overall return by over weighting small-cap and value stocks. Because the small-cap and value sectors have correlations of less than one with the total market, *the increased return is achieved with a lower standard deviation (i.e. lower risk)*. This approach is recommended by Frank



Armstrong in [Investment Strategies for the 21st Century](#), and also by authors William Bernstein, mentioned above, and Larry Swedroe, author of "What Wall Street Doesn't Want You to Know".

Canadian bonds can be subdivided into normal bonds and inflation-indexed Real-Return Bonds (RRBs). Normal bonds, when arranged in a "bond ladder" of different maturities, give 100 cents on the dollar at regular intervals, regardless of market conditions or interest rates. RRBs protect against inflation, and give better diversification with less risk than do long-term normal bonds. US bonds, which might be added to a portfolio to increase diversification, are also available in normal and inflation-indexed forms. Other asset classes that can be added if desired include global bonds, high-yield bonds, real estate (via Real Estate Investment Trusts, or REITs), gold (or gold stocks), and emerging-market funds.

It is important to realize that the **very best asset allocation can only be determined retrospectively** - that is, based on historical analysis of what would have been best if only we had known. Also, the best asset allocation for one time period will be different than the best allocation for a different time period. In real life, we are interested in the best allocation going forward, not backward - and, since future returns are unknowable, for that we can only make an educated guess. Our goal should therefore be to achieve a good, broadly-diversified asset allocation that, over time, is likely to meet our investment goals in a variety of future circumstances.

Investors can get an estimate of their portfolio risk based on historical data at [Riskgrades](#).

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## “Black Swan” Events

One of the more subtle aspects of risk control relates to the fact that stock markets are reasonably efficient (see the next section). Because of this efficiency, anticipated risks are largely (but sometimes not completely) discounted into current prices. These are sometimes called "black swan" events, because an observer that has only seen white swans can never be certain that black swans don't exist. Since such events can not be anticipated, at first glance it would seem they can not be protected against. Nonetheless, conservative investors can design their portfolios so that the damage resulting from unanticipated events is minimized. The basic technique is to limit the amount of the portfolio in any single company, sector, or market, and to include a bond component to protect against a simultaneous world-wide market drop. Investors who manage their portfolios in this way are, in effect, deliberately giving up some of their upside in order to protect against downside risk. For many, this is harder to do than it seems, since it means winning positions will periodically be reduced - and the securities sold may well continue to go up for some time.

Some examples of historical events that have resulted in large price drops include the following:

- Single-company earnings disappointments
- Changes in taxation policy
- Currency devaluation
- Geopolitical crises

The greatest risk that most equity investors face is that of a simultaneous worldwide market correction. Such a correction occurred in 1997 and 1998, and was precipitated innocently enough by the devaluation of the Thai baht. The resulting correction, sometimes called the "[Asian contagion](#)", spread to several countries, and caused a significant drop in commodity prices. This affected not only the Canadian market, but caused a financial crisis in Russia, which defaulted on its loan payments. That in turn caused the collapse of Long-Term Capital Management in the United States. A major financial crisis was averted when Federal Reserve Bank chairman Alan Greenspan organized a bailout.

As the crisis developed, investors in both Canada and the United States saw brief but sharp market drops of about 25%. Because of the drop in commodity prices, single-sector investments fared much worse, with drops approaching 50% in some cases.

Measures to control some of the potential risks are given in the following table.

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### Risk Control Measures

Risk	Control Measure
Worldwide stock market crash	Adjust equity/bond split
One-country market or currency crash <sup>a</sup>	Limit total single-country exposure
Sector crash	Limit sector exposure
Single-company failure	Limit single-company exposure
Inflation <sup>b</sup>	Real-return bonds, dividend growth stocks, real estate
Deflation <sup>b</sup>	Long-term bonds

- a. Since Canadian investors pay for services in Canadian dollars, some of the effects of a collapse of the Canadian dollar would be mitigated.

- b. Since inflation and deflation can not happen simultaneously, holdings that will do well in an inflationary environment will usually do poorly in a deflationary one, and vice-versa.

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## Efficient Markets, Risk, and Contrarian Investing

One of the more difficult concepts for beginning investors to grasp is that, in a market-based system, **the consensus estimate of risk is embedded in the market price of any security**. This means that an inexperienced investor can not make any extra money by trading on the basis of what "everybody knows"; such knowledge is said to be "discounted" into the price. To make extra money, the investor either must trade based on inside knowledge - which is illegal - or have some reason to think the consensus risk estimate is incorrect. It also means that **risk is not where the inexperienced investor thinks it is**.

Suppose, for example, the inexperienced investor sees headlines saying "ABC Company Announces New Product!" and decides he wants to capitalize on this knowledge. But examination of the price history will show that the stock price will have reacted within seconds or minutes of the announcement as the new data are "priced in". Therefore, the "edge" the inexperienced investor thinks he is getting has already been largely removed - and what he thinks is a low-risk "sure thing" is, in fact, anything but because the success of the new product has already been anticipated in the price. Similarly, negative news is priced in very quickly - and the stock the inexperienced investor thinks is high risk may, in fact, not be, because the price has already adjusted to reflect that risk.

**Securities markets are very efficient at pricing in new information, and do so within a few minutes of its release.**

This leads to the [Efficient Market Hypothesis](#), or EMH. An excellent description of EMH can be found in the book "A Random Walk Down Wall Street", by Burton G. Malkiel. EMH has several forms, but basically says that the fair price for a security is whatever it is currently selling for. Many studies have been performed on EMH; several market inefficiencies have been identified, but they tend to disappear when they become widely known. For most people, EMH should be regarded as "approximately true": the market price might not be perfectly correct, but the work and costs associated with identifying extra returns (or extra risk) aren't worth it when reasonable results can be obtained fairly simply by rebalancing (see below) and/or over weighting value or small-cap stocks.

Some investors may be tempted to see if they themselves can obtain extra returns. If such an investor thinks the consensus overestimates the risk, the security is under priced and he should buy. If he thinks the risk is underestimated, the security is overpriced and he should sell. This leads to **contrarian investing** - doing what everybody else doesn't. Contrarian investing is related to value investing, since the type of stocks a contrarian

buys are often "value stocks" - that is, they have lower-than-average prices as determined by certain financial ratios.

Unfortunately, it is much easier to describe contrarian behaviour than it is to successfully achieve it, since those who think they are going against the consensus often have misjudged where it lies. One analogy is to the swings of a pendulum: as market sentiment responds to current trends, it tends to either over react or under react. The 2000 NASDAQ bubble was a classic overreaction (and selling opportunity), and was followed by an under reaction (and buying opportunity). But the time to go against a pendulum's movement is just before it is at the end of its swing; if you do so in the middle, you get clobbered.

An individual can not know whether he will be a successful contrarian investor until he tries it. Trying it will almost certainly result in mistakes - and mistakes cost money. Since that cost will be incurred early in an investor's career, it will have a high compounded value - with no guarantee that the tuition fee will result in any increase in skill. As stated earlier, for most people a reasonable rebalancing strategy, possibly combined with value- or small-cap over weighting, is a good alternative.

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## **Individual Securities and Risk**

If the investor purchases a particular security - say, stock in JKL Mining Limited or a bond issued by MNO Corporation - he exposes himself to the risk that something untoward may happen to that particular company. This risk is in excess of that associated with the "market risk" associated with the type of security, and is referred to by academics as *unsystematic risk*. The risk associated with the broad market or index is referred to as the *systematic risk* of that market or index.

As an example of systematic risk, consider holding a portfolio of stocks or funds that trade on U.S. stock markets. The value of all such securities will be affected by (amongst other things) the US-Canadian dollar exchange rate, which therefore represents a systematic risk. Effective diversification will require the purchase of securities that are not priced in U.S. dollars.

Unsystematic risk can be reduced by holding a large number of securities, either by direct purchase or via a fund of some type. Systematic risk, on the other hand, can not be removed by holding additional securities in the same market or sector, and must be controlled by adding components from other sectors.

There is some argument over how many individual securities are necessary in a portfolio to reduce unsystematic risk. Although some American studies have concluded that as many as fifty stocks may be necessary, the transaction fees associated with such a large number of purchases are too great to render such an approach practical for the individual investor. In my opinion, the amount of portfolio risk added with an individual


security should be considered as a function of its portfolio weighting: including 50 individual securities in a component with a portfolio weighting of only 5% would mean that the average weighting was only 0.1%, and the reduction in portfolio risk in going from 25 securities at a 0.2% weighting to 50 securities at a 0.1% weighting would not be worth the additional cost.

One rule of thumb is to keep individual securities at weightings of between 1 and 5% of a portfolio (unless they have a guarantee, such as Government of Canada bonds.) This range provides a reasonable balance between risk and costs.

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## Rebalancing

Investors should continue to manage portfolio risk on an ongoing basis by setting ranges for portfolio components, and reducing components back to the target level (rebalancing) when they exceed a trigger point. Conversely, when components drop to a lower threshold, additional amounts are purchased. This type of rebalancing forces the manager to buy low and sell high. **The discipline associated with rebalancing protects the investor against valuation extremes such as the technology bubble of the year 2000.**

In some circumstances, rebalancing may improve portfolio returns. This is because of the principle of **mean reversion**, which states that a period of above-average returns in one asset class is often followed by a period of below-average returns. Mean reversion can be observed by examining the pattern of yearly returns in [The Callan Periodic Table of Investment Returns](#) .

Some investors prefer to rebalance at fixed intervals. According to [this study](#) by William Bernstein, return increases slightly as the time between rebalancing is increased. Monthly rebalancing is too frequent, but there is little difference between quarterly and annual rebalancing. Rebalancing every four years gives only a slight increase in return, but also increases portfolio risk. Another approach is to rebalance when the nominal ranges of the portfolio components are exceeded. It is important to set the threshold points high enough that rebalancing is infrequent, thus minimizing tax and transaction costs. Example thresholds are  $\pm 25\%$  relative,  $-33\%/+50\%$  relative, or  $\pm 5\%$  absolute/ $\pm 25\%$  relative.

Extra costs, particularly taxes, should be carefully considered before rebalancing; this may mean that sales are performed in an RRSP if rebalancing is done frequently. However, switches between entities trading in US dollars in an RRSP may incur a US-to-Canadian dollar conversion fee at some brokerages even if the switch is done in one day. Check with your brokerage before making a switch.

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## Foreign Diversification

The amount of foreign diversification that a portfolio should hold is a subject on which there is considerable disagreement. One principle that investors can consider is to **match the currency of assets to the currency of obligations**. A retiree who intends to spend several months wintering in the U.S. may want a significant portion of his cash flow in U.S. dollars. This can be accomplished by using U.S. equities and bonds or by holding U.S.-dollar denominated bonds or U.S.-dollar preferred shares issued by Canadian institutions. A retiree who wants to travel extensively in Europe may wish to hold Euro-denominated bonds. Individuals who wish to spend most of their time in Canada may want to maximize their cash flow in Canadian dollars, since most of their expenses will be made in Canadian dollars. In that case, their foreign content will be utilized for diversification and risk management, rather than cash flow.

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## FPX Indexes

For Canadian investors, a useful starting point for asset allocation is often one of the three Financial Post Indexes ([FPX Indexes](#)) designed by Richard Croft and Eric Kirzner. These indexes use exchange-traded funds (ETFs), which are baskets of stocks that can be bought and sold on a stock exchange, for its equity components. Many investors will consider the FPX Balanced to be the most useful model. The FPX Balanced contains 25% Canadian equity; 10% U.S. Equity; 15% foreign equity; 40% bonds; and 10% cash. Because different (and better) equity ETFs are now available, a simpler portfolio with better US and foreign equity coverage can now be designed. I will give details in later sections covering US and foreign equity investing.

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## Future Returns

One vital question in asset allocation is the size of future returns that can be expected. Jeremy Siegel, author of "Stocks for the Long Run", is a leading proponent of the theory that superior returns can be obtained with equities. But many authors are concerned about current high equity valuations, particularly of U.S. large-cap stocks, and predict lower returns going forward. A highly-respected market watcher, Jack Bogle, made the following comment in [this speech](#):

"...it seems sensible for both investment professionals and investors themselves to plan for an era of lower financial market returns. Not 18% for stocks, but perhaps 4% to 8%. Not 10% for bonds, but perhaps 5% to 7%. Not 7% for the money markets, but perhaps 3% or 4%."

An even more pessimistic observation was given by Dallas News columnist Scott Burns. Burns referred to a recent paper by Robert D. Arnott and Peter L. Bernstein, which contains this quote:

"The current risk premium [for stocks over bonds] is approximately zero, and a sensible expectation for the future real return on both stocks and bonds is 2 to 4 percent, far lower than the actuarial assumptions on which most investors are basing their planning and spending." [My explanation.]

Since those articles were written, stock markets have continued to drop [and later recovered]. In consequence, stock market returns may, in fact, move closer to their historical norms. In [this speech on Oct. 22, 2002](#), Jack Bogle suggests that stock market returns may, in fact, now be 8-9% **before inflation and expenses**, with bond returns of 3-5%. Unfortunately, further increases since that date suggest that the Oct. 22 estimate is optimistic.

Because of the wide fluctuations in stock market valuations in the last few years, it is clear that future growth forecasts are very difficult and subject to continual revision. Nevertheless, single-digit growth rates, rather than double-digit growth rates, remain a reasonable estimate.

Real-return bonds will likely return about 4-6% (i.e. inflation will be at about 2% - the centre of the Bank of Canada target band). Although most equities may only return about 6% before inflation, emerging market equities may return slightly more - say 8-9% - but with substantially higher risk, and should represent only a small component of most portfolios. A balanced portfolio will therefore return at most about 6-7% (4-5% after inflation), and *diversification will primarily act to reduce volatility, rather than to enhance returns.*

Many investors may find the prospect of such low returns disappointing. Nevertheless, it is better to reduce expectations (and expenses), and to plan for low returns, than it is to plan for high returns and be unable to meet future commitments.

Finally, with such low returns going forward, it will be more important than ever for investors to control costs.

*TANSTAAFL (There Ain't No Such Thing As A Free Lunch)*

- R.A. Heinlein, *The Moon is a Harsh Mistress*.

## Cost Control

- [Costs Matter](#)
  - [Active Management and Costs](#)
  - [Tax-Efficient Asset Allocation](#)
  - [Tax Loss Harvesting](#)
  - [Payback Time](#)
- 

### Costs Matter

An important precept to bear in mind when designing an investment portfolio is, to quote Jack Bogle, that **costs matter**. Most mutual funds sold in Canada have management fees - "Management Expense Ratios", or MERs - of 1-3%. The funds' trading costs, bid-ask spreads on the entities bought and sold, and taxes distributed to unit holders as a result of stock sales will all add to this cost burden. As was discussed in the section on asset allocation, it is likely that returns going forward will only be around 4-5%, after inflation. In this environment, **investors can not afford high mutual fund management fees**. Instead, they must opt for low-cost alternatives. These include: low-cost index funds; Exchange-Traded Funds (ETFs), which are baskets of stocks that can be bought and sold as if they are single stocks and which have very low MERs; and direct ownership of individual stocks, bonds, or trusts. Although, some mutual funds may be necessary in areas where there is no low-cost ETF or index fund, a well-diversified, cost-efficient portfolio can be built with an effective MER of as low as a few tenths of a percent. The cost savings amount to **thousands of dollars a year** on a moderately-sized portfolio.

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### Active Management and Costs

In 1991 Nobel-prize-winning economist William Sharpe published a paper entitled "[The Arithmetic of Active Management](#)". Using simple assumptions and elementary arithmetic, the paper showed that, if a securities market has a low-cost index fund available, active managers **as a group** will underperform indexers by the cost differential between active management and indexing. This analysis does **not** preclude outperformance by individual managers, only outperformance by the set of **all** active managers. There is no Lake Wobegon in which everybody is above average. Sharpe's



analysis does not depend on market efficiency, but only on the cost differential between active and passive management.

The analysis does not apply to all securities markets because not all markets have index funds available. Individual housing and private business holdings are an important exception. However, Sharpe's arithmetic is applicable to essentially the entire U.S. stock and bond markets; most of the Canadian stock market except for small- and micro-capitalization stocks and most income trusts; the entire Canadian bond market; and large-capitalization stocks in the stock markets of most of the developed world. It therefore applies to a significant part of most investor's portfolios, and to all of some investor's portfolios. It follows that **investors should only utilize active management in markets in which they are sure they, or the managers they choose, have an edge.**

One of the consequences of Sharpe's arithmetic is that outperformers must succeed at the expense of underperformers. To quote Sir John Templeton again, "It's a contest". If you don't have an edge (or aren't sure that your manager does), the most cost-effective decision is to use passive, not active, management.

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### **Tax-Efficient Asset Allocation**

Investors must also be concerned about the effect of taxes on their portfolios, since the "tax drag" can amount to 1-2% a year if the portfolio is not properly designed. The following points should be kept in mind for a tax-efficient portfolio:

1. Canadian dividend income is taxed preferentially outside an RRSP because of the dividend tax credit.
2. Capital gains are taxed preferentially outside an RRSP because of the 50% inclusion rate.
3. Interest income from bonds, debentures, or other entities is taxed at the full marginal rate.
4. Stripped bonds or Real Return Bonds should not be held outside an RRSP because imputed income will be taxed.
5. Real estate trusts and many income trusts include large a return-of-capital component that is tax-deferred outside of an RRSP.
6. Some income trusts have a small tax-deferred component and should be held inside an RRSP.
7. A trust or "preferred security" (Canadian Originated Preferred Securities, or COPRs) producing entirely interest income, should usually be kept inside an RRSP.
8. U.S.-source dividends are fully taxable when held outside an RRSP and will be subject to a 15% withholding tax<sup>a</sup>. (A tax credit will be given when the tax return is filed.)
9. According to [Article 10](#), Paragraph 1, of the U.S.-Canada tax treaty, U.S.-source dividends are not subject to tax when held in an RRSP.

a. If the US investment is held through an American broker, form W-8BEN must be filed with the brokerage to avoid a 30% tax withholding rate. If a Canadian broker is used, form W-8BEN is often requested for new accounts.

Income-producing investments should be placed within a Registered Retirement Savings Plan (RRSP) during asset accumulation. Bonds should be placed in an RRSP first. If there is room left, high-income equities should then follow. Low-income equities can be left outside the RRSP with minimal tax consequences. Cash can be divided between RRSP and non-registered portfolios.

Because of the tax laws, a major factor in establishing a tax-efficient asset mix for an income-seeking investor is the relative size of the registered and non-registered portfolios. With a large non-registered portfolio, the income-seeking investor may hold a significant portion of the portfolio in preferred shares (which should always be in the non-registered portfolio) because insufficient RRSP room is available to shelter bonds. On the other hand, if the non-registered portfolio is quite small, the investor may hold no preferred shares.

Tax-efficient asset allocation of Canadian assets should be in accordance with the following table:

#### Tax-Efficient Asset Allocation

Asset Class	Non-Registered	Registered
Canadian Stocks or ETFs	Usually Best	OK
Canadian Preferred Shares <sup>a</sup>	Yes	No
COPRs <sup>a</sup>	If necessary	Yes
Tax-Deferred Canadian REITs/Trusts <sup>b</sup>	Yes	If necessary (e.g. for RRIF)
Income Trusts with Low Tax Deferral <sup>b</sup>	If necessary	Yes
Canadian Stripped Bond	No	Yes
Canadian Normal Bond	If necessary	Yes
Canadian Real Return Bond	No	Yes
US/Foreign Equity (high-dividend, low-growth)	If necessary	Yes
US/Foreign Equity (low-dividend, high-growth) <sup>c</sup>	Usually best	OK
US/Foreign Normal Bond	If necessary	Yes

Asset Class	Non-Registered	Registered
US/Foreign Stripped Bond	No	Yes
US TIPS Bond	No	Yes

- a. Preferred shares produce dividend income and should be held outside an RRSP. The entities called "Canadian Originated Preferred Securities", or COPRs, produce interest income and should usually be held inside an RRSP.
- b. Most REITs or trusts include a "return of capital" component that is tax-deferred outside an RRSP. If the trust produces entirely interest income, it should be held inside an RRSP. The tax status can be determined from the trust's web site.

To examine how to implement a tax-efficient asset allocation policy, let us consider a series of examples based on the FPX Balanced Index and various registered - to - non-registered ratios. Preferred shares will be used to replace the bond content in the non-registered portion. The ETFs XSP and XIN have already been explained; SPY and EFA refer to the stock symbols of U.S.-traded ETFs tracking the S&P 500 and EAFE indexes.

**Note:** The use of the FPX Balanced Index in these examples is **arbitrary**, and for **illustrative purposes only**. Other sample portfolios with greater diversification are shown in the section on portfolio construction.

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### FPX Balanced - \$100,000 Total Investment

**Registered: Non-Registered 75:25**

	Registered	Non-Registered
S&P/TSX 60		\$25000
S&P 500	XSP or SPY: \$10000	
EAFE	XIN or EFA: \$15000	
Bonds	\$40000	
Preferreds		
Cash	\$10000	

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**Registered: Non-Registered 50:50**

	<b>Registered</b>	<b>Non-Registered</b>
S&P/TSX 60		\$25000
S&P 500		XSP or SPY: \$10000
EAFE		XIN or EFA: \$15000
Bonds	\$40000	
Preferreds		
Cash	\$10000	

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**Registered: Non-Registered 25:75**

	<b>Registered</b>	<b>Non-Registered</b>
S&P/TSX 60		\$25000
S&P 500		XSP or SPY: \$10000
EAFE		XIN or EFA: \$15000
Bonds	\$25000	
Preferreds		\$15000
Cash		\$10000

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**Tax Loss Harvesting**

Tax-loss harvesting is a method of utilizing tax losses to minimize - or defer - capital gains taxes in the non-registered investment account. It can be useful both during asset accumulation and during withdrawal phases.

In order to harvest tax losses, a security in the non-registered account is sold at a time when its price is significantly below its adjusted cost base [i.e. the purchase price plus any commissions or reinvested dividends]. The security is then replaced in the non-registered account by a similar, **but not identical**, security. After thirty days, the original security can be repurchased, if desired. The previously-available strategy of immediately repurchasing the sold security in an RRSP no longer results in an allowable loss.

**Example 1:** Tom has a U.S. total-market index fund based on the Wilshire 5000 Index, which is in a loss position. He can harvest the loss by selling the fund and replacing it with a similar, but not identical, fund

**based on a different index.** In this case, an appropriate replacement would be based on the Russell 3000 Index.

CRA may disallow the loss if one index fund is replaced by an identical index fund from a different vendor. Replacing the fund by one tracking a similar, but different, index avoids the problem. The harvested loss can be used to reduce capital gains taxes in the current year. If no capital gains taxes are due in the current year, the loss can be carried backwards three years or forwards indefinitely

**Example 2:** Tom has a Europe-Australasia-Far East (EAFE) fund which is in a loss position. Tom can harvest the loss by selling the EAFE fund and dividing the proceeds in a 3:1 ratio between separate Europe and Asia-Far East components. After 30 days, the separate components can be sold and the EAFE fund repurchased.

A similar approach can also be used with individual securities, such as replacing one bank stock by the stock of a similar bank at a time when all bank stocks are under pressure, or by replacing one oil-and-gas trust by a similar one when oil prices are low.

Note that these approaches **defer tax, but do not avoid it.** They are appropriate when the tax is deferred until several years in the future or when the technique moves taxable capital gains into a lower tax bracket.

Further examples of this approach will be given in the section on Withdrawal Strategy.

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## Payback Time

In order to determine which of several alternate approaches is the most cost effective, it is useful to calculate the payback time associated with a certain move. This entails calculating both the initial cost and then the cost savings per year. The *payback time*<sup>a</sup> is how long it would take for projected cost savings to recover the initial expenses.

**Example 1:** Tom has \$20000 of his non-registered portfolio in a U.S. equity mutual fund with an expense ratio of 2% per year. He is considering replacing it with a similar ETF with an expense ratio of 0.15%. He will not incur any service charges by redeeming the fund, but will have to pay capital gains taxes of \$500. He will also have to pay brokerage fees and foreign exchange.

Estimating the foreign exchange penalty as 1%, the cost of making the switch will be: \$500 tax plus \$40 brokerage fees plus \$200 foreign exchange, or \$740. The mutual fund costs \$400 a year in expenses. The

ETF will cost  $0.0015 * (\$20000 - \$740)$ , or \$29. The cost savings are \$400-\$29, or \$371 per year. The payback time is  $\$740 / \$371$ , or two years. If Tom's time horizon for holding this equity is more than two years, he should make the switch. On the other hand, if the capital gain was quite large, the payback time would be very long and it would not be worthwhile making the switch.

**Example 2:** Geraldine wishes to invest \$10000 Canadian in a U.S. index fund. She is considering the TD US Index e-fund, which tracks the S&P 500 and has an MER of 0.33%, and the Vanguard VTI ETF, which tracks the Wilshire 5000 and has an MER of 0.07%.

The TD e-fund will cost \$33 per year and will not incur either brokerage fees or foreign exchange. The VTI purchase will cost only \$7 Canadian per year in expenses, but will incur a foreign exchange penalty of about \$100 and brokerage fees of about \$35. The payback time is  $(\$100 + \$35) / (\$33 - \$7)$  or over five years, not including the effect of additional foreign exchange charges on any distributions from VTI. (Geraldine may have other reasons for choosing VTI, perhaps because she wishes exposure to the entire U.S. market instead of the S&P 500 or if she has a brokerage account at another institution than TD.)

Similar calculations can be made to determine the minimum amount to invest in a certain approach for a given payback time.

**Example 3:** Tom is considering investing in the BGI iShares Financial ETF, which has an MER of 0.55%. On checking the ETF holdings, he notes that seven companies (the five big banks, Manulife, and Sun Life) account for over 75% of the holdings. If he also adds Power Corporation at above its market weight<sup>b</sup> to include its holdings in subsidiaries Power Financial, Great West Life, and Industrial Group, he can replicate over 80% of the ETF. If Tom pays \$26 at a discount broker, how much money does he need to invest in all eight stocks to break even in one year?

The total cost of buying eight stocks is  $8 * \$26$ , or \$208. The cost of buying the ETF is \$26, so the extra cost is \$182. The investment required to recover this cost in one year is  $\$182 / 0.0055$  or \$33K.

**Investors considering this approach should be comfortable with the prospect of monitoring individual securities.**

- a. Although the simple or undiscounted payback time is used here, more sophisticated users may wish to calculate a "discounted" payback time that takes into account the time value of money.
- b. Risk tolerance can be improved by equally-weighting rather than market-weighting the individual stocks, although the stock mix will track the underlying index less closely.

## Canadian Content

- [Investing in Canada](#)
  - [Exchange-Traded Funds](#)
  - [Index Funds or ETFs?](#)
- 

### Investing in Canada

Canada accounts for only 2-3% of the world's security markets, based on stock market capitalization. The Canadian stock market suffers both from a lack of breadth (insufficient variety of companies) and a lack of depth (rapid drop-off of capitalization) in comparison to the American stock market. For these reasons, some investors prefer not to invest in Canadian stocks at all, but use the American indexes. For others, the exchange-traded funds or index funds discussed below offer inexpensive and tax-efficient Canadian equity exposure without the effort needed to select individual securities.

As retirement approaches, dividend-paying Canadian investments (discussed in later sections on Canadian stocks and preferred shares) become an attractive alternative. Although the tax payable on dividends represents undesirable friction during asset accumulation, upon retirement dividend-paying Canadian stocks form a particularly useful source of income for many retirees. The reason is the dividend tax credit, which allows dividend income from Canadian companies to be taxed at a lower rate. If a retiree can stay in the lowest federal tax bracket - about \$35000 - the marginal tax rate on dividends is quite low, a few percent (depending on the province). The major drawback of dividend income is the "gross-up", which moves a retiree into the next bracket sooner. Therefore, upper-income retirees may prefer capital gains to dividend income.

The marginal rates can be obtained [here](#).

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### Exchange-Traded Funds

As mentioned earlier, exchange-traded funds (ETFs) are baskets of stocks which can be bought and sold as a single entity on a stock exchange. They differ from closed-end mutual funds in that large buyers such as pension funds can purchase or redeem the ETFs in exchange for the underlying stocks. This creation and redemption mechanism ensures that the ETF valuations never stray far from the Net Asset Value (NAV) of the underlying stocks. In contrast, closed-end mutual funds may trade at a significant premium or discount to NAV.

For those who wish to use exchange-traded funds for their Canadian content, a list of such funds is maintained by [Bylo Selhi](#) and can be found on the link below:

## [Exchange-Traded Funds and Indexes](#)

Investors in Canadian ETFs should also consider reading "The New Investment Frontier", by Howard J. Atkinson and Donna Green.

The most popular ETF is the Barclays i60 (stock symbol: XIU) available from [Barclays Investments Canada](#). This fund is based on the Standard and Poor's S&P/TSX60 index of large-capitalization stocks. Other notable ETFs available from Barclays include one based on the TSX/S&P Capped Composite Index (stock symbol: XIC); several sector ETFs that concentrate on individual TSX sectors, including one based on the financial services sector (stock symbol: XFN); ETFs based on short-term (stock symbol: XSB) and universe (stock symbol: XBB) bond indexes; a 'mid-capitalization' ETF (stock symbol: XMD) based on the mid-cap and small-cap companies that make up the S&P/TSX Canadian Completion Index; an ETF based on Real Estate Investment Trusts (stock symbol: XRE); and two ETFs based on non-Canadian content (stock symbols: XSP and XIN) that will be discussed later.

All the ETFs based on the Canadian stock market offer inadequate equity diversification by themselves. Nevertheless, for those seeking capital gains rather than dividend income, several ETFs should be considered as part of the equity portion of a diversified portfolio. These are: the ETF tracking the S&P/TSX60 (XIU); the capped ETF tracking the S&P/TSX Composite (XIC); the financial services sector ETF (XFN); and the dividend ETF (XDV). Most of the sector ETFs are too concentrated in one or two stocks; if one wants sector exposure, either buy the stocks directly or use the broader US sector ETFs. The financial services sector ETF is dominated by the five big banks and the two largest insurance companies; although these can be held directly in a sufficiently large portfolio (see Example 3 in the Payback Time subsection in the Cost Control section), investors with smaller portfolios will save commissions by a single purchase.

The dividend income provided by some Canadian ETFs may be inadequate for some investors, particularly retirees. The income can be increased by purchasing higher-yielding but more narrowly based ETFs, or by investing directly in Canadian dividend-paying stocks, in preferred shares, or in trusts. For those who wish to avoid buying individual securities and remain with broadly-based indexes, income can be increased by selling a few percent of the holdings each year. This approach gives capital gains (or losses), rather than dividends; these are taxed less favourably in the lowest tax bracket but more favourably in the top tax bracket. A constant percentage, rather than a constant dollar amount, should be sold to avoid depleting the portfolio if equities are at a low price. Therefore, the income will be variable.

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## Index Funds or ETFs?

The decision whether to use index funds or ETFs is dependent upon portfolio size, portfolio makeup, and portfolio stability. The advantages and disadvantages are summarized below:

### Comparison of Index Funds and Exchange-Traded Funds

Index funds	ETFs
Usually have higher MERs	Usually have lower MERs
No transaction fees <sup>a</sup>	Brokerage fees, foreign exchange, and bid-ask spread add to cost <sup>b</sup>
Dividends can be reinvested	No dividend reinvestment <sup>b</sup>
<u>Low-cost</u> size, style and sector funds have limited availability	Many size, style and sector ETFs
End-of-day purchase price or sale price	Immediate purchase or sale
Can not be shorted	Can be sold short <sup>c</sup>

- a. Some index fund companies invoke a transaction fee if the fund holding is sold within a certain time after purchase to discourage short-term trading.
- b. Barclays and Canadian Shareowner have combined to establish a [low-cost co-operative trading plan](#).
- c. Selling short (betting an index will go down) is not a technique that should be used by conservative or unsophisticated investors.

Index funds have higher Management Expense Ratios (MERs) than do broadly-based ETFs, but do not incur transaction costs or foreign exchange costs when changes are made. Some index funds have exorbitant MERs, and should be avoided by cost-conscious investors. ETFs are available in greater variety, and include size, style, and sector variants.

In general, index funds are more suited to investors with changing portfolios, such as those accumulating assets. ETFs are more suited to large, stable portfolios. A portfolio MER reduction of 0.15% is only \$150 per year on a \$100,000 portfolio but is \$1500 on a \$1,000,000 portfolio.

For investors who wish to use index mutual funds rather than ETFs for their portfolio, Bylo maintains a list of low-cost index funds [here](#).

*It's far better to buy a wonderful company at a fair price, than a fair company at a wonderful price.*

- Warren Buffett.

## Canadian Stocks

- [Dividend Growth Investing](#)
  - [The Gordon Equation](#)
  - [Finding Candidate Stocks](#)
  - [Additional Considerations](#)
- 

### Dividend Growth Investing

Because of the poor breadth in the Canadian market, direct stock ownership is an attractive alternative for some investors. It allows better control of taxable events, and has no ongoing management expense ratio if the stocks are appropriately selected. However, it also needs more work to select and monitor the stock portfolio.

Individuals requiring retirement income may wish to consider a type of value investing called "dividend growth investing" - i.e., purchasing companies that are growing their dividends. The investor who uses dividend-growth investing for his Canadian portfolio is attempting to obtain a tax-advantaged and inflation-indexed return that is greater than that available with real-return bonds, not trying to beat an index. The dividend-growth approach is followed at soon to be at [Dividend Growth](#). An excellent reference to the technique is "The Single Best Investment", by Lowell Miller.

The principal behind the technique is that **increasing revenues lead to increasing earnings, which lead to increasing dividends**. The increasing dividends, which can grow at a rate that exceeds the inflation rate, then provide an inflation-indexed source of income. In addition, choosing only companies that have a history of paying increasing dividends eliminates high-risk companies like Bre-X. Dividends must come from real earnings, not speculative hype.

Desirable companies have several characteristics:

1. Good financial health. The company's bonds should be rated BBB or better by [DBRS](#) and [Standard and Poor's](#). To access the Standard and Poor's ratings, select Region: Canada from the top navigation bar. Choose the Credit Ratings List under the Fixed Income tab on the menu on the left. Use the filter or the alphabetical settings to find selected companies.

2. A consistent record of dividend increases.
3. A maintainable dividend payout ratio (generally less than 50%; less than 60% for utilities).

The dividend rate associated with desirable stocks is usually greater than average, but less than the maximum available on candidate stocks.

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## The Gordon Equation

The fundamental formula for estimating future returns is known as the **Gordon Equation** or **Gordon Growth Model**:

$$\text{Total Return} = \text{Dividend Yield} + \text{Dividend Growth Rate}$$

The assumptions used in the Gordon Equation include a constant growth rate (which is only applicable if the company is in a mature market) and a constant market valuation. Since these assumptions are not likely to hold perfectly, the equation should be used as a **rough guide only** - do not take it too literally. Nevertheless, it suggests that, as a class, stocks with high dividends will usually have lower growth rate than stocks with lower dividends. In fact, a very high dividend yield is often a danger sign, and suggests that a company has something wrong with it.

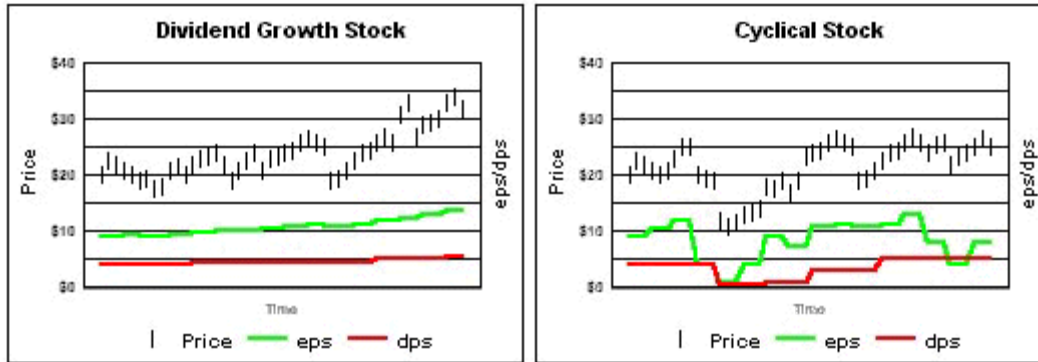
As of this writing (February, 2002), candidate stocks would generally have a yield of 2.5-4%. A portfolio of these stocks offers a much better yield than that available with any Canadian ETF.

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## Finding Candidate Stocks

A good starting point for possible stocks is the [Dow Jones Canada Select Dividend Index](#). Value favourites listed at the [Value Investigator](#) may also be considered. [Dividend Growth](#) also has a list of stocks. Prospective investors should note that considerably more screening and monitoring is usually needed for smaller stocks; individuals uncomfortable with stock analysis should stick to large-cap stocks, low-cost mutual funds, or ETFs.

A good site for checking prospective companies is [Corporate Information](#), which allows a moderate amount of free access. Desirable companies should show graphs with consistently increasing earnings, dividends, and share price. Fictitious examples in a similar format to the graphs found at Wright are shown below:



The dividend growth stock shows a consistent pattern of growing earnings per share (eps) and increases in the dividends per share (dps) [the bottom two lines; the price should generally trend up as the earnings and dividends trend up]. Companies showing such a consistent pattern can be found particularly in the financial and utility sectors. Erratic earnings, such as in the cyclical stock, are undesirable; find another company. Company information can also be found at [Globeinvestor](#), [Advice for Investors](#), and [Canadian Shareowner](#) (which also operates a low-cost investing program). Company filings, including annual reports, are online at [Sedar](#). A [stock screener](#) is available at [Stingy Investor](#), which also lists Canadian Dividend Reinvestment Plans ([DRPs](#)).

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### Additional Considerations

Some additional points to be considered in establishing a portfolio of dividend-paying stocks are:

- Diversify effectively by selecting stocks from several different operating sectors such as: banks; non-bank financials; power generation; telecommunications; and pipelines.
- Each individual stock should generally make up at least 1%, and preferably 2-5%, of the portfolio.
- Consider trimming individual stock holdings if they grow to more than 10% of the portfolio and either selling or adding more if they fall below 1%.
- Avoid overconcentration of stocks in a particular sector such as banking or telecommunications. Limit sector weights to 15-20% of the portfolio.
- Remember that companies in "parent-daughter" relationships such as Atco - Canadian Utilities or Power - Power Financial - Investors Group/Great West Lifeco depend on cash flow from the daughters to the parent, and will not move independently. Holding both parent and daughter is usually inadvisable.
- Because the interests of the family may not coincide with those of the shareholders in family-controlled companies, and further difficulties may arise over matters of succession, limit your exposure to any family-controlled group.
- Recall that holding subordinate-voting shares when a company has multiple share classes exposes you to all of the risk, while giving the controlling shareholder a

'free ride' with other people's money. That's a much better deal for the controlling shareholder than for you.

- Although the banks usually make a substantial profit, they will occasionally be hit with loan losses. Some banks will usually be hit more than others, but it is impossible to tell which ones in advance. Consider dividing the portfolio allocation amongst three or more bank stocks.
- Recall that the regional banks, including the two Quebec-based banks, offer greater risk than do the five national banks.
- Use "limit bids" when trading stocks in lightly-traded companies like Canadian Utilities.
- Select stocks from the three different dividend paying cycles to even out cash flow.

The recommended "income" (i.e. dividend) portfolio of a major Canadian brokerage had the following composition in September, 2003:

- Two major banks.
- Two non-bank financial companies.
- Two pipeline companies.
- Two electrical power generation utilities.
- Two telephone utilities.

This approach provides good diversification, although the dividend growth opportunities for some stocks may be limited. Although the individual companies in any such "recommended" list would be expected to change periodically, the candidate list of (large-cap and mid-cap) stocks is relatively short.

A list showing the dividend-paying cycles of several stocks from the financial and utility sectors is given at the end of this section. Investors wishing further diversification may also find additional stocks in the consumer or manufacturing sectors. Resource-based companies are usually cyclical and make poor dividend-growth stocks.

**Note that Canadian equities should only form one part of a properly-diversified portfolio.** Also, because of the narrow breadth of the Canadian market, the dividend-growth investor will undoubtedly wind up being significantly weighted in Canadian banks. This is all right as long as the investor realizes that the banks, by themselves, do not allow adequate diversification, even if they might form a significant part of the Canadian holdings. For proper diversification, the investor should include equities from the US and international markets, as well as bonds.

## Dividend Cycles of Some Canadian Companies<sup>a</sup>

Dividends paid in January, April, July, and October:

Company	Stock Symbol	Sector	Control
Bank of Nova Scotia	<a href="#"><u>BNS</u></a>	Banking	Widely Held
BCE	<a href="#"><u>BCE</u></a>	Telecommunications	Widely Held
CIBC	<a href="#"><u>CM</u></a>	Banking	Widely Held
IGM Financial	<a href="#"><u>IGM</u></a>	Financial Services	PWF 56%
Manitoba Telecom	<a href="#"><u>MBT</u></a>	Telecommunications	Widely Held
TD Bank	<a href="#"><u>TD</u></a>	Banking	Widely Held
Telus	<a href="#"><u>T</u></a>	Telecommunications	Widely Held
Telus Non-Voting	<a href="#"><u>T.A</u></a>		
TransAlta	<a href="#"><u>TA</u></a>	Electrical Power	Widely Held
TransCanada Pipelines	<a href="#"><u>TRP</u></a>	Pipeline	Widely Held

Dividends paid in February, March, August, and November:

Company	Stock Symbol	Sector	Control
Bank of Montreal	<a href="#"><u>BMO</u></a>	Banking	Widely Held
Emera	<a href="#"><u>EMA</u></a>	Electrical Power <sup>b</sup>	Widely Held
Laurentian Bank	<a href="#"><u>LB</u></a>	Banking	Widely Held
National Bank	<a href="#"><u>NA</u></a>	Banking	Widely Held
Power Financial	<a href="#"><u>PWF</u></a>	Financial Services	POW 67%
Royal Bank	<a href="#"><u>RY</u></a>	Banking	Widely Held

Dividends paid in March, June, September, and December:

<b>Company</b>	<b>Stock Symbol</b>	<b>Sector</b>	<b>Control</b>
Atco Ltd.	<a href="#"><u>ACO.X</u></a>	Management and Diversified	Southern Family 78%
Canadian Utilities	<a href="#"><u>CU</u></a>	Electrical Power	Atco 68%
Enbridge	<a href="#"><u>ENB</u></a>	Pipeline	Widely Held
Fortis	<a href="#"><u>FTS</u></a>	Electrical Power	Widely Held
Great West Lifeco	<a href="#"><u>GWO</u></a>	Life Insurance	PWF 65%
Industrial Alliance	<a href="#"><u>IAG</u></a>	Life Insurance	Policyholders
Manulife	<a href="#"><u>MFC</u></a>	Life Insurance	Widely Held
Power Corp.	<a href="#"><u>POW</u></a>	Management and Diversified	Desmarais Family 65%
Sun Life	<a href="#"><u>SLF</u></a>	Life Insurance	Widely Held

- a. Neither inclusion on this list nor exclusion from it is to be interpreted as a recommendation to buy or not to buy a particular stock. The information on this page is in no way guaranteed, and the author takes no responsibility for keying errors. Consult the prospectus or annual report before making any stock purchase.
- b. Emera is officially listed under "Management and Diversified", but derives most of its income from electrical power generation.

## Preferred Shares

- [What are Preferred Shares?](#)
  - [Definitions](#)
  - [Sources of Information](#)
  - [Buying and Selling Preferreds](#)
  - [Floating-Rate Preferreds](#)
  - [Split-Share Preferreds](#)
  - [Hybrid Securities \(COPRs\)](#)
  - [U.S. Dollar Preferreds](#)
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### What are Preferred Shares?

Preferred shares are called "preferred" because their dividend must be paid before the common-stock dividend (if any) is paid. They can be a particularly important source of income for those whose net income (including the dividend "gross-up") falls in the lowest tax bracket, since, as stated earlier in the section on Canadian Investments, the dividend tax credit reduces the marginal tax rate to a few percent. They should not be held in a registered account (except for COPRs, see below) because the advantage of the dividend tax credit is lost. Also, retirees in high tax brackets, particularly those subject to OAS clawback, should avoid holding preferred shares because the dividend gross-up will increase the clawback. The dividend gross-up may also penalize other retirees who have income-based benefits. If in doubt, consult a professional tax advisor.

Unfortunately, preferreds are a complicated area in which paid assistance of some type will be of considerable help to the do-it-yourself investor. Nevertheless, because of the attractiveness of dividend investing for those in the bottom tax bracket, and because of inefficiencies in the preferred share market, careful investors can be well rewarded as long as they pay attention to detail.

[Canadian Moneysaver](#) has occasional articles on preferreds. Some of the articles may be available online periodically.

High-quality corporate preferreds are similar to bonds in terms of risk, and can be considered as fixed income (i.e. low risk) for asset allocation purposes. They can be used instead of bonds in non-registered accounts.

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### Definitions

*Convertible preferreds* can be exchanged for common stock after a certain date and at a certain ratio (which often depends on pricing at the conversion date). Because of this



feature, the price is tied to that of the common stock and will fluctuate more than that of non-convertible issues.

*Cumulative preferreds* continue to accrue unpaid dividends if the company (temporarily) halts the dividend payment. When dividend payment is reinstated, the accrued dividends must be paid. This is a desirable feature; if a dividend is missed in a *non-cumulative preferred*, it is gone forever.

*Exchangeable preferreds* allow the purchaser to switch them for another preferred issue or the common stock. This is a desirable feature because it gives the purchaser an exit.

*Floating-rate preferreds* have a payment that is linked to a certain rate, usually the bank's prime rate. These preferreds vary less in price than do *straight preferreds*.

*Redemption* is the company's right to purchase, or *call*, the shares from you, at (or after) fixed times, and at fixed prices. Often, the shares can be redeemed at a certain initial time ("first call") at a premium which diminishes over a multi-year period. The company will call the shares from you if conditions are to its benefit - that is, if it feels it can get money at a better rate [i.e. by calling a high-yielding preferred and issuing a new one at a lower rate]. For that reason, you should always focus on *yield-to-call* (or *yield-to-worst*, which is the lowest calculated yield when several call options are available) when evaluating a preferred.

*Retraction* is the right, but not the obligation, for you to sell the shares back to the company at a certain time and price (given in the prospectus). *Soft Retraction* allows the company to give you common shares, rather than cash, for your preferreds. Retraction is a desirable feature absent in many preferreds.

*Straight preferreds* pay a fixed dividend, i.e. they are not floating-rate.

Most preferreds combine many of the above features.

*Yield-to-call* is the mathematical calculation that takes into account the present date and price, the call (redemption) date and price, and the dividends due over that interval. If the stock can be called over a multi-year period at a diminishing premium, the *yield-to-worst* calculation is considered the most important. A preferred currently trading above its call price will have in a capital loss if called; this reduces the yield-to-call. This data is available from your broker, or can be calculated on a spreadsheet or financial calculator. An Excel spreadsheet that performs the yield-to-call calculation is [here](#) (right-click to download). The yield-to-worst can be determined by entering all different call dates and prices and noting the lowest yield.

*Yield-to-redemption* or *yield-to-retraction* takes into account the price at (final) redemption or retraction, current price and date, and dividends paid in the interval. They are of less importance than yield-to-call and yield-to-worst.

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## Sources of Information

An excellent on-line source of information on preferred shares is [prefInfo.com](http://prefInfo.com). Preferreds can be sorted by rating at [DBRS](http://DBRS). A rating of Pfd-1 or Pfd-2 is best for the conservative investor. Refining the list requires cross-checking the preferred's rating at [Standard and Poor's](http://Standard and Poor's). To access the ratings, select Canada/English from the top left navigation bar. Individual credit ratings can be found by a company search (free registration required). Investors should also obtain the prospectus (or the annual report, which summarizes the outstanding preferreds) from [Sedar](http://Sedar). The DBRS ratings of Pfd-1 and Pfd-2 are equivalent to the Standard and Poor's ratings of P-1 and P-2. If the ratings from DBRS and Standard and Poor's differ (a "split rating"), use the lower rating.

Information can also be found in printed sources. The Financial Post Data group publication "FPEquities - Preferreds and Derivatives" is an out-of-print source that might be found in your local library. The newsletter *The Money Reporter* (available from [Advice for Investors](http://Advice for Investors)) has recommended preferreds in every second issue and a list of preferreds periodically. You can also obtain a list of recommended preferreds from your broker. The online sources (particularly the prospectus or annual report) can then be used to refine your initial list.

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## Buying and Selling Preferreds

Many preferreds are thinly traded. Considerable care is required in buying and selling to avoid disadvantageous pricing. A bad trade can cost you six month's income. A very bad trade can cost you a year's income.

One way to get a good price is to put in a good-till-cancelled limit order at a favourable price and wait to see if it gets filled. If you are buying, make sure that you don't use the money for something else! If you do, cancel the outstanding order immediately. If your price is too far off the market, it won't get filled; the market maker will buy your target first.

Avoid all-or-none (AON) orders, since they may not get executed even if the preferred trades below (on a buy) or above (on a sell) the AON price. A limit order is better.

Another strategy is to monitor the price of your selected preferreds and put in a market order when pricing is favourable to you. Many preferreds sell off just after the ex-dividend date as unwise investors unload; this is often a buying opportunity. Conversely, don't sell a preferred right after its ex-dividend date; wait a while or sell before it is ex-dividend (i.e. while it is cum-dividend). Buying pressure - say, after a bank rate cut - may also temporarily raise the price of the preferred; this may represent a selling opportunity. **Always monitor the yield-to-call (or yield-to-worst) and use that, rather**

**than the nominal yield, to determine whether or not pricing is advantageous.** The yield-to-call can be calculated from a financial calculator or with spreadsheet functions. A very high nominal yield usually means that there is something wrong with the security; this will often be an imminent call.

If you need to sell a preferred immediately to raise cash, use a market order and take your lumps.

Straight preferreds will tend to track the long (30-year) bond in price. When bond prices go down (i.e. interest rates go up), so will preferred prices. At the time of writing (January, 2002), interest rates seem more likely to go up than down. Straight preferreds should be avoided.

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### **Floating-Rate Preferreds**

Floating-rate preferreds have dividend yields that track current interest rates. The yield is usually calculated as a percentage of the current prime rate. A preferred share often has a floating-rate provision that comes into force if the issue is not redeemed at a certain date.

Some floating-rate preferreds have a rate adjustment mechanism that adjusts the dividend if the share price falls outside a certain range. This feature is usually desirable, and should improve the price stability of the preferred. Since the mechanism of the dividend adjustment may at first appear obscure, I will give an example based on the most common adjustment mechanism.

**Example 1:** ABC Corp issues a preferred share with a face value of \$25.00 and an initial fixed rate of 5.5%. This gives an annual dividend of \$1.375, paid quarterly. On a specified date, this issue is redeemable at \$25.00. It is not redeemed and, in accordance with its prospectus, converts to a floating-rate preferred, callable at \$25.50, and with an indicated annual dividend of 80% of prime, payable monthly. The dividend is to be adjusted if the share trades outside a certain range (say \$24.875-\$25.125) for more than a specified period in each month. The maximum adjustment in any month is 4% of prime and the adjusted dividend rate can not be less than 50% of prime or more than prime.

At the time of conversion, prime was 4.5%. The initial annual floating dividend is  $0.045 \times 0.80 \times \$25.00$ , or \$0.90 - a significant drop from the previous \$1.375. The share price therefore drops well below the \$24.875 floor. The following month, the indicated annual dividend is raised by the maximum amount of 4% of prime. This is calculated to be  $0.04 \times 0.045 \times \$25.00$ , or \$0.045, and gives a new annual dividend of \$0.945. The preferred price still remains below the \$24.875 floor, so the

dividend is raised the following month to \$0.990, then to \$1.035, then to \$1.080, and finally to the maximum of \$1.125. The share price increases with each dividend increase, and then stabilizes. The preferred share is now paying an indicated annual dividend of 100% of prime.

Floating-rate preferreds should see less price pressure than straight preferreds in the event of interest rate increases, but, because there is a delay in the setting of the floating rate, any dividend rate increase will lag changes in the prime rate.

Floating-rate preferreds can provide a tax-effective alternative to bonds in a non-registered portfolio. However, in addition to problems associated with poor liquidity, a preferred issue may suffer a substantial price drop if the company's credit rating is downgraded - even if the preferred dividend is not at risk. This means that there may be no favourable exit price unless or until the company recovers. Individuals wishing to hold floating-rate preferreds in their portfolios should consider spreading their holdings amongst several high-quality issues from different companies in different sectors, and limiting each holding to 1-2% of the portfolio. If these precautions are taken, floating-rate preferreds should act as a separate asset class, providing modest income whilst reducing portfolio variation.

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### **Split-Share Preferreds**

Split-share preferreds are issued when an investment banker acquires the stock of one or more companies and uses the stock to underwrite a closed-end fund. This closed-end fund then issues both capital and preferred shares. The preferred shares get the dividends from the underlying companies. The capital shares get most or all of the price appreciation. The underwriters get a fee and the lead underwriter usually gets a management fee. Split-share offerings have been made by splitting the shares from banks, pipelines, utilities, and life-insurance companies.

The preferred-share investor should be wary of several aspects of the preferreds.

1. If the issue is from a single company, the dividend could be cut. This happened a few years ago with Trans-Canada Pipelines. Multi-company split shares give better diversification.
2. If the underlying companies rise sharply in price, the capital share owners will use a yearly retraction feature to sell their shares back to the underwriter, who will call a corresponding number of preferred shares. If this happens, the preferred share owners may see a significant fraction of their shares - perhaps as much as 30% to 50% - called at the retraction date (these dates are usually on each anniversary of the original issue date). These large retractions disrupt income planning.
3. If the preferred shareholders have paid over par for the preferred shares, then they will incur a capital loss on shares redeemed at par. This problem is particularly

important for split-share preferreds issued some time ago and which have very high apparent yields because of subsequent dividend increases in the underlying common shares.

4. The dividend payout may partly be a return of capital. The prospectus should be consulted to see if the underlying shares provide sufficient dividend coverage.

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### **Hybrid Securities (COPRs)**

Hybrid securities called COPRs (Canadian Originated Preferred Securities) became popular a few years ago, and have been offered by several companies. These instruments are basically junior subordinated debentures from the issuing companies, and pay interest, not dividend, income. They should be held in an RRSP. They are non-cumulative and the dividend can be halted for up to five years, but only if the common stock dividend is halted first. Most of them are callable starting in 2004.

These issues will drop in price if interest rates rise, and should not be held in a rising interest rate environment. They are subject to mispricing just after the ex-dividend date, and can be traded for modest gains if careful attention is paid to pricing.

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### **U.S. Dollar Preferreds**

Some Canadian companies, including several of the big banks, offer preferred shares that pay dividends in US dollars. These dividends still qualify for the dividend tax credit, which is based on whether CRA considers the company to be Canadian, not what currency is used to pay the dividend.

The preferred shares of US companies do not benefit from the dividend tax credit and have the same tax treatment as interest income.

**Note:** In "Fifty Plus" magazine, August 2002, p. 45, author Gordon Pape points out a problem with U.S. dollar preferreds that are redeemed by the issuer. The owner will be taxed on a "deemed dividend" that reflects the change in the Canadian dollar value on the preferred since it was issued (not since it was purchased). A capital loss will also be incurred, but the individual taxpayer will have a net tax increase if in a bracket where the tax rate on dividends is greater than the tax rate on capital gains (losses). To avoid this tax, says Pape, shareholders should "always sell U.S.-dollar preferreds back into the secondary market before redemption".

## Options

- [What are Options?](#)
  - [Definitions](#)
  - [Simplified Explanation of Covered-Call Option Writing](#)
  - [Hedging](#)
  - [Drawbacks](#)
  - [Appendix: The Black-Scholes Equation](#)
- 

### What are Options?

Options are a complex and poorly-understood area of investing. As with preferreds, professional assistance (or a good deal of reading) are a prerequisite. Options trading requires filing a separate clearance form with your broker.

In Canada, options are traded on the Montreal Exchange (MX). US options are traded on the Chicago Board Options Exchange (CBOE), Amex/NASDAQ, the Pacific Stock Exchange, and the Philadelphia Stock Exchange. The US exchanges offer far greater liquidity [ease of trading] and better accountability than the MX, and should be used whenever possible.

Material on options can be found at the following sites:

[The Options Industry Council](#)  
[Investment FAQ's](#)  
[E-trade](#)

Recommended books include:

McMillan, Lawrence G. "Options as a Strategic Investment", Prentice-Hall Press, 1992 and later.

Thomsett, Michael C. "Getting Started in Options", Jossey-bass Inc., 2001.

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### Definitions

*Call options*: the right (but not the obligation) to buy a stock at a certain price (the "strike price") on or before a future date.

*Put options*: the right (but not the obligation) to sell a stock at a certain price (the "strike price") on or before a future date.

*Covered call writing*: the practice of selling ("writing") call options on a stock which the writer also owns. This approach is used by some retirees to supplement their income.

*Cash-covered put writing*: a mathematically-equivalent tactic to covered-call writing. The writer sells a put option which is covered by cash in his account. [If the stock goes down and the put is exercised, the cash will be needed to buy the stock.]

*Strike price*: is the value at which the option can be exercised.

*Premium*: the amount received by the option writer (before commissions).

*Expiration date*: the date after which the option becomes worthless. These are always on the third Friday of a month. American options can be exercised before or on the expiration date. European options can only be exercised on the expiration date.

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### **Simplified Explanation of Covered-Call Option Writing**

I do not intend to give a full explanation of options trading here. Anybody who seriously wants to trade options should investigate the matter thoroughly, peruse several texts, and try it out in an imaginary account for several months before actually venturing into the market. I am simply going to give an overview of the simplest strategy, "covered-call writing", which is claimed by some authors to enhance returns.

Options traders are **buying and selling probabilities** - which is something insurance companies (and gambling operations) do for a living. A covered-call writer is selling, for the premium, the probability of an increase in price of a company above the strike price. In other words, the writer is forgoing the chance of a large gain for the certainty of the premium.

Let's consider an example.

In the January 19 2002 Globe and Mail Report on Business, the Bank of Nova Scotia is listed as having closed at \$48.10. If I have 500 shares, I can write a covered call by writing 5 call options contracts (each contract is for 100 shares). I must first choose the option expiry date. Suppose I select options expiring in April 2002 (the third Friday). I must then select the strike price. A call option with a strike price above the current stock price is said to be **out of the money**; the \$50 contract has a bid price of \$1.35 and an ask price of \$1.40. The next lowest contract is for \$47.50 and is **in the money**; it has a bid price of \$2.45 and an ask price of \$2.60.

These prices are based on a sophisticated mathematical estimate of the probabilities (the **Black-Scholes Equation**, see Appendix). In effect, the equation calculates the probability that the stock will exceed the strike price during the time-to-expiry. This probability is then used to calculate a price, which is then corrected (discounted) using

the treasury-bill rate and further corrected for dividends received by the stock holder but not the options holder. If the equation is accurate, the resulting price is fair to both buyer and seller.

In selecting the strike price, I must decide whether to write an in-the-money call or an out-of-the-money one. An in-the-money call will be exercised on or before expiry and must be bought back if I don't want to sell the stock; an out-of-the-money call is safer if I have a large embedded taxable gain. Suppose I decide to write the out-of-the-money call closest to the current price - the \$50 one. That's the one with the highest premium. I would receive a premium of about  $500 \times \$1.35$ , or \$675, less commissions (which can be quite high) - say, \$37.50 from a prominent discount broker (you may do better), for a net of \$637.50. This gives an annualized return over the three-month time-to-expiry of about 11%. The commission is 5.6% of the gross.

If the stock is above \$50 in April (or earlier; the call can be **assigned** at any time), the buyer of the call (who is probably a professional trader) will **exercise the call** and call the stock from me. I will receive  $500 \times \$50$ , less normal stock trading commissions, on top of the \$637.50 already received. If I have a capital gain on my shares, and they were in a non-registered account, I will have to pay the tax due. (To keep the stock from being called I could have bought back the option at whatever price was necessary.) On the other hand, if the stock finishes below \$50, the call expires worthless and I pocket the \$637.50. The trader who bought the call will manage his risk in such a way as to make a profit however the stock price moves.

Covered-call writing is **selling the upside** for a modest premium.

It can be used to **enhance income without selling the stock**, and is favoured by some retirees for that purpose (note the 11% annualized yield on the Bank of Nova Scotia option). Options writing also reduces portfolio volatility and provides extra income in flat or down markets. For a given volatility, there is a relation between the options premium and the probability of the call being exercised: lower probabilities give smaller premiums. The premium is also higher for high-volatility stocks. The **implied volatility** of a stock is the volatility (obtained from the Black-Scholes equation) corresponding to the market premium of its options, and can vary due to market conditions. It may be advantageous to write options only when the stock's implied volatility is above average.

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## Hedging

Writing covered calls can be used very effectively to **hedge the potential loss** (and manage the risk) when buying distressed companies. Beaten-up stocks usually have options with a very high premium (and therefore a very high implied volatility). An investor who feels a temporarily-distressed company is fundamentally sound will buy the stock when he thinks it is near its bottom and immediately write a long call. The call premium for such stocks can reduce the cost base significantly, thus substantially




reducing the amount at risk. The hedged position will not be at a loss unless the stock falls by more than the option premium, whereas a similar unhedged dollar investment would drop with any further decline in stock price. If the company survives, the stock will likely eventually be called, which limits the upside for the hedged position but can give a very high annualized return on the reduced cost base. The unhedged position would, in that case, get a better total return, but also has greater risk.

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## Drawbacks

Options writing is inherently a **zero-sum game**: for every winner, there must be a loser. In fact, since commissions and bid-ask spreads are quite high, it becomes a **negative-sum game**: there are more losers than winners. The amateur options trader is placing a bet with a professional, who almost certainly has more knowledge and experience, doesn't pay commissions, benefits from the bid-ask spread, and can use sophisticated techniques to lay off the bet - making money from you, the writer, at no risk. In addition, there have been reports of sharp trading practices on the Montreal Exchange which can further trap the unwary; the American exchanges, which have better accountability, should be used for all options trading.

Successful option trading needs a fair bit of study and trial-and-error learning (in an imaginary account). If the stock is held in a taxable account, assignment of a call may result in a significant tax liability.

I am not convinced that "selling the upside" is the road to riches. In steady or down markets, it provides extra cash - but in rising markets, the stocks are either called or the option must be bought back. See, for example, the following argument, by Don Chance: [Misconceptions about Covered Call Writing](#)  . Call option writers are **forgoing the possibility of a large gain**. Although that possibility may be small, the resulting infrequent - but large - gains can, over the long run, account for a significant portion of a portfolio's performance. As Nassim Taleb discusses in his book "Fooled by Randomness", the options market underestimates the cost associated with improbable events. Covered-call writing suffers from full participation in the downside while being inadequately rewarded for the upside, so, in the long run, it is return-limiting. It is not possible to guarantee that the option can be bought back as soon as it is in the money, because a stock would be halted on major news (say, a takeover) - and will reopen at a higher price. The price of covering a "bad call" could easily equal that of many premiums. Alternatively, if the stock is called, the foregone gain is a hidden cost that many traders don't take into account.

It has also been pointed out that the options writer whose stock goes down faces the question of what to do if his previous option expires while the stock is depressed: if he writes another one at the depressed price, the stock could be called on the way back up.

The question is not whether one can make money by writing covered calls; it is whether more money can be made than by simply holding the stock. After all, if you didn't think a stock would go up, why did you purchase it in the first place? And if it does go up, it will be called.

I suspect there is a fundamental incompatibility between covered-call writing and the dividend growth strategy outlined in the section on Canadian stocks. Covered-call writing gives the largest premiums with stocks with high volatility (and high risk): but these stocks also may lose value catastrophically. Dividend-growth investing favours conservative, low-volatility stocks with small options premiums. Such stocks often have limited downside; selling the upside makes no sense.

Some authors claim that there is little chance of an option being assigned before its expiry date. I suppose I must be uncommonly unlucky, since the first option I wrote (an in-the-money call; I should have just sold the stock, which I considered overpriced) was assigned about three weeks before expiry. An investment club for which I was treasurer also had an option assigned a couple of weeks before expiry. If the tax liability on embedded gains is significant, I don't think covered-call writing is worth the risk. If you want some extra income, why not sell just a little bit of the stock? This completely avoids the risk of a large tax penalty if all the stock is called.

For those who want to study options material and start writing calls, good luck. There are also many other more sophisticated options strategies that can be used. But I think a small amount of money can be made more safely (and with less work) by trading preferred shares.

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## Appendix: The Black-Scholes Equation

The Black-Scholes Equation (the derivation of which received the Nobel Prize) is commonly used to evaluate options prices. The data required by the equation are:

1. the current stock price
2. the option strike price
3. the time-to-expiry
4. the option type (put or call)
5. the 30-day treasury bill rate ("discount rate")
6. the stock dividend rate (if any dividend is due before the time-to-expiry)
7. the stock's annual volatility

All inputs except the volatility are known.

The Black-Scholes Equation calculates the probability that the stock price will exceed the strike price by assuming a **log-normal price distribution**, which means that a plot of probability versus the logarithm of the stock price has the usual "bell curve", or Gaussian,

shape. The volatility is proportional to the width of the distribution. This assumed distribution tends to underestimate the observed probabilities at the "tails" of the curve; i.e. in real life it underestimates the likelihood of large price changes. Traders will therefore adjust the option premium upwards (which is equivalent to assuming a higher volatility - the implied volatility) if they feel that a large price change is possible.

The CBOE calculates a market volatility index (symbol: VIX) that is the average implied volatility of eight put and call options. This index is usually between 20 and 30 (i.e. an implied volatility of 20 to 30%), but can move sharply upwards if large market swings are anticipated. A very high implied volatility is usually an invitation to write options, not buy them.

A Gummy Tutorial on the Black-Scholes Equation is [here](#).

*The firm made money, the broker (manager)  
made money, two out of three ain't bad.*

- Wall Street joke.

## **Initial Public Offerings**

Initial public offerings (IPOs) are a stock or trust that is brought to market, often with great fanfare, to fill a (perceived or manufactured) need. Even now, after the crash of the NASDAQ bubble of 2000, the news reports occasionally trumpet a hot new offering that jumped 30% or even more on its first trading day. This leads many investors to think that the way to Get Rich Quick is to invest in the latest IPO.

Unfortunately, the reality is somewhat different. Academic research has established that IPOs return much less than the market average. In his book "Contrarian Investment Strategies: The Next Generation", David Dreman refers to a large academic study by Ritter and Loughran of 4753 IPOs from 1970 to 1990. The average annual return of these IPOs was only 3%, compared to 11.3% for the S&P 500. The median return was far worse: -39%. Only a few of the IPOs made money - and those few would have been unobtainable in quantity by the average investor. Betting heavily on IPOs is a good way to drain your portfolio.

To understand why, you must consider the process behind an IPO. A potential seller and a merchant bank (an arm of a commercial bank or brokerage house) will get together to consider an IPO. The merchant bank, which employs some very clever people, will crunch the numbers and attempt to develop a scenario that is profitable for both it and its customer (the seller). *The buyer's welfare usually isn't considered.*

If the issue looks favourable, it will be brought to market at a time that favours the seller. The merchant bank - which will make a nice profit from the deal - aggressively markets the product, attempting to develop a market if none exists. A prospectus will be prepared that contains profit forecasts using assumptions that are often impossibly optimistic; this is particularly likely if retail investors, rather than institutional investors, are the desired market. After all, if it's such a good deal, why are they selling it?

An old market saying is that IPO means "It's Probably Overpriced". Another market saying is that if you subscribe (ask your broker for some) and get all you ask for, it's going down; if you get a "partial fill", it's going up.

Although in a few cases - bringing Crown corporations public is one; demutualization is another - the pricing is such that the initial purchasers will be rewarded, in general it's better to avoid IPOs. *The main purpose of many IPOs is to enrich the seller and the salesman at the expense of the buyer.* New and fancy 'wrinkles', in particular, are usually

marketing features that make the offering look pretty but that in the end will cost the investor money. Charles Ellis put it this way in his book "Winning the Loser's Game":

Don't invest in new or "interesting" investments. They are all too often designed to be sold to investors, not to be owned by investors. (When the novice fisherman expressed wonderment that fish would actually go for the gaudily decorated lures offered at the bait shop, the proprietor's laconic reply was, "We don't sell them lures to fish.")

As a good rule of thumb, the greater the twist, the more thorough the screwing.

**Just say no to IPOs.**

Also, as [this article](#) discusses, secondary offerings [i.e. when a company issues additional stock to pay for a purchase] also underperform. Again, the reason is that stock is only issued when it is overvalued.

On the other hand, if a company announces a secondary offering then cancels it because of "poor market conditions", that means the merchant bankers think the stock will go up. Consider buying, if it looks otherwise attractive.

*Watch out for stobor.*

- R.A. Heinlein, *Tunnel in the Sky*.

## **REITs, Royalty Trusts, and Income Trusts**

- [What are Income Trusts?](#)
  - [Real Estate Investment Trusts \(REITs\)](#)
  - [Business Income Trusts](#)
  - [Royalty Trusts](#)
  - [Other Trusts and ETFs](#)
  - [Discussion](#)
- 

### **What are Income Trusts?**

Real Estate Investment Trusts (REITs), royalty trusts, and business income trusts are all considered to be income trusts. These are securities which must, by law, pay out most of their earnings in cash distributions. The trust structure enables the underlying business entities to reduce taxes; the tax due is essentially passed on to the unitholders.

**On October 31, 2006, the Finance Minister announced that currently-trading income trusts, except for REITs that satisfied proposed Canadian content regulations, would be taxed starting in 2011. Although the regulations could be changed by future governments, cautious investors should be careful about investing significant sums without careful evaluation. At this time, it is expected that many non-REIT trusts will cease to exist by 2011, either converting to corporations or being acquired.**

For individuals who are accumulating a portfolio while still working, income trusts should be held in an RRSP to minimize tax drag. They can be switched to the non-registered account after retirement to provide tax-advantaged income.

An excellent, but cautionary, read on the process of establishing a trust is given in [Selling the Downside](#), which was written in 1997 at the time a large number of new income trusts were issued. Income trusts based on power generation or pipelines are usually considered the least risky, followed by REITs, business income trusts, and finally by royalty and commodity trusts. A primer on income trusts is available [here](#) (pdf). [Standard and Poor's](#) and [DBRS](#) give stability ratings for several trusts; these should be consulted before purchase. A list of current trusts, including many analyst targets, is available on [Canadian Trader](#). Note that all trusts will carry "interest rate risk"; that is, the unit prices will tend to drop (and yields go up) if interest rates increase (i.e., if bond prices drop).

Many - but not all - trusts provide a significant "Return of Capital" component which is tax-deferred until the unit is sold if it is held outside an RRSP. REITs, royalty trusts, and power-generation trusts usually fall in this category. Some trusts, including many business-income trusts, have little tax deferral, and should be held inside an RRSP. **The investor should consult the trust's web site before purchase to determine the tax status.**

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## **Real Estate Investment Trusts (REITs)**

REITs provide the unitholder with the rental income from various types of properties. REITs based on commercial property (shopping centers); office spaces; light industrial property; retirement residences; apartments; hotels; and U.S. properties are all available on the Toronto stock exchange. The [Deloitte and Touche REIT Guide](#) (pdf) should be reviewed before investing in REITs. Additional information on REITs can be found at the [Canadian Institute of Public and Private Real Estate Companies \(CIPPREC\)](#). Some of the distributable income from REITs represents the depreciation of the underlying real estate, and is tax-deferred in a non-registered account. Note that hotel REITs are considered more risky than other REITs, and should reward the investor with a higher dividend yield. Some REITs available on the Toronto stock exchange hold US properties.

REITs holding Canadian properties were specifically exempted from the taxes announced in late 2006. However, the details of the exemption are still being established. Individual REIT news releases should be checked for further information.

Barclay's Canada has introduced an iREIT ETF based on the Standard and Poor's Canadian REIT index (stock symbol: XRE, MER 0.55%). However, most of the iREIT holdings are in the four or five largest REITs. Investors with more than about \$25000 can obtain about a one-year payback on the underlying MER by purchasing the largest five holdings directly at a discount brokerage.

Four US ETFs based on REITs are available. They are: the iShares Cohen and Steers Realty Majors (stock symbol: ICF, MER 0.35%); the iShares Dow Jones US Real Estate (stock symbol: IYR, MER 0.60%); the State Street StreetTRACKS Wilshire REIT (stock symbol: RWR, MER 0.32%); and the Vanguard Morgan Stanley REIT Index (stock symbol: VNQ, MER 0.18%). These ETFs have a significantly lower yield than do Canadian REITs, and the dividends are subject to US withholding tax if the ETFs are held in a non-registered account.

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## Business Income Trusts

Trusts providing the income from a large variety of businesses are available. Examples include: power generation, pipelines, northern telephones, cold storage, sardine sales, trucking, mattresses, northern stores, restaurants, and many others.

Investors should be aware that not all businesses will be sufficiently stable to provide reliable trust income. Businesses with a natural monopoly or long-term contracts will usually provide stable income. However, other businesses will be subject to the business cycle or pricing constraints and may be forced to reduce or eliminate distributions in difficult economic times. Prospective buyers should consult the [Standard and Poor's](#) and [DBRS](#) stability ratings.

Most business trusts are expected to cease to exist in that form by 2011.

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## Royalty Trusts

Royalty trusts are based on the royalties paid by oil and gas companies. With these and other resource-based trusts, the yield is, in part, due to the depletion of the resource. If oil reserves (or an ore body) will be depleted in a certain number of years, the value of the resource will be zero at that time. This depletion is included in the yield as "return of capital" - **but the investor is simply getting his own money back**. Although oil and gas trusts frequently issue new units to acquire new reserves, in [this Financial Post story](#), it is argued that oil and gas trust unit prices will decline sharply in the last half of 2003 as current reserves are depleted and replacements are increasingly hard to find because of the maturity of the Western Canadian oil basin.

Because of the risks involved with their purchase and the uncertainty of future distributions, royalty trusts should form only a small part of the trust portion of most portfolios.

Another criticism of many oil and gas trusts relates to their management structure. In many of the trusts, an external management company is used. The management company frequently is given extra fees for purchasing new reserves - that is, for doing its job. Because the interests of the managers of externally-managed trusts are not aligned with those of unitholders, some trusts are now internalizing management. Although this is viewed as a positive development, a multi-million dollar fee is usually associated with this change - and is paid by the trust unitholders.

Oil and gas trusts can be used as a "lifestyle hedge". The payout from these trusts varies with oil and gas prices (sometimes with a delay that depends upon the trust's strategy). By including just enough of an oil and gas trust in your portfolio so that the dividends offset your monthly gasoline and heating bills, you protect yourself against



future price increases. If the price of oil and/or gas drops, so will your dividends - but then so will your gasoline and heating bills.

The purchase of an oil and gas trust can also be viewed as prebuying your oil and gas. Prospective purchasers should ask themselves whether it is better to prebuy when energy prices are high, or when they are low.

Most royalty trusts may also cease to exist in that form by 2011.

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## Other Trusts and ETFs

Other types of trusts include "trusts of trusts" (which purchase other trusts, but include an extra layer of management fees) and trust ETFs. The trusts of trusts and trust ETFs are available in a bewildering variety of forms, including passive, active, capitalization-weighted, and equally-weighted. Trusts-of-trusts are available which focus on the oil and gas sectors or business sectors, or which use a screening mechanism to select certain types of trusts. Investors are encouraged to carefully review the prospectus of these securities before purchase. Things to consider include desired portfolio oil and gas weighting, tax efficiency, and degree of concentration or diversification.

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## Discussion

The October 31 2006 announcement on tax law changes came as a shock to most income trust investors, many of whom lost money as a result of the following abrupt price drops. Unfortunately, many of those who lost money were counting on trusts to provide significant income at a time when bond yields were very low. Even though there was no immediate change in income from the announcement, the immediate loss of capital came as a severe shock to many.

Although REITs, royalty trusts, and income trusts are often sold as "bond replacements", particularly during times with low interest rates, **neither the capital nor the income is guaranteed**. Unit prices are also affected by the price of the long (30-year) bond, and will tend to go down when interest rates go up. Although bonds provide a return-of-capital guarantee at maturity, trusts do not; hence, the yields of even high-stability trusts will always be higher than bond yields. In addition, commodity-based trusts like royalty trusts will have a dividend that depends on the price of the underlying commodity. Payouts will decline, and may even be halted, if the price of the commodity declines. In fact, if a large number of new trusts appear in a particular area (see section on IPOs), that's a good indication that the price of the underlying commodity is near a peak.

Consider REITs and income and royalty trusts to be part of your equity (high-risk) allocation. Since they are a sector investment, they have higher risk than more diversified securities, over and above the political risk associated with tax law changes, and should not constitute a major part of your portfolio.

**Return of capital is more important than return on capital.**

*The difference between a bond and a bond fund manager is that the bond matures.*

- Wall Street joke.

## Bonds

- [Why Buy Bonds?](#)
- [Coupon Bonds](#)
- [Stripped Bonds](#)
- [Bond Duration](#)
- [Corporate Bonds](#)
- [Treasury Bills](#)
- [Guaranteed Investment Certificates \(GICs\)](#)
- [High-Yield Bonds](#)
- [Foreign Currency Bonds](#)
- [Bond Exchange-Traded Funds](#)
- [Bond Mutual Funds](#)
- [Real Return Bonds](#)

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### Why Buy Bonds?

Bonds are usually introduced into a portfolio to reduce volatility and to provide a source of income. Most portfolios should contain from 25% to 75% bonds, depending on the goals of the investor. Individuals seeking income or who need access to capital within a 5-year time frame should have a significant bond component. The bond fraction of an individual's portfolio usually increases as the person ages. However, retirees with significant pension income can consider the pension to be from a "phantom" bond component, and may hold a higher than normal equity fraction in the remainder of their portfolio if the pension meets most of their cash flow needs.

Bonds are usually held within an RRSP because bond income is fully taxed whereas capital gains and Canadian dividend income are taxed at lower rates.

One way to hold bonds in a portfolio is to set up a **bond ladder** of staggered maturities. A five-year ladder, for example, would hold bonds of 1-, 2-, 3-, 4-, and 5-year maturities. To continue the ladder, each maturing bond would be used to buy a new five-year bond.

**The advantage of a bond ladder is that it gives access to cash at 100 cents on the dollar as each bond matures, regardless of interest rates.**

Bonds may be purchased either as coupon bonds or as stripped bonds. These options are discussed below. More detail can be found at [The Financial Pipeline bond page](#).

Bonds with very long maturities have significant price volatility. Because some researchers feel that the extra return with long bonds inadequately rewards investors for that volatility, normal long bonds should be avoided and replaced by Real Return Bonds (see below).

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## Coupon Bonds

"Coupon bonds" provide a semi-annual interest payment (the "coupon"). Retirees may find it useful to have coupon-paying bonds in their RRSP/RRIF portfolios so that they have another source of cash flow (see "Withdrawal Strategy", below). On the other hand, the interest payments can be a nuisance during asset accumulation, since they may be difficult to reinvest efficiently ("reinvestment risk"). If a "bond ladder" (bonds of increasing maturities) is built within an RRSP using stripped bonds (see below) during asset accumulation, after retirement it may be worthwhile to replace the maturing stripped bonds with coupon bonds.

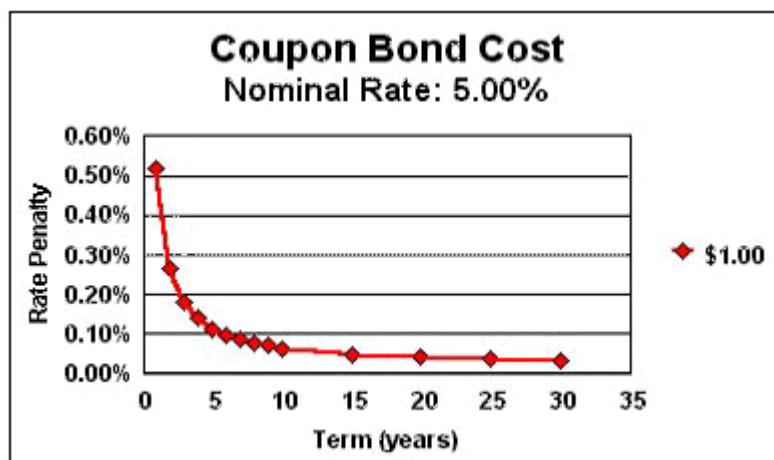
Coupon bonds have a face value or **par value** of \$100 at maturity, but may trade at values greater or less than \$100 before maturity, depending upon prevailing interest rates. If rates go up, the market value of the bond will go down. It is possible for a bond having a low coupon to trade at less than \$100 if interest rates are high. [If you own a one-year coupon bond paying **3%** and the one-year interest rate is **5%** the current market value of the bond is roughly **\$98**: in one year you will get **\$3** interest from the coupon and receive another **\$2** in price gain (to \$100) for a net return of **\$5**.] Alternatively, a bond with a high coupon may trade at above \$100 if rates are low.

Coupon bonds held outside an RRSP may incur either a capital gain or a capital loss when redeemed or sold. The tax is payable in the year the sale or redemption occurs. Because capital gains or losses are included in income in non-registered accounts at 50%, at a constant overall bond yield a capital gain is more advantageous than a capital loss. Consider three bond yielding 5% to maturity in one year: one has a 5% coupon and trades at par (\$100), one has a 7% coupon and trades at approximately \$102, and one has a 3% coupon and trades at approximately \$98. Although the before-tax yields are similar, the 7% bond produces \$7 in fully-taxed income and a \$2 capital loss, which can only be written off against \$1 in capital gains. The 3% bond produces \$3 in income and \$2 in capital gains, which is included as only \$1 in taxable income. Therefore, bonds trading below par have a tax advantage in non-registered accounts. Some bond traders refuse to buy any bond that trades above par value because of the possibility of a capital loss.

The yield to maturity, which always reflects current interest rates (as well as the creditworthiness of the issuer) takes into account both the coupon yield and any gain or loss (see a [gummy tutorial](#)).

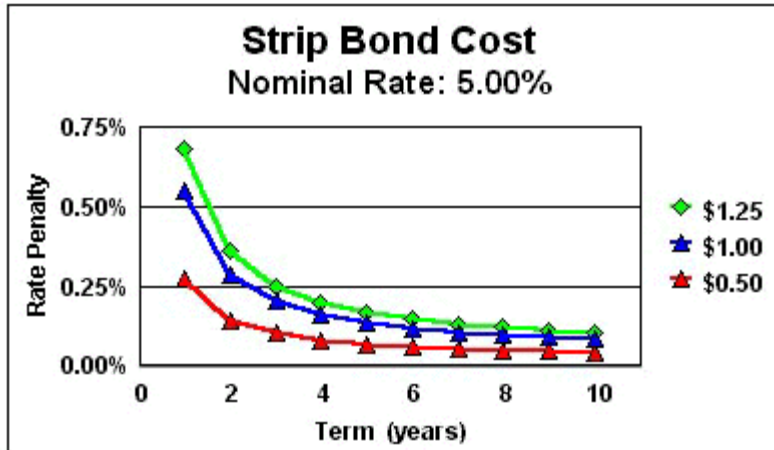
Bonds are purchased with a commission hidden in the difference between bid and ask prices. This commission varies with the term of the bond (longer-term bonds carry a higher commission), with the size of the transaction (very large transactions - \$100,000 or more - can get a better deal), and with the dealer. Investors who don't generate high trading revenues can't expect a good deal on bond prices. For most investors, the commission for a mid- to long-term bond is probably about \$1.25 per \$100 of face value, shading down to somewhere between \$0.25 and \$0.50 for a short-term bond.

In determining the cost of the bond, it is conventional to assign one-half of the bid-ask spread to the seller and one-half to the buyer. The rate penalty of a \$1.00 bid-ask spread on a coupon bond trading at \$100 and nominally yielding 5.00% using this convention is shown below:



### Stripped Bonds

"Stripped" bonds are purchased at a discount from the nominal \$100 face value and provide \$100 on maturity, but no cash flow. For example, a stripped bond yielding 5% annually and maturing in two years would cost about \$90.70 per \$100. Stripped bonds are often favoured during the asset-accumulation phase, since cash flow isn't required and is often a nuisance because the amounts are too small to conveniently reinvest. The stripped bond therefore carries no "reinvestment risk". However, its market value is more greatly affected by interest rate changes than is the market value of the coupon bond. Again using the convention of assigning one half the bid-ask spread to the purchaser, the effect of various spreads on the yield of stripped bond nominally yielding 5% is shown below:



Stripped bonds have a higher rate penalty (and higher total commission) than do coupon bonds at longer maturities, since a \$1.25 spread is higher on a percentage basis for a bond bought at \$60 than for one bought at \$100. Stripped bonds are also more volatile than coupon bonds.

Stripped bonds should not be held outside an RRSP because tax will be due on the "notional interest" (an amount calculated based on the pro-rated yield to maturity), even though no actual money has been received. The yield penalty from buying mid-term liquid (i.e. heavily-traded) investment-grade stripped or coupon bonds from a major dealer is about 0.01-0.02% per annum.

## Bond Duration

The volatility of a bond (or a bond fund) is measured by its **duration**, which gives the sensitivity of the bond to interest rate changes. Bond fund durations can be obtained from the fund manager. If a bond or bond fund has a duration of, say, 5 years, the value will drop by 5% if interest rates go up by 1%. Durations are usually classified as short (~2-5 years), medium (6-9 years), or long (>10 years). For individually-held coupon bonds, duration increases with increased term to maturity, but decreases with increased coupon yield (because the coupons can be reinvested at a higher rate). For stripped bonds, duration and maturity are the same.

## Corporate Bonds

Corporate bonds are generally considered to be higher risk than government bonds, and offer higher yields depending on the credit rating. Credit ratings are available at [DBRS](#) and [Standard and Poor's](#). To access the Standard and Poor's ratings, select Region: Canada from the top navigation bar. Choose the Credit Ratings List under the Fixed

Income tab on the menu on the left. Use the filter or the alphabetical settings to find selected companies.

Many corporate bonds have call provisions that allow the issuer to redeem them before maturity. It is important that any purchaser understand these provisions before buying! The following discussion of call provisions was posted to "The Wealthy Boomer" by "nfsnfs" (Norbert Schlenker), and is used with permission:

"A call provision on a bond is an option retained by the issuer to redeem the bond before its stated maturity. As with any option, a call provision has value. Therefore, callable bonds trade at a discount to (alternatively, have higher yields than) similar non-callable bonds. The issuer is likely to exercise the option ("call the bonds") when market interest rates have fallen, leaving the bondholder with cash when reinvestment rates are unfavourable.

In Canada, government bonds are generally non-callable, while corporate issues are callable. This is a *general* rule. Always check for issue specific provisions.

Call provisions are usually exercisable only when some time has passed after the bond is issued. Often, a call has terms that vary over time. For example, a provision could be "*Callable at 102 after 5 years, declining to par in 9 years*", which is taken to mean that the issuer may call the bond at 102% of par after 5 years, 101.50 after 6, 101 after 7, 100.50 after 8, and at par after 9 years.

In Canada, a peculiar call provision called a "*Canada call*" has come into existence. (It was developed by underwriters to assuage the anger of large investors who had seen even stringently drawn call provisions abused by issuers - and upheld by courts.) A Canada call adjusts the call price by reference to current yields in the market, with a floor price of par in most cases. For example, a 10% bond with two years remaining to maturity might be callable, but if two year government of Canadas are yielding 4%, the call price will be something like 112. If two year Canadas yield 8%, the call price would be about 104. Such a provision protects bondholders from call with most yield curve changes.

Since Canada calls were first introduced, in the eyes of investors, even they have been abused by issuers because the reference yield curve is usually Canadas but corporate issuers always pay a premium over those rates. Consequently, most bonds issued with Canada call provisions today have a stated premium, usually in the form of +xx bp [bp = basis points, 0.01%], over the Canada curve. Even this is not complete protection against an early and unfair call, as the premium is usually less than what the issuer would normally pay over Canadas."

Barclays Canada has recently announced a Canadian corporate bond ETF (see Bond ETF section). When this ETF starts trading, it will offer simple corporate-bond diversification.

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### **Treasury Bills**

Treasury bills, or **T-Bills**, are issued by the Government of Canada with maturities of from three months to one year. They function like stripped bonds, and are issued at a discount to the value at maturity. They can readily be sold on the secondary market, and are a useful place to park temporary cash. Most brokerages have investment minima; these can range from \$10000 to \$30000 or more. Shorter-term notes called Cash Management Bills are also available.

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### **Guaranteed Investment Certificates (GICs)**

Guaranteed Investment Certificates (GICs) are a reasonable substitute for short-term (5 year or less) bonds for investors with modest portfolios. Amounts up to \$100000 total are guaranteed by the Canada Deposit Insurance Corporation (CDIC) for GICs purchased from federally-regulated institutions (banks and trusts). Provincial guarantees may apply to GICs purchased from credit unions.

A better yield can sometimes be obtained by purchasing GICs from a dealer that is not linked to the offering institution. However, some brokers may not allow other-institution GICs to be consolidated in a self-directed RRSP.

Prospective purchasers of short-term bonds should check GIC rates with their broker before committing to a bond purchase. Minimum size requirements may apply and the best rate is usually reserved for non-cashable GICs, which lock the funds in until maturity.

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### **High-Yield Bonds**

High-yield bonds, or "junk bonds", are bonds with poor quality ratings. The yields on these bonds can often be quite high, and investors who investigate the companies carefully can often get a very good return.

The major difficulty with purchasing these bonds is that the overall return is defined by the number of defaults, since a single default can cost several years' positive return. In his book "Fooled by Randomness", Nassim Nicholas Taleb expresses the opinion that the market underestimates the cost of improbable events, and that eventually "junk bond"



traders tend to "blow up" - i.e. lose all their profits (and sometimes more). Although this risk may be acceptable for younger bond purchasers, I do not think it is as acceptable for retired investors, who do not have a long enough time horizon to recover from any loss.

Another difficulty with high-yield bonds is that the bid-ask spread is very high. In addition, an investor who wishes to sell a high-yield bond may have difficulty in finding a buyer.

Retired investors who wish to include high-yield bonds in their portfolio should **limit the exposure to money they can afford to lose** (say, to 10% of the portfolio). Considerable care should be taken in choosing the bonds, and single-company exposure should be limited to 2-3%.

Another option that limits the risk is to use a high-yield bond fund. Unfortunately, the fees associated with these funds devour a significant portion of the excess return.

High-yield bonds are similar to equities in terms of risk, and for asset-allocation purposes should be included in the risky (equity) portion of the portfolio. Risk-averse investors (I am one) may choose to forego this asset class completely. Income-seeking investors may wish to consider income trusts and REITs as an alternative.

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## **Foreign-Currency Bonds**

Several Canadian entities, including some provinces, offer bonds denominated in foreign currencies - either the US dollar or Euros. These count as Canadian content in an RRSP, and can be used to increase portfolio diversification. The coupons will be converted to Canadian dollars as soon as they are paid, so the yield will be decreased slightly by currency-conversion charges.

The bonds issued by foreign governments (including the US Government) can also be held directly in an RRSP.

Several US corporate bonds trade on the New York Stock Exchange or the AMEX. Listings can be found in the Wall Street Journal. However, they are only qualified as RRSP investments if the company's stock is also listed.

Investors wishing U.S. dollar income outside an RRSP should instead consider the U.S. dollar preferreds offered by several Canadian companies.

## Bond Exchange-Traded Funds

Barclays Canada offers three exchange-traded bond funds, one based on the Scotia Capital Universe Bond Index (stock symbol: XBB, MER 0.3%), one based on the Scotia Capital Universe Short Term Bond Index (stock symbol: XSB, MER 0.25%), and one based on the Scotia Capital Real Return Bond Index (stock symbol: XRB, MER 0.35%). They require a brokerage commission for purchase and sale, and carry a price that will vary with prevalent interest rates. These ETFs have an MER that is significantly lower than that of most bond index funds, and XSB and XBB be desirable for investors who are changing their bond composition infrequently (i.e. neither adding nor withdrawing funds, and thus triggering brokerage fees) and who can tolerate the variation in unit prices. XSB has a significantly lower duration than XBB, and thus is less sensitive to interest rate changes. XRB offers limited diversification, since the Scotia Capital Real Return Bond Index is primarily based on only four bonds. Direct purchase of one or more of the four Government of Canada real-return bonds is a better option for most investors.

Three new bond ETFs from Barclays Canada have recently been announced, covering long-term bonds (XLB), government bonds (XGB), and corporate bonds (XCB). These ETFs should start trading in early 2007.

Barclays U.S. also offers several bond ETFs. Better prices than those available with the U.S. treasury-based ETFs should be obtainable with directly-held government bonds for the same reasons as apply to the Canadian bond ETFs. However, the corporate bond ETF (American Stock Exchange symbol: LQD), the Lehman Aggregate Bond Fund (American Stock Exchange symbol: AGG), or the inflation-protected Lehman TIPS Bond Fund (New York Stock Exchange symbol: TIP; see below for a discussion of real-return bonds), may be suitable for some investors. The Lehman Aggregate Bond Fund provides investors with exposure to the Treasury, investment grade corporate and mortgage sectors of the US taxable bond market, and provides access to the total bond market at a modest price (0.20% MER).

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## Bond Mutual Funds

The bond markets in Canada and the United States are very large and very efficient, which means that it is difficult or impossible for active management to add significant value to a bond mutual fund by trading. Although a small additional return can be obtained by a fund manager by adding investment-quality corporate bonds to a mix of government bonds, the main way to obtain extra return by adding bonds with a longer term-to-maturity. However, as stated earlier, this extra return is accompanied by significant additional volatility. Unfortunately, unlike individually-held bonds, bond funds do not have a return-of-capital guarantee on maturity. **Bond funds or bond ETFs with a duration of greater than five years should be avoided when interest rates are low.**

Since relatively little value can be added by active management, and buying individual bonds is simple and cost-effective, **bond mutual funds with a management expense of above about 0.5% should be avoided**, since the extra expense goes directly to the pockets of the managers.

Low-cost bond index funds are a simple alternative for investors who do not wish to purchase bonds directly.

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## Real-Return Bonds

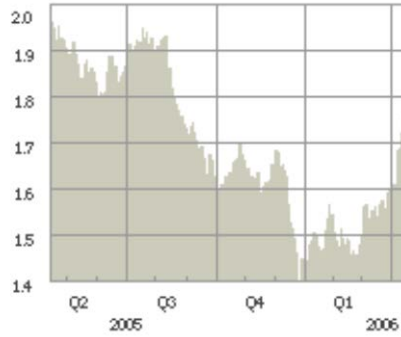
A very useful, but relatively unknown, type of bond offered by the Government of Canada is the "Real Return Bond" (RRB). This bond offers a rate of return that is tied to the value of the Consumer Price Index (CPI), and thus is automatically adjusted for inflation. Thus, if the RRB is listed as paying, say, 3.5%, the investor will receive 3.5% plus the change in consumer price index; if inflation is at 2% (the centre of the Bank of Canada band), the investor will receive 3.5% + 2%, or 5.5%.

The price adjustment is made by multiplying the nominal price for the bond (usually near \$100) by an "**index ratio**" that adjusts for the change in CPI since the bond was issued. Coupon payments are also multiplied by the bond's index ratio.

Since the index ratio factor is tied to the CPI, it is possible that the investor would receive fewer dollars than were originally invested should there be a period of deflation. Also, unlike the similar US TIPS, the index ratio could fall below 1.00 in an extended period of deflation, so that the bonds would pay less than \$100 on maturity. Nevertheless, the investor would not lose money on an inflation-adjusted basis because the dollars received, although fewer in number, would individually purchase more. Also, an extended period of deflation is unlikely.

Although some stripped real-return bonds may be available, the market is very thin. Coupon-paying RRBs, on the other hand, should be available from all major dealers. Although an RRB fund is offered by TD, it has a very high MER. An ETF offered by Barclays has a significantly lower MER than the TD fund, but offers limited diversification. An actively-managed fund with a modest MER is now available from PH&N. Investors who intend to hold the bonds to maturity can obtain significantly better returns by **purchasing RRBs directly**. The yield penalty for buying RRBs directly from a major dealer is only about 0.005-0.010% per annum.

Since inflation is one of the major concerns of retirees, RRBs are particularly attractive, and should be held in an RRSP. The recent (1-year) RRB yields, provided by the [Bank of Canada](#), are shown below. The Y-axis shows real yields and does not include the inflation component:



Real Return Bond Yields

Many people should **consider replacing at least half of the normal Canadian-dollar bonds in their RRSP portfolios with RRBs, since the RRBs act as a different asset class and reduce portfolio volatility.** Five RRBs are currently available, maturing in 2021, 2026, 2031, 2036, and 2041. If you think you may need the money for a specific purpose - say, to buy an annuity - pick the one that matures closest to desired time frame. The US equivalent of RRBs are called Treasury Inflation-Protected Securities (TIPS). As indicated above, these can be added to an RRSP, either by purchasing them directly or by purchasing the Barclays TIPS ETF. A Euro-denominated RRB called the [OAT€](#) is also available.

The U.S. also offers a type of inflation-indexed bond called an "I-bond", in which the taxes due on the inflation adjustment are deferred until the bond is sold. This feature (which is unavailable to Canadians under current tax laws) allows U.S. investors to hold an inflation-indexed bond outside of a retirement account. These investments aren't suitable for Canadian non-registered accounts because taxes would be due yearly on the inflation adjustment.

More facts on RRBs can be found below, including links to academic papers that suggest that a higher portfolio withdrawal rate can be maintained by including RRBs in a portfolio:

[Real Return Bonds for Canadian Dummies](#)

Finally, I have written a spreadsheet that allows the RRB index ratios to be calculated for any date from the end of the current month to Dec. 1, 2001. The spreadsheet, in Excel format, is [here](#) (right click to save it). If buying or selling a bond, the settlement date (three business days after the current date) should be used to calculate the ratio.

*A gold mine is a hole in the ground with a liar on top.*

- Unknown (attrib. to M. Twain).

## Gold and Precious Metals

- [Why Buy Gold?](#)
  - [Gold Stocks](#)
  - [Precious Metals Funds and ETFs](#)
  - [Gold or Precious Metals Certificates](#)
  - [Bullion, Wafers, and Coins](#)
- 

### Why Buy Gold?

A small holding (no more than about 5%-10% of the portfolio) in gold or precious metals is recommended by some advisors for additional diversification. Gold is poorly correlated with many securities, so, although its volatility is high, a small holding may in fact act to reduce portfolio volatility. However, since gold returns in recent years have often been negative, gold holdings may also tend to reduce portfolio returns.

Two of the best online sources of gold information are at [Kitco](#) and the [World Gold Council](#).

A chart showing the price of gold in Canadian dollars during the last 24 hours is shown below:



Gold or precious metals may be introduced into a portfolio in several ways:

1. As gold stocks, either directly or in an index fund or ETF.
2. In precious metals funds.
3. As gold certificates or precious metals certificates.

4. As physical holdings of the metal, either as bullion or as coins.

Not all these approaches are allowable in an RRSP. In some cases, it may depend upon the details of the financial structure of the product.

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## **Gold Stocks**

Several mining companies trade on the TSX, offering investors the opportunity to hold gold stocks directly. Canadian and international gold stocks are also available in a Barclays Canada ETF (stock symbol: XGD, MER 0.55%), which tracks the S&P/TSX Global Gold Index and thus includes US and international holdings.

Two major Canadian gold producers, Barrick Gold and Goldcorp, are included in the S&P/TSX 60 index, as well as other companies such as Cameco that have some gold production. Additional gold mining companies are included in the broader TSX Composite Index. Holders of index funds or ETFs based on these indexes therefore automatically have some gold exposure, and may feel that no additional exposure is required.

The main advantage to holding gold stocks is in the leverage the mining company profits have to gold prices. Suppose that the price of gold is US \$300 per troy ounce and the cost of production is (arbitrarily) US \$150. A \$10 change in the gold price represents only a 3% change, but will cause profits to change by 6% - up *or* down. Higher-priced producers will have greater leverage to gold prices and therefore the stocks will have greater volatility. Some gold companies hedge their production by selling it forward (i.e. by selling futures contracts against their production). This hedging procedure reduces the effect of gold price variations on profits, but means that the company will not fully participate in the profits from a rise in the price of gold.

Prospective investors should remember that one of the largest scams in Canadian history involved a gold stock.

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## **Precious Metals Funds and ETFs**

Several dedicated precious metals funds are available. Like gold stocks, they can be held in an RRSP. They suffer from high MERs, in the 2-5% range (compared to 0.55% for XGD); some even charge a high MER for holding gold or silver certificates or bullion. In general, high-MER funds have a higher probability of enriching the fund manager than they do of enriching the investor - who is the one taking the risk. Unwise investors will often chase performance by buying these funds after the price has run up - just in time for a crash.

A gold ETF with a unit price representing 1/10 of an ounce of gold now trades on the New York Stock Exchange (stock symbol: GLD, MER 0.4%). The MER of this ETF is significantly lower than the MERs of many gold funds, but it does not appear to be RRSP eligible according to at least some brokers. The Barclays iShares COMEX Gold Trust, which also tracks the price of gold, trades on the American Stock Exchange (stock symbol: IAU, MER 0.4%), and in Canadian dollars on the Toronto Stock Exchange under a different stock symbol (IGT).

Investors wishing to purchase precious metals funds should read the prospectus carefully before buying, paying particular attention to costs and, if needed, RRSP eligibility. *Caveat emptor.*

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### **Gold or Precious Metal Certificates**

Gold and precious metals certificates can be purchased from brokerage houses. These certificates eliminate the need for the investor to physically hold and store the metal, with the associated costs. However, the dealer may levy a small ongoing fee for metal storage; prospective buyers should check with their dealers before purchase. These certificates are not subject to provincial sales taxes.

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### **Bullion, Wafers, and Coins**

Gold bullion, gold or silver wafers, and gold coins like the Maple Leaf can be purchased from gold dealers in major cities. The Bank of Nova Scotia is also a major gold dealer; counters where gold or gold or silver certificates can be purchased may be available at the main branch in major cities. The bid-ask spread in purchasing and selling small quantities may be considerable. Since wafers will require assay before they can be sold and the seller must pay for the analysis, gold coins are probably more suitable for small investors.

Gold of high purity (24 karat or >0.9950 fineness), such as the gold wafers and Maple Leaf made by the Royal Canadian Mint, is not subject to GST. Coins of 0.9950 fineness or better are exempt from PST in Alberta, BC, Quebec, NWT, and the Yukon; a tax of 6 to 8% is applicable in the remaining provinces. Gold coins such as the American Eagle and Krugerrand are alloyed and GST and PST are payable on the purchase. Amounts of gold in \$1000 quantities or less are considered "personal use property" and can be sold without paying capital gains tax if the individual is not in the business of buying and selling gold.

Some investors consider physical gold holdings to be "catastrophe insurance", and keep some coins or wafers in a safe location. Silver coins, which have a lower unit price than gold coins, may be more useful for this purpose.

*The dollar just depreciated.*

- R.A. Heinlein, *Farnham's Freehold*.

## **Foreign Content**

- [Why Buy Foreign Equities?](#)
- [Size and Style Diversification](#)
- [Slice-and-Dice](#)
- [Currency Hedging](#)
- [Cost Control](#)
- [Non-U.S. Components](#)

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### **Why Buy Foreign Equities?**

Foreign equities should be included in a portfolio in order to improve diversification. Canada accounts for only 2-3% of world equity markets. All well-diversified portfolios should contain a significant foreign equity component.

As stated earlier, the FPX Balanced Index is a useful starting point for many investors. To review, this index consists of 25% Canadian equities, 10% U.S. equities, 15% international equities, 40% bonds, and 10% cash. The U.S. equities are held in an ETF based on the Standard and Poor's 500 Index (American Stock Exchange symbol: SPY). The U.S. low-cost indexing fund specialist Vanguard now offers a more diversified ETF, based on the broader Wilshire 5000 index (American Stock Exchange symbol: VTI), as well as one based on the Extended Market Index (American Stock Exchange symbol: VXF) Wilshire 4500 (i.e. the Wilshire 5000 less the S&P 500) that can be used to supplement existing S&P 500 holdings. Both Vanguard and Barclays US offer a variety of US and international ETFs. Barclays Canada offers ETFs based on the S&P 500 (Toronto Stock Exchange symbol: XSP) and the Morgan-Stanley Europe-Australasia-Far East (EAFE) index (Toronto Stock Exchange symbol: XIN). Both XSP and XIN are currency hedged (see below).

Data on many U.S. index funds can be found at [Index Funds](#).

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### **Size and Style Diversification**

The variety of index funds available for the US market allows investors to invest in the total market; in large-, small-, or medium-sized companies; in rapidly growing "growth" companies or in inexpensively-priced (but possibly riskier) "value" companies; or in individual industry sectors. A "gummy" tutorial on this approach is below:



## Growth vs. Value

As mentioned under the section on asset allocation, one particular type of investing based on academic research by Eugene Fama and Kenneth French holds particular interest. These researchers have found that higher returns can be obtained by investing in either value companies or in small-capitalization companies. These results are called the "Fama-French Three-Factor Model". The broadly-based indexes such as the S&P 500, Russell 1000, Russell 3000, and Wilshire 5000, are dominated by large-capitalization growth companies. The higher return of value or small-capitalization companies is deemed to be due to higher risk. Other observers - Bogle, for example - feel that the long-term returns from the various equity classes will tend to be the same. Nevertheless, it is clear from historical observations that certain asset classes do better in some years than in others. This observation can be used to improve portfolio diversification and along the way to capture any additional return if it is observed.

The simplest option, recommended by Bill Bernstein in "The Intelligent Asset Allocator", is to include both U.S. large-cap and small-cap stocks in the portfolio. One way is to simply divide the U.S. component 50% large cap (S&P 500 or Russell 1000) and 50% small cap (S&P 600 or Russell 2000) components. [This article](#) recommends using the S&P 600 for the small-cap allocation rather than the Russell 2000. Since the Wilshire 5000 is about 70% large cap and 30% small cap, a similar 50:50 allocation can be obtained with an asset mix of 70% Wilshire 5000 and 30% U.S. small cap.

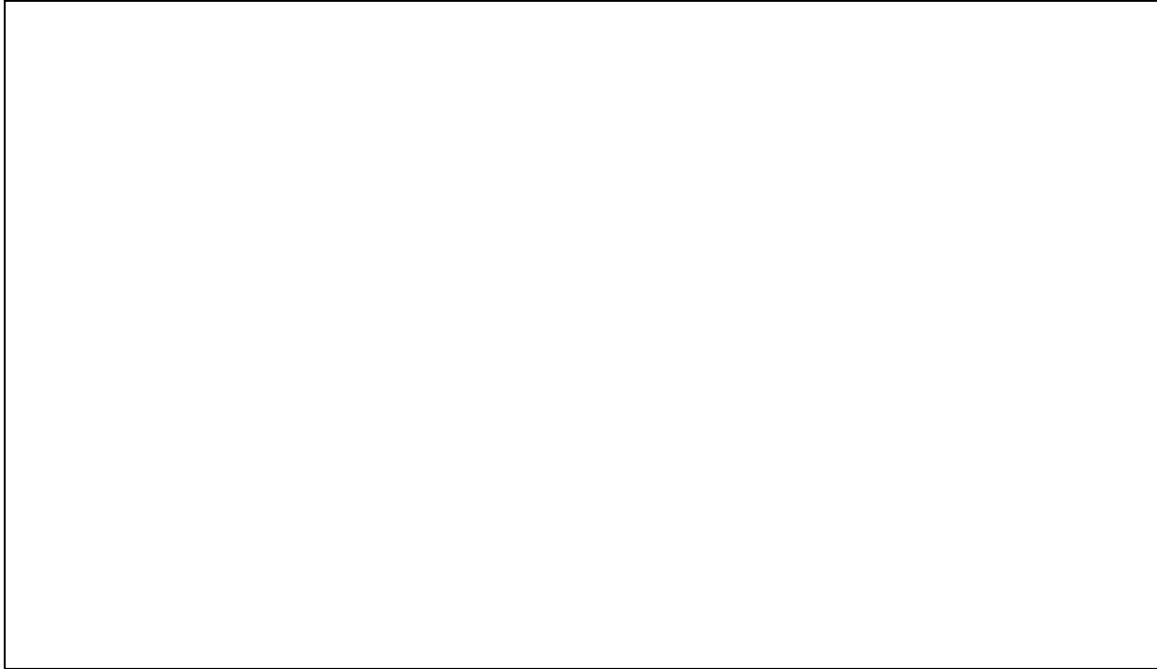
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## **Slice-and-Dice**

A more complex option is the "slice-and-dice" approach favoured by Swedroe (author of "What Wall Street Doesn't Want You to Know") in several Morningstar discussions. This divides the U.S. portfolio into four equal pieces: large cap growth; large cap value; small cap growth; and small cap value. Research suggests this mixture produces a higher return (albeit with slightly higher volatility) than does a total-market portfolio. The approach is summarized in [Slice and Dice Primer](#) and [In Defence of "Slice and Dice"](#). Although the US proponents use funds not available in Canada, a similar approach can be accomplished by using various Barclays ETFs.

Several alternative mixtures could be used for slice-and-dice; there is no way to predict in advance which mixture would be most effective. Swedroe recommends using the iShares S&P mid cap value ETF - IJJ - for large cap value; see, for example, [this conversation](#). The slices I am currently using are: large cap (Russell 1000, IWB); small cap (S&P 600, IJR); small cap value (Russell 2000 Value, IWN); and mid cap value (S&P 400 midCap Value, IJJ). A similar mix can be achieved by using 35% Wilshire 5000 (available as VTI), 15% small cap, 25% small cap value, and 25% mid cap value.

Here is the performance of the ETFs:



Individuals wishing to use this approach should be careful to consider the tax implications. Small-cap and value ETFs will have higher capital gains distributions than total-market, large-cap, or large-cap growth slices because stocks can be promoted out. Therefore, put the small-cap and value slices in your RRSP. The total market (Russell 3000 or Wilshire 5000), large-cap (S&P 500 or Russell 1000), or large-cap growth (Russell 1000 growth or S&P 500 Barra Growth) sections can remain in the non-registered account.

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## Currency Hedging

The foreign currency exposure associated with foreign equity components may work for or against the investor, depending on the change in value of the Canadian dollar. For many years Canadians who held US-dollar-denominated equities benefited by the long slide in the value of the Canadian dollar. However, the sharp reversal of that slide in March-July 2003 erased the Canadian dollar value of the gains that the US stock market made over that interval. A further discussion of this issue by advisor Dan Hallet is given [here](#).

Professional portfolio managers can use currency futures contracts to reduce or eliminate the effect of currency variations on portfolio performance. This procedure is known as **currency hedging**. Many professional money managers feel that currency exposure forms part of the diversification advantage offered by foreign equities, and that the costs associated with hedging currency exposure outweigh the benefits. Nevertheless, some investors may wish to hedge currency effects.

Although currency hedging is difficult for small investors to manage directly, some actively-managed mutual funds hedge some or all of their currency exposure.

Investors can check if an index fund or ETF is hedged by graphing its performance versus both the Canadian dollar and US dollar versions of the corresponding index. The Barclays Canada ETFs (XSP and XIN) use currency hedging; if unhedged exposure is desired, similar US ETFs should be used.

Note that caution is necessary when monitoring index fund or ETF performance to ensure that currency effects are accounted for.

Although it is also possible to actively manage currency exposure in an attempt to enhance returns, most individual investors can expect no net benefit from doing so since gains and losses will tend to cancel out and additional fees will have been incurred.

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## **Cost Control**

Beware of the hidden cost associated with foreign ETF purchases: the exchange rate spread, which might amount to 1-2% each way - and can easily exceed the brokerage fee. Because of the extra costs associated with ETFs, index funds may be cheaper in some cases, particularly when modest amounts are involved. With larger amounts, consider placing most of the money in ETFs and using a low-cost index fund family for smaller contributions and/or rebalancing.

Canadians purchasing US-based investments for their non-registered account will normally be subject to a 15% withholding tax on US-source dividends (down from 30%). This tax will count as 'foreign tax paid' on your tax return and will be used to calculate a foreign tax credit. US investments held in an RRSP do not have the 15% tax withheld and do not earn a tax credit. Dividends from stocks of non-US companies trading on American exchanges as American Depositary Receipts (ADRs) will be subject to withholding tax in accordance with the reciprocal agreement of the company's home country with Canada.

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## **Non-U.S. Components**

The FPX Balanced Index uses a variety of country-specific ETFs to simulate the Morgan-Stanley Europe-Australasia-Far East (EAFE) index. It is now possible to purchase a single ETF to represent that index, either from Barclays U.S. (American Stock Exchange symbol: EFA), or with a Barclays Canada ETF (Toronto Stock Exchange symbol: XIN, which is currency hedged). Other Barclays U.S. ETFs, carrying slightly higher expense ratios, allow European, Pacific Rim ex Japan, or Latin American regions to be obtained separately. Vanguard ETFs, which have lower expense ratios than the

Barclays equivalents, are also available for European (American Stock Exchange symbol: VGK) and Asian (American Stock Exchange symbol: VPL) components. If replication of the EAFE Index by separate European and Asian funds is desired, the European and Asian components should be held in a 70:30 ratio. EAFE growth (New York Stock Exchange symbol: EFG) and value (New York Stock Exchange symbol: EFV) slices are also available from Barclays.

Emerging Markets ETFs are available from Barclays U.S. (American Stock Exchange symbol: EEM, MER 0.75%) and Vanguard (American Stock Exchange symbol: VWO, MER 0.30%). Emerging markets, which are not included in the EAFE Index, are generally considered to have much higher risk than established countries. Nevertheless, an emerging markets component offers not only potential higher returns, but improved diversification because of weak correlation with the S&P 500 and the EAFE indexes. Exposure to emerging markets should be limited to about 10% of the portfolio for aggressive investors, and 3-5% of the total portfolio for conservative investors.

It is possible to "slice and dice" non-US holdings into European, Asian, and emerging market components using Vanguard or Barclays ETFs. In [this Morningstar conversation](#), Rick Ferri indicates that a 40:40:20 European:Pacific:Emerging Market ratio has outperformed a simple EAFE allocation with lower volatility.

*Is it not strange that desire should so many  
years outlive performance?*

- W. Shakespeare, *Henry IV*, Part 2, Act II,  
Scene IV.

## Withdrawal Strategy

- [Sustainable Withdrawal](#)
  - [Tax Deferral](#)
  - [Annuitization](#)
  - [RRIF Withdrawals](#)
- 

### Sustainable Withdrawal

Many simple portfolio models assume that the rate of return is constant, and provide a nice, simple graph showing that, with a given asset mix, a withdrawal rate of, say, 7 or 8% will allow the portfolio to last for 20 or more years.

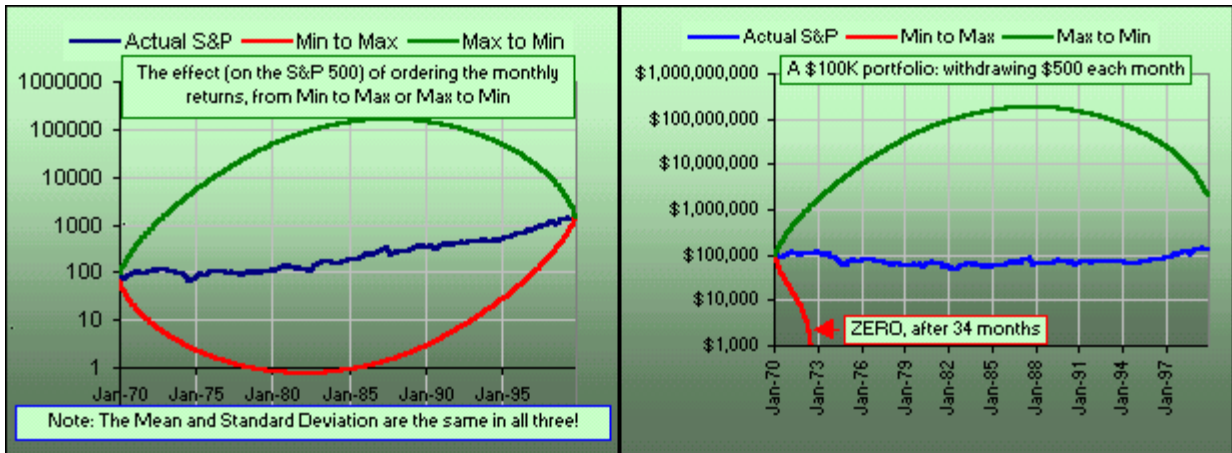
Unfortunately, these models are unrealistic because they fail to take into account the variation in returns. Several academic studies are referenced at the following link:

[How much can you safely withdraw from your savings during retirement?](#)

When more sophisticated models are used, the sustainable withdrawal rate turns out to be much lower: about 4%, indexed for inflation, before expenses. This problem is caused by the variation in returns, particularly of equities.

Here are examples calculated by "gummy" for a [Gummy "Random Walk" tutorial](#). The chart on the left shows the actual returns of the S&P500 from 1970 to 2000, as well as the return paths that would have been taken if the results had been ordered from largest to smallest or from smallest to largest. The graph on the right shows the effect on portfolio life for a 6% withdrawal rate for the different sequences of returns.

The red line shows what happens if all the bad years hit right after retirement: you go broke after only 34 months. The portfolio never recovers from the bad years.



**Selling equities when they are low will kill the portfolio.**

A number of other tutorials, including spreadsheets with various withdrawal strategies, are available from [gummy's site](#).

Because of the disastrous consequences of selling equities when they are low, **systematic withdrawal plans (SWPs) may be dangerous to your financial health.** In these plans, a constant dollar amount of a mutual fund is sold to provide the investor with an income stream. As discussed in [this article](#), this approach will sell more units of the fund when prices are low, and risks rapidly exhausting it. Instead, investors wanting this approach should **consider selling a constant number of units to provide income, NOT a constant dollar amount.** This will give a variable income stream, but extend portfolio life.

As was mentioned in the section on asset allocation, the retired investor should consider modifying his portfolio so that it provides a dividend yield (using high-quality bonds and non-cyclical stocks and income trusts) that matches the sustainable withdrawal rate.

**Dividends are a more reliable source of income than are capital gains.**

Real-return bonds, which usually yield around 3%, should be a major part of the RRSP portfolio. An asset mix of dividend-paying stocks, preferred shares, and a small REIT content can easily provide adequate dividend yield in the non-registered portfolio.

The retiree should also adopt a strategy of selling equities in good markets and living off bond income in bad markets. Bond income can be accessed either by drawing down the RRSP (or RRIF), or by transferring equities from the non-registered account to the RRSP.

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## Tax Deferral

Retirees should examine the **tax-efficient withdrawal of funds**. Examples of tax-loss harvesting were given earlier in the section on Cost Control; the same techniques can be employed during withdrawal. In general, non-registered funds should be utilized before RRSP funds, unless the retiree knows he has only a few years to live. This effect can be demonstrated with a financial package called [RRIFmetic](#). From the non-registered portfolio, securities with a high adjusted cost base, or mutual funds with high management expense ratios, should be sold first. The sale of non-registered funds - which can be transferred to the RRSP portfolio without affecting asset mix - has the effect of deferring tax.

**Example 1.** Joe, who is an Alberta resident in the lowest federal tax bracket, has \$5000 of bond income deposited in his RRSP. Joe needs to access this money for ongoing expenses. Joe's marginal tax rate is 26% (16% federal and 10% provincial); if he withdraws the money, he would pay \$1300 in tax. Instead, Joe calls his broker and arranges for a transfer of \$5000 in XYZ Mutual Funds from his non-registered account to his RRSP. The XYZ holding has a current unit value of \$10.00 and an adjusted cost base of \$8.00. The 500 units transferred are considered a "deemed disposition" by CRA. Joe pays a \$50 transfer fee to his broker. The capital gain is  $(\$10.00 - \$8.00) \times 500 - \$50$ , or \$950. The tax payable is \$123.50. Joe saves a total of \$1126.50 ( $\$1300 - \$123.50 - \$50$ ) by making the transfer. Tax savings at higher brackets would be even greater. Joe's portfolio asset mix is affected only slightly; he has withdrawn \$5000 and his equity and bond percentages will have increased correspondingly. Since the XYZ units have not been removed from the portfolio, market conditions are irrelevant.

**Example 2.** Joe has a \$10000 bond come due in his RRSP which he wishes to withdraw for a European vacation. Joe is an Alberta resident at the top of the first federal tax bracket; the withdrawal would occur in the second federal tax bracket at a marginal tax rate of 32%, incurring a tax of \$3200. Joe has more than \$10000 Canadian worth of VTI (Vanguard total-market ETF) in his non-registered US account. Joe paid \$150 Canadian for these units, which are currently trading at a price equivalent to \$135 Canadian. If he transfers the VTI to his RRSP, CRA will disallow the loss. So, Joe sells the equivalent of \$10000 Canadian worth of VTI from his non-registered U.S. dollar account and immediately purchases \$10000 Canadian worth of a Russell 3000 ETF (a similar but not identical security) in his RRSP. He then has the funds from the VTI sale journaled to his Canadian dollar account. Joe pays two currency conversion charges at about 1% each and two brokerage fees, for a total of about \$300 Canadian. The non-registered currency conversion and brokerage charges

are included in his capital loss, which is about \$1260 Canadian and can be applied against capital gains. If those gains are in the first federal tax bracket, the tax savings are \$163.80. The total savings in this strategy are  $\$3200 + \$163.80 - \$300$ , or \$3063.80.

It is important to remember that in the above examples, **the tax is deferred, not avoided**. Eventually, RRSP withdrawals will be taxed, either when the RRSP is converted to an RRIF, or by deemed disposition upon the death of either Joe or the beneficiary of his RRSP. It is quite possible that a higher tax rate will be applicable at that time than would be paid now. Nevertheless, by deferring the tax, Joe is both getting present use of the funds and allowing further tax-free compounding within his RRSP. Unless Joe is certain that he will die within a few years, it will be to his benefit to defer the tax - even if a higher rate is eventually payable.

**Example 3.** Joe has, in Example 1 above, saved \$1126.50 by transferring \$5000 worth of XYZ Mutual Funds to his RRSP. The fund obtains a real after-inflation return of 5%, growing to \$8144 in constant dollars after 10 years. By then, Joe has converted the RRSP to an RRIF. Let's assume that his marginal tax bracket, including OAS clawback, is now 50% rather than 26%. Joe sells the XYZ funds and withdraws the money, paying the equivalent of \$4072 in tax and netting (in constant dollars) \$4072 of the original \$5000. But, if he had withdrawn the \$5000 ten years earlier in the lower tax bracket, he would have only received \$3700 after tax. Even with the higher tax rate in 10 years, Joe is still ahead because of the tax-free compounding. Strangely enough, the CRA is also ahead! However, if Joe died after a year and the RRSP was collapsed, there would be insufficient time to offset the higher tax rate with tax-free compounding.

**Example 4.** Joe has transferred all of his foreign equities to his RRSP, but still needs additional cash flow for living expenses. He now starts selling components of his Canadian stock or REIT portfolio that appear to be fully priced. He identifies three holdings: PipeCo, a recent purchase yielding 5% and with a cost base that is 85% of the purchase price; BankCo, one of his first purchases, which now yields only 2.5% but has a cost base that is only 20% of the current price; and REITCo, which yields 10% and has an adjusted cost base that is 60% of the current price. He can get a *guaranteed return* by selling the PipeCo shares, since they have the highest cost base and will trigger the smallest tax. Assume that he is still in the lowest federal tax bracket in Alberta, and will sell \$10000 worth of shares. The tax due on PipeCo will be \$195; on BankCo, \$1040; and on REITCo, \$520. The yearly dividend income reduction would be \$500 for PipeCo, \$250 for BankCo, and \$1000 for REITCo.

Rather than place the same components in his RRSP, Joe can use ongoing bond interest to add to his RRB or normal bond holdings, gradually reducing his equity exposure. Alternatively, he can add value



ETFs to his RRSP to maintain the same equity weighting while reducing his exposure to individual stocks. Finally, if stock market conditions are very depressed, he may wish to now withdraw the bond interest directly and pay the tax. The decision on the approach will now depend on market conditions, since the equity mix may be affected.

**Consider deferring taxes by either selling equities from your non-registered account, or transferring them to your RRSP.**

Investors should also remember that health costs benefit from a tax-credit. Therefore, **funds for major medical emergencies should be taken from the RRSP, not the non-registered account**. RRSP withdrawals are normally taxed at the highest marginal rate; using the funds for medical costs reduces the tax rate to the difference between the marginal rate and the lowest rate. Although tax will be deducted at source for the withdrawal, much of it will be refunded when the tax return is filed.

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## **Annuitization**

Conservative investors who are in good health face a major psychological hurdle during portfolio withdrawal: they are forced to assume they will live longer than average in order to avoid running out of money. This limits their withdrawal rate, and that, in turn, may limit their ability to travel during years when they can enjoy it.

One way around this dilemma is to purchase an annuity from a life insurance company. An annuity is essentially a life-insurance policy in reverse: a lump sum is transferred to a life-insurance company in return for a stream of monthly payments. This purchase can be considered as **longevity insurance**. An annuity carries a much higher payout than 4% (indexed for inflation), because the life insurance company is willing to bet that the purchaser's life expectancy is in accordance with actuarial tables - a bet the purchaser can't afford to make.

The effective rate obtained with an annuity depends upon the annuitant's age and sex, prevailing interest rates, and the options chosen. Higher payouts can be obtained when interest rates are at a maximum. However, once the annuitant is over about 70, age and sex become more important in determining payout. Men, who have a lower actuarial life expectancy, can obtain a higher payout than can women. The simplest type of annuity, which has the highest payout, pays the annuitant for the rest of his or her life and has no guarantees. This is simply a bet with the life insurance company, with the winners being the ones who live longer than average. Features such as a minimum payout term guarantee (usually 10 years), survivor benefits, and inflation indexing all reduce the available payout.

Annuity payouts up to \$2000/month are guaranteed by the Canadian Life and Health Insurance Compensation Corporation ([CompCorp](#)), even if the insurer goes bankrupt. The guarantee is per insurer, so two annuities purchased from two different insurers would be guaranteed up to \$4000/month. Because of this feature, and the sensitivity of the payout rate to interest rates when the annuitant is still in his sixties, retirees may wish to take advantage of abnormally high interest rates when they are in their mid-to-late sixties to annuitize a part of their portfolio. If the purchaser doesn't need the cash flow immediately, a **deferred annuity** can be purchased that starts payment later. With either annuity, the purchaser gets a higher cash flow during the traveling years, but leaves a smaller estate. The remaining portion serves both for lump-sum medical payments and as an estate; it can also be used to purchase a second annuity (perhaps from a different insurer to preserve the CompCorp guarantee) when the annuitant reaches his or her seventies. The annuity purchase option is considered in this [gummy tutorial](#).

An annuity option that may be attractive to some investors is the **back-to-back annuity**. This involves purchase of two different policies on the same day from two different life insurance companies. The first policy is an annuity; the second is a life-insurance policy for the same amount as was used to purchase the annuity. The income from the annuity is used to fund the life-insurance policy. This combination preserves an estate while providing income. The investor must not need the principal during his or her lifetime, should be in good health, at least 70 years of age, and in a medium or high tax bracket.

Investors with large embedded capital gains in non-registered accounts may want to consider a **charitable gift annuity**. The investor donates shares "in kind" to a charity, which sells them and uses some of the proceeds to purchase an annuity in the investor's name. The investor gets income and a large tax deduction - plus the pleasure of having made a significant financial contribution to his favourite charity.

The various types of annuities and annuity strategies should be discussed with an insurance broker by interested investors. Since insurance companies may deliberately price annuities poorly at certain times if they do not wish to participate in the market, **it is important that several quotes be obtained.**

**Since purchasing an annuity is irreversible, retirees should seek professional advice before making a decision.**

Real-return bonds, which do not vary greatly in price with interest rates, are a good instrument in which to park RRSP or locked-RRSP money pending annuitization. They can be sold for an annuity at a time when interest rates are high and the purchaser is of a suitable age (generally mid to late sixties).

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## RRIF Withdrawals

Eventually, RRSP holders will face the choice of converting an RRSP to an RRIF (or a LIRA to a LIF or LRIF), or annuitizing. If they choose the income fund route, they will face mandatory withdrawals that are significantly higher than 4%. The minimum withdrawal factor for RRIFs entered into after 1994 is given in the following table (from CRA [1C78-18R6](#)). This factor is multiplied times the fair market value of the portfolio at the beginning of the year to give the minimum withdrawal. The factor is based on "the age in whole years (in the table referred to as "Y") of the individual at the beginning of the year, or the age the individual would have been at the beginning of the year if the individual had been alive then."

Age (Y)	Factor	Age (Y)	Factor
under 71	$1/(90 - Y)$	83	.0958
71	.0738	84	.0993
72	.0748	85	.1033
73	.0759	86	.1079
74	.0771	87	.1133
75	.0785	88	.1196
76	.0799	89	.1271
77	.0815	90	.1362
78	.0833	91	.1473
79	.0853	92	.1612
80	.0875	93	.1792
81	.0899	94 or older	.2000
82	.0927		

There are two ways (other than annuitizing) to meet the withdrawal limits, which are significantly greater than the 4% long-term limit: raising the dividend rate or drawing down capital. The portfolio dividend rate can be raised by including more income trusts or REITs. One way to do this without increasing portfolio risk is to swap REITs or trusts that are in the non-registered account into the RRIF/LIF/LRIF. Capital gains tax will have to be paid on the swapped entity (if it isn't in a gain position, sell it from the non-registered account and rebuy it in the RRIF). Such swaps will meet the increased withdrawal requirements temporarily. Although it is possible to further increase withdrawals by sharply increasing the proportion of income trusts or REITs, investors should consider such a move carefully, because it significantly increases the risk and may lead to loss of capital if a forced sale is necessary to meet the withdrawal requirements.

Because of the mandatory RRIF withdrawals, maturing stripped bonds should be replaced by high-coupon normal bonds before the RRSP is converted to an RRIF.

Eventually, the withdrawal rates will in any case be so great that a draw down of capital is necessary. The best way to fund such withdrawals is with maturing bonds. In preparation, equities should be sold down and switched to short-term bonds whenever market conditions are favourable.

*Fillet of a fenny snake,  
In the cauldron boil and bake;  
Eye of newt and toe of frog,  
Wool of bat and tongue of dog,  
Adder's fork and blind-worm's sting,  
Lizard's leg and owlet's wing,  
For a charm of powerful trouble,  
Like a hell-broth boil and bubble.*

- W. Shakespeare, *Macbeth*, Act IV, Scene  
I.

## Portfolio Construction

- [Designing Your Portfolio](#)
  - [Portfolio Evolution](#)
  - [Balanced Funds or GICs](#)
  - [The Four-Component Portfolio](#)
  - [Sample Portfolios](#)
  - [Building the Desired Portfolio](#)
  - [Appendix: Compound Interest Formulae and Weighted Returns](#)
- 

### Designing Your Portfolio

The following steps are necessary to establish your portfolio:

1. Define your goals.
2. Specify a time frame.
3. Estimate the final amount you will need. Remember to account for inflation; a prudent estimate of inflation going forward is the middle of the Bank of Canada target range, or 2%.
4. Estimate the after-inflation return you require using the **compound interest formula** (see Appendix). Be realistic; **single-digit after-inflation returns** are the best that you can expect.
5. Use the conservative future return estimates in Table 1 below to calculate the **weighted returns** (see Appendix) of several different portfolios. Adjust the return estimates downwards to reflect the costs involved with your approach. A low-cost index or ETF approach will cost about 0.5% for small portfolios and about 0.2% for large ones. Select the most conservative portfolio that provides a return sufficient for Step 4. If no portfolio provides sufficient return, you must redefine your goals. Choose between using less money, increasing your savings rate, or specifying a longer time frame, or some combination thereof.

6. Consult the loss percentages in Table 2 below. Estimate how much your portfolio could lose in dollar terms over a short period. Can you tolerate the loss? Be honest; a 20% loss on a \$500,000 portfolio is \$100,000. If the loss is unacceptable, choose a less-risky asset mix and redefine your goals.
7. Repeat Steps 1-6 until you have determined an appropriate asset allocation.
8. Select the individual components to meet your asset allocation in a tax-efficient, cost effective way.
9. Establish rebalancing criteria.
10. Monitor your portfolio to ensure it still meets your needs. Re-evaluate if your needs change.
11. Stay the course.

If you don't feel comfortable in performing these steps yourself, consider consulting a professional financial advisor.

**Table 1. Expected Real Returns<sup>a,b</sup>**

<b>Asset Class</b>	<b>Expected Real Return</b>
Large U.S. Stocks	3.5%
Large Foreign Stocks	4%
Large Canadian Stocks <sup>c</sup>	3-5%
Value Stocks	5%
Small Stocks (U.S. and Foreign)	5%
Small Value Stocks	7%
Emerging Markets	6%
Canadian REITs <sup>c</sup>	4-6%
Income Trusts <sup>c,d</sup>	4-6%
High-Yield ("Junk") Bonds	5%
Investment-Grade Corporate Bonds	3.5%
Real Return Bonds	1.5-2.5%
Treasury Bills	0-2%
Precious Metals	3%

- a. Bernstein, William, "The Four Pillars of Investing", p. 72. These returns are **after inflation but before expenses**.

- b. Readers should remember that these numbers are **guesses only**. There are no guarantees.
- c. Author's estimate.
- d. Investors should remember that a significant fraction of the "yield" on income trusts is a return of the investor's own money. Also, trusts usually have limited growth prospects and unit prices and/or distributions may well drop from current levels.

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**Table 2. Risk of Loss<sup>a</sup>**

Maximum Loss	Equity Percentage
35%	80%
30%	70%
25%	60%
20%	50%
15%	40%
10%	30%
5%	20%
0%	10%

- a. Bernstein, William, "The Four Pillars of Investing", p. 268.

The following on-line questionnaires may help investors assess their risk tolerance:

- [BMO Investor Profiler](#)
  - [Edmond Questionnaire](#)
  - [TD Waterhouse Planner](#)
-

## Portfolio Evolution

It may be useful to consider three stages of portfolio evolution:

1. Asset Accumulation - the saving years
2. Early in Retirement - converting to income
3. Later in Retirement - annuitization or gifting

The asset allocation or location during Asset Accumulation is often different from that desired Early in Retirement. For example, dividend-paying common stocks may be in the RRSP, even though they qualify for the dividend tax credit. Some swapping of assets from the non-registered accounts may be required after retirement. If so, the tax consequences should be examined beforehand so that more tax is not paid than is saved. Adjusting the portfolio in a tax-efficient manner may take 3-5 years. As was seen in the section on withdrawal strategies, the sustainable inflation-adjusted portfolio withdrawal rate is about 4%. Therefore, the retiree may wish to adjust his portfolio so that it provides an overall dividend yield of about 4%.

As discussed under withdrawal strategies, if an asset swap or sale from the non-registered account is necessary, the components with the highest adjusted cost base should be sold or swapped first. Usually, this is a "last in - first out" (LIFO) method. However, since the CRA will disallow capital losses on transfers to an RRSP, it may be desirable to wait until a security is in a profit position before swapping it.

Another reason for making a swap early in retirement may be to access high-dividend securities that have been placed in the RRSP during asset accumulation in order to minimize tax drag. For example, an investor in his mid 40's may have decided to add REITs to his portfolio in order to improve diversification. He has no immediate need of the income, and will face a tax drag of about 2% per annum if he puts them in his non-registered portfolio. So, he puts them in his RRSP and puts low-dividend securities in his non-registered portfolio. Shortly after retirement, he switches the REITs out of his RRSP and low-dividend securities with small capital gains in, paying the capital gains tax on the securities but gaining access to the income from the REITs. Some of the REIT income will now be tax-deferred. For this strategy to be worthwhile, the value of the tax saved by deferring part of the tax on the REIT income must be greater than the tax paid on the securities that are swapped. The investor may later decide to switch the REITs back into the registered account if it is converted to an RRIF in order to meet the mandatory minimum withdrawal requirements.

When the investor approaches age 69, he or she will have to decide whether to convert his RRSP to an RRIF, and may want to consider purchasing an annuity. At this time, professional advice should be sought.



## Balanced Funds or GIC's

Beginning investors may be faced with the problem of where to invest modest amounts of, say, a few thousand dollars, and may be unwilling to take the time to learn how to invest. Two different approaches suggest themselves; both are particularly applicable to all-RRSP portfolios with no non-registered components because they contain interest-bearing components that are taxed at the full marginal rate.

The first alternative, which may be suitable for young or middle-aged investors with little interest in learning how to invest, is simply to place the entire portfolio in a low-cost balanced mutual fund. Commentator Dan Hallet has recommended funds from Mawer or Saxon for this purpose, while columnist Jon Chevreau has recommended Trimark Income Growth and PH&N Balanced. [Globefund](#) has filters that can be used to check the historical performance of low-cost balanced funds.

Although the single-balanced-fund approach is not as cost effective as the more sophisticated multicomponent portfolios given below, the additional monetary cost is relatively modest in a small portfolio: an additional MER of, say, 1.5% is only \$150/year on a \$10000 portfolio. Some investors may wish the hands-off peace of mind that the single fund provides; a conservatively-managed balanced fund is similar to the portfolio used by many pension fund managers - although they may only pay 1/10 the cost! Beginning investors can also start off with a balanced fund, then switch to lower-cost alternatives as the portfolio grows. If the fund is in an RRSP, the switch can be made without triggering capital gains tax.

Balanced funds may not be a desirable alternative for very elderly investors because of the possibility of short-term loss. An all-GIC portfolio with GICs laddered for, say, 1-5 years, will preserve capital while giving a modest return.

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## The Four-Component Portfolio

Although a number of different portfolio components are listed in Table 1, investors who are early in the asset-accumulation phase can also obtain adequate diversification with a simple, four-component portfolio. The four components are:

- Canadian Fixed Income (bonds or GICs)
- Canadian Equities (large-cap or large-cap value)
- U.S. Equities (large-cap or total market)
- International (EAFE) Equities

A separate cash component is not required during asset accumulation because of the yearly contributions.

**The four components can be used to form several well-diversified portfolios that, combined with a reasonable rebalancing strategy, will suffice for many investors while they are accumulating assets.**

An even simpler alternative would be to use a balanced mutual fund, as in the previous section. However, the four-component portfolio allows tax-efficient allocation of each of the four components (with the bonds or GICs inside an RRSP), and rebalancing back to the target allocation with the yearly contribution. It is also cheaper than a balanced fund.

Estimated returns for several four-component portfolios based on index funds are given [here](#).

An example of a four-component portfolio is given in the section on portfolio construction.

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### Sample Portfolios

With the above points in mind, let's construct a few sample portfolios. I will base these all on a 50:50 equity:income allocation, but the equity content of the resulting portfolios can be scaled as necessary.

**Note:** These portfolios are **arbitrary** and **for illustrative purposes only**.

Let's use the FPX Balanced to examine how portfolio diversification and dividend income could be improved.

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#### Portfolio 1. Base Case - FPX Balanced

S&P/TSX 60	25%
S&P 500	10%
EAFE	15%
Cash	10%
Bonds	40%

---

This portfolio (or its four-component alternative) may suffice during asset accumulation, but it does not have adequate income for a retiree and contains no real-return bonds.

**Note:** Some investors consider the FPX Balanced to have too high a Canadian equity content and would increase the US and EAFE equity content while reducing the S&P/TSX 60 component. One alternative portfolio would simply divide the equity portion equally between Canadian, US, and International components. Another alternative would eliminate the Canadian equity component entirely. The approach taken depends, in part, on whether the individual has other Canadian assets (such as real estate), and whether he or she wishes to spend a significant amount of time outside Canada and wants extra exposure to other currencies.

Now, lets add RRBs to improve diversification. This is perhaps the single biggest improvement to the portfolio, since it adds a large quantity of an uncorrelated asset class, and will significantly reduce the risk.

---

### **Portfolio 2. FPX Balanced with RRBs**

S&P/TSX 60	25%
S&P 500	10%
EAFE	15%
Bond Ladder (1-5 years)	20%
Real Return Bonds	30%

---

The bond ladder gives access to cash at periodic intervals. As each bond matures, it is rolled into a new five-year bond, along with additional savings and the RRB interest. This portfolio is also quite suitable during asset accumulation.

Now let's replace the large-cap S&P 500 with a broader representation of the US market by substituting the Vanguard VTI ETF based on the Wilshire 5000:

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### Portfolio 3. FPX Balanced with RRBs and Wilshire 5000

S&P/TSX 60	25%
Wilshire 5000	10%
EAFE	15%
Bond Ladder (1-5 years)	20%
Real Return Bonds	30%

---

We could also substitute a S&P/TSX Composite (previously the TSE 300) based ETF or index fund for the S&P/TSX 60 to get broader representation of the Canadian market. However, with the more-narrowly-based Canadian market, any improvement will be quite modest. A better approach (see below) is to include Canadian value stocks.

As the investor approaches retirement, he may want to start building a position in Canadian dividend-paying stocks:

### Portfolio 4. Enhanced Income with Dividend Growth

S&P/TSX 60	10%
Canadian banks and utilities	15%
Wilshire 5000	10%
EAFE	15%
Bond Ladder (1-5 years)	20%
Real Return Bonds	30%

This portfolio uses the "Dividend Growth" strategy described in the section on Canadian stocks to add income. The S&P 60 units have been partially replaced by bank and utility stocks. This change also gives a value emphasis to the Canadian equity allocation.

After retirement, the investor may wish to replace his remaining S&P/TSX 60 units with REITs and trusts to further boost income, provided that the S&P/TSX 60 units can be sold without incurring a major tax penalty:

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### Portfolio 5. Further Enhanced Income with REITs and Trusts

Canadian banks and utilities	15%
Canadian REITs	9%
Oil and Gas Trusts <sup>a</sup>	1%
Wilshire 5000	10%
EAFE	15%
Bond Ladder (1-5 years)	20%
Real Return Bonds	30%

- a. Investors should consult [Betting on a Shrinking Resource](#) before purchasing an oil and gas trust at this time.

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This portfolio can provide a dividend income approaching the 4% sustainable withdrawal rate. The oil and gas trust is a "lifestyle hedge" that shields the investor from energy price swings, but may decrease in value as the oil is consumed.

Finally, the investor may wish to increase the value and small-cap weightings of his US holdings to further improve diversification and capture the extra return (if it persists). Again, this change will only be made if it can be done without incurring a tax liability.

---

### Portfolio 6. Value and Small-Cap American Exposure<sup>a,b</sup>

Canadian banks and utilities	15%
Canadian REITs	9%
Oil and Gas Trusts	1%
U.S. Large Cap	2.5%
U.S. Large Cap Value	2.5%
U.S. Small Cap	2.5%
U.S. Small Cap Value	2.5%
EAFE	15%
Bond Ladder (1-5 years)	20%
Real Return Bonds	30%

- a. A similar U.S. weighting can be obtained with 3.5% Wilshire 5000, 1.5% U.S. Small Cap, 2.5% U.S. Large Cap Value, and 2.5% U.S. Small Cap Value.
  - b. If the investor wants a simpler portfolio subdivision including only small cap exposure, alternative possibilities are 5% U.S. Large Cap and 5% U.S. Small Cap or, as an equivalent, 7% Wilshire 5000 and 3% U.S. Small Cap.
- 

Further portfolio construction could include: adding an actively-managed Canadian small-cap mutual fund; adding US REITs; replacing the EAFE funds with individual European, Pacific ex-Japan, and Japanese funds; adding emerging market funds; or adding actively-managed international value or small-cap mutual funds.

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### **Building the Desired Portfolio**

Once the portfolio components have been determined, the investor must then establish a brokerage account (if he or she doesn't already have one) and purchase the desired components. A DIY investor will probably wish to establish an account at a discount brokerage in order to minimize costs. RRSP accounts should be consolidated at the same dealer if possible to facilitate swaps between registered and non-registered accounts. The investor must then decide which securities or funds to use and which components will be inside and which outside the RRSP, and must evaluate the costs (such as deferred service charges) and/or delays (due to GICs held at existing institutions) in establishing the final asset allocation.

**Example 1.** Ed is in his mid thirties and wishes to start DIY investing. He has an RRSP worth \$10K and no non-registered investments. He wishes to add to the RRSP using monthly contributions. The RRSP is currently in Canada Savings Bonds, and there are no costs or delays associated with moving it.

As discussed in the section on ETFs, with a modest investment amount and the desire to add monthly contributions, low-cost index funds are a better alternative than exchange traded funds. Ed reviews [Bylo's list of low-cost Index Funds](#) and decides to use the TD e-funds for his portfolio. [The TD e-funds are used for illustration purposes only. There are other suitable funds; also, if Ed had more than \$150,000 to invest the CIBC Index Funds would have a lower expense ratio.] He establishes an account at TD Waterhouse and transfers his existing RRSP. He wishes to replicate the four-component portfolio listed above, using the FPX Balanced for his target allocation and adding the cash component to the bond index. He purchases the following funds:

---

## Ed's Portfolio<sup>1</sup>

Canadian Bond: TD Canadian Bond Index - e	50% (\$5000)
Canadian Equity: TD Canadian Index - e	25% (\$2500)
US Equity: TD US Index - e	10% (\$1000)
EAFE Equity: TD International Index - e	15% (\$1500)

1. Index funds from other vendors could also be used.

---

Since both the RSP and non-RSP International Index e-funds have the same MER, it doesn't matter which one he uses from a cost basis. However, the non-RSP version has no currency hedging and tracks the MSCI EAFE Index (in C\$) more closely.

Although Ed is very nervous about investing in equities because of the volatility, he recognizes that his time horizon is very long and decides that for now he will use his monthly contributions to add to his Canadian index holdings. Ed decides to use 5% absolute/25% relative for his rebalancing thresholds; if one of the holdings varies from the nominal level by 5% absolute (e.g., from 50% to 45% or 55% for the bond index) or by 25% relative (e.g. 7.5% to 12.5% for the US RSP Index), he will rebalance by redirecting the monthly contributions appropriately until the holdings are back to their nominal percentages.

Another simple portfolio could be made by assigning 40% to a bond index and dividing the remaining 60% equally between Canadian, US, and EAFE equity index funds. Investors who feel the FPX Balanced is too heavily concentrated in Canada may prefer such a distribution. Alternatively, investors with significantly larger portfolios (say, \$50-\$100K) could divide the bond component equally between a bond index fund and RRBs. Other variations include the substitution of a Canadian dividend fund for the Canadian index fund, or the use of a bond or GIC ladder instead of a bond index.

Most investors will face a situation significantly more complex than Ed's. They may have GICs at several institutions, mutual funds with delayed service charges, and registered and non-registered holdings. Each current holding will be needed to be considered individually to decide if it should be retained (in general, high-cost holdings should be replaced by lower-cost alternatives if the payback time for switching costs, including taxes, is less than one year.) Consolidating the accounts may take several years. It may, for example, be desirable to take advantage of a market low to replace unwanted mutual funds by index alternatives without triggering capital gains taxes. On

the other hand, if a mutual fund is outperforming in the current difficult market conditions (as some value-based funds are), there may be no need to replace it.

**Example 2.** Pat is 58 and has a \$1,000,000 portfolio, which he has decided to start managing himself. The non-registered portion is \$600K, and contains mutual funds and several individual stocks. The registered portion is divided between an RRSP and a locked-in RSP (LRSP) from a previous employer; both consist of a six-year bond ladder (75%) and some international mutual funds (25%). Overall, the portfolio is 40% in mutual funds with an average MER of 2.5%. The total mutual fund expenses therefore amount to \$10000 per year. None of the mutual funds has delayed service charges (DSCs) associated with redemption.

Pat decides that he will transfer his account to a discount brokerage. Pat is nearing retirement, and feels that the portfolio combined with his pension will now meet his post-retirement income needs at a 4% withdrawal rate. He therefore decides that he must reduce his equity (high-risk) allocation, now 60% of his portfolio. His new allocation will be a 40%:60% high risk:low risk split. He also wishes to include US TIPs in his RRSP. He sets the following allocation targets:

- 14% Canadian equities
- 13% US equities
- 13% EAFE equities
- 20% RRBs
- 10% US TIPs
- 25% normal bonds and preferred shares
- 5% cash

When the account arrives at the discount brokerage, he changes the RRSP and LRSP allocations immediately, selling all the mutual funds in these accounts and investing half the proceeds in the 2021 Government of Canada RRB and the remainder in US TIPs. As the bonds in the bond ladder mature, he plans to divide the proceeds (and his yearly RRSP contribution) between RRBs and TIPs until his targets are reached. This will take five years.

Changing the non-registered account requires more evaluation because of the tax costs associated with embedded capital gains. For each mutual fund, Pat must calculate the current adjusted cost base (initial cost plus additional investments and reinvested dividends) and estimate the tax due on a sale at the current price. He then calculates the MER savings and the payback period for the tax due. He decides that any mutual fund with an MER payback time of one year or less will be sold. This results in two value-oriented mutual funds being retained, one holding mainly US stocks and one holding international stocks. Since Pat's portfolio is large and will



now change only slowly, ETFs are more suitable than index funds for the indexed portion of the portfolio. Since his remaining value mutual funds will provide a value bias, and all the ETFs will be in his non-registered account, he chooses the Vanguard VTI ETF and the Barclays EFA ETF for the remaining target allocation to his US and EAFE investments.

Pat's remaining Canadian equity allocation is mainly accommodated by his direct stock holdings. However, he decides to increase his investment in utility stocks because of his pending retirement.

The remainder of the cash from the sale of the mutual funds above the 5% cash allocation is used to buy preferred shares in his non-registered account as a tax-efficient substitute for bonds.

Pat calculates that he will save \$6K per year in MER costs. He has also decreased his portfolio risk preparatory to retirement, increased his income, and improved his portfolio diversification.

In complex cases like Pat's, considerable evaluation is required. Some investors may wish to consider consulting a fee-only financial planner in order to establish a multiyear plan that meets their objectives.

---

## Appendix: Compound Interest Formulae and Weighted Returns

The formula for compound interest is used to calculate future values. This formula is:

$$FV = PV * (1 + r/100)^n \dots (1)$$

where "FV" is the future value, "PV" is the present value, "r" is the rate of return in percent per year and "n" is the number of years.

To obtain the rate of return needed for a present value to grow to a future value, the rearranged formula below can be used:

$$r = 100 * [ (FV / PV)^{1/n} - 1 ] \dots (2)$$

An approximation that can be derived from the above formula is the [rule of 72](#), which states that 72 divided by the percent return gives the number of years required to double your money - e.g. 72/6 or 12 years for a 6% return.

The above formulae do not take into account additions or withdrawals. To make an approximate correction for additions and withdrawals, first separately subtotal all additions and all withdrawals. Then calculate the total change, T:

$$T = \text{Additions} - \text{Withdrawals} \dots (3)$$

For example, if you contributed \$2500 but withdrew \$1000, T would be \$1500.

Then use the modified formula below:

$$r = 100 * \{ [ ( FV - T/2 ) / ( PV + T/2 ) ]^{1/n} - 1 \} \dots (4)$$

Gummy has derived more sophisticated formulae to take additions and withdrawals into account, and has provided some calculators. They are available [here](#).

**Weighted returns** for a portfolio are calculated by multiplying the estimated future return for each asset class by its portfolio weight and summing the results. For example, if a portfolio contains 60% stocks and 40% bonds, with the stocks estimated to provide 5% after inflation and the bonds 3.5%, the portfolio return is

$$5\% * 0.6 + 3.5\% * 0.4 = 4.4\%.$$

## Links and References

- [Links](#)
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- 

### Links

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## Glossary

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### Definitions

**ADR** - American Depository Receipt. A certificate trading on the NYSE representing a certain number of shares in a non-U.S. company.

**All-or-None** - An order for stock purchase that requires the broker to buy either all of the required shares or not complete the order. An AON order requires special processing and might not be executed unless the stock trades at exactly the target price.

**Amex** - American Stock Exchange. Most US ETFs trade on the Amex.

**Annuity** - A contract purchased from a life-insurance company in which a lump sum is exchanged for an income stream.

**Asset Allocation** - the division of a portfolio between high-risk (equities) and low-risk (bond and cash) components. This division is the main controller of risk and is the most important decision the investor makes.

**Black-Scholes Equation** - A complex and sophisticated equation used to determine option prices.

**Bond** - A security representing a debt obligation from a government or company. The debt is expected to be repaid in full at the bond maturity date.

**Bond Ladder** - A series of bonds with increasing maturities, often spaced one year apart.

**Capped Index** - A stock index which is constrained so that individual components can not exceed a certain percentage. For the "capped" S&P/TSX 60, no component can exceed a 10% weighting.

**CRA** - Canada Revenue Agency. The friendly income tax people.

**Contrarian** - An investor who buys when most people are selling and sells when most people are buying. In practice, this is very difficult to do, partly for psychological reasons, but if done successfully can improve returns. Systematic rebalancing can be used to enforce contrarian behaviour.

**COPRs** - Canadian Originated Preferred Securities. Securities that trade on the TSX and provide interest income not eligible for the dividend tax credit. Some COPRs also trade on the NYSE.

**Correlation** - The tendency of individual securities to move together. A **correlation coefficient** of +1 means that two securities will always move up and down together. A correlation coefficient of -1 means that one security moves down when another moves up. A correlation coefficient of zero means that the movement of the two securities shows no pattern.

**Coupon Bond** - A bond that yields a certain amount (the "coupon"), usually paid semi-annually. Coupon bonds provide cash flow at predictable intervals and a capital repayment of the face value at maturity, unless the issuer defaults.

**CPI** - Consumer Price Index.

**Diversification** - The utilization of a wide variety of uncorrelated or weakly-correlated securities to fulfill portfolio asset allocation. Effective diversification will reduce risk.

**Dividend Tax Credit** - Tax procedure for reducing the effective tax rate on dividends from Canadian companies.

**DIY** - Do-it-yourself (investor).

**Dow Jones Index** - Usually refers to the Dow Jones Industrial Index (DJIA) of thirty large U.S. stocks.

**Duration** - The sensitivity of a bond (or a bond fund) to interest rate changes. A bond with a duration of five years will go down in price by 5% if interest rates increase by 1%.

**EAFE** - Europe - Australasia - Far East Index.

**EMH** - Efficient Market Hypothesis (also referred to as EMT, or Efficient Market Theory); a model of securities pricing that suggests that current information is included in the current price, and that the fair price for a security is therefore whatever it is currently trading at. There are three forms of EMH that differ in what types of information are included.

**Equity** - A security representing partial ownership in a company. Stocks are equities.

**ETF** - Exchange-Traded Fund. A basket of stocks that is bought and sold on a stock exchange as if it were a single stock.

**Face Value** - The nominal value of a security, e.g. \$100 for a bond.

**Fama-French Three Factor Model** - Academic study indicating that above-market returns could be obtained by including value and small-capitalization stocks in a portfolio.

**FPX Indexes** - Three portfolio indexes published in the Financial Post (part of the National Post). The **FPX Income**, **FPX Balanced**, and **FPX Growth** Indexes are appropriate benchmarks for conservative, neutral, or aggressive investors, respectively.

**GIC** - Guaranteed Investment Certificate. A debt security issued by a financial institution for a certain term and interest rate, providing a guaranteed return to the investor but usually with limited flexibility to access funds before maturity.

**GIC Ladder** - A series of GICs with increasing maturities, usually spaced one year apart.

**Gordon Equation** - An equation that states that total return is equal to dividend rate plus dividend growth rate (if there is no change in stock or market valuations).

**Growth Stock** - A stock representing a company which has had a history of increasing its revenues more quickly than other companies. A selection of growth stocks can be used to form a **Growth ETF**. Growth stocks are often expensive. See "**Value Stock**". Growth stocks have historically given generally lower rates of return than have value stocks.

**High-Yield Bonds** - Junk Bonds.

**Index Fund** - A mutual fund that tracks a certain stock (or bond) index.

**IPO** - Initial Public Offering. When a formerly-private company becomes public, the stocks are offered to investors in an IPO.

**Junk Bond** - A bond with a low investment quality rating. Junk bonds are similar to equities in risk.

**Large-Cap** - Large Capitalization; i.e. big companies.

**LRSP** - Locked-In Retirement Savings Plan. Generally similar to an RRSP but using pension funds from a former employer. No further contributions or early withdrawals are allowed by law.

**Marginal Tax Rate** - The total tax payable on the last dollar of income. The overall tax rate, which measures the total tax payable as a percentage of total income, will be significantly lower.

**Mean Reversion** - The tendency of an investment class to alternate periods of above-average returns with periods of below-average returns.



**MER** - Management Expense Ratio. How much a mutual fund charges unitholders as a management fee. The MER represents only a portion of the costs associated with a mutual fund; the impact of taxes and the costs of buying and selling securities are not included.

**Mid-Cap** - Middle-sized companies.

**MX** - Montreal Exchange.

**NASDAQ** - National Association of Securities Dealers and Quotations. The exchange used for trading most "high-tech" stocks.

**NAV** - Net Asset Value. The underlying value of a mutual fund or ETF if the assets were to be sold separately.

**NYSE** - New York Stock Exchange.

**OAT€** - Euro-denominated Real Return Bond offered by the Government of France.

**Option** - a security representing the right, but not the obligation, to buy or sell another security at a specified price before a certain date. Used by sophisticated investors to control risk. Additional definitions are given in the section on Options.

**Preferred Share** - A security that provides an income similar to that of a bond. Preferred shares of Canadian companies qualify for the dividend tax credit. Preferred shares are formally classed as "equities", but are similar in risk profile to corporate bonds and can be used as a substitute for bonds in a non-registered investment account. Additional definitions are given in the section on Preferred Shares.

**Rebalancing** - Returning a portfolio to its asset allocation targets by buying and/or selling securities. Rebalancing forces an investor to "buy low and sell high", and is contrarian in nature.

**REIT** - Real Estate Investment Trust. A security that provides unitholders with rental income from real estate properties.

**Royalty Trust** - a security that provides unitholders with income from royalties associated with the sale of oil and/or natural gas. A significant portion of the income represents return of the investor's own capital.

**RRB** - Real Return Bond. A bond that is indexed to the Canadian CPI, and thus which provides protection of income and capital from future inflation. It should be held in an RRSP, RRIF, or LRSP to avoid unfavourable tax treatment.

**RRIF** - Registered Retirement Income Fund.

**RRSP** - Registered Retirement Savings Plan.

**Rule of 72** - Mathematical approximation that the time required to double an investment is about 72 divided by the percent annual return, e.g. 12 years for a 6% return.

**Russell 1000 Index** - An index representing the largest 1000 companies in the Russell 3000. Sometimes referred to as "R1K". Investment performance is almost identical to that of the S&P 500.

**Russell 2000 Index** - An index representing the smallest 2000 companies in the Russell 3000. Sometimes referred to as "R2K". Often used as a proxy for small U.S. companies.

**Russell 3000 Index** - An index representing 3000 of the largest companies in the U.S. Sometimes referred to as "R3K". Investment performance is very similar to that of the Wilshire 5000.

**S&P 400 Index** - Standard and Poor's 400; an index representing 400 medium-capitalization companies in the U.S.

**S&P 500 Index** - Standard and Poor's 500; an index representing 500 of the largest companies in the U.S.

**S&P 600 Index** - Standard and Poor's 600; an index representing 600 small-capitalization companies in the U.S.

**S&P/TSX 60 Index** - Index representing sixty of the largest companies trading on the Toronto Stock Exchange.

**S&P/TSX Composite Index** - Index representing the total Toronto stock market.

**Slice and Dice** - Dividing a stock market investment amongst several ETFs, each with differing ranges of company size and company fundamentals.

**Small-Cap** - Small companies.

**Standard Deviation** - A mathematical measurement that shows how much a security varies in price. It is used as a mathematical proxy for risk.

**Stripped Bond** - A bond which is purchased at a discount to face value. No payments are made until maturity, when the face value is returned to the purchaser. Stripped bonds should only be held in an RRSP, RRIF, or LRSP.

**Style ETF** - An ETF that favours either value or growth stocks.

**Systematic Risk** - The risk associated with a particular market. It can not be reduced by adding more securities from the same market.

**Systematic Withdrawal Plan (SWP)** - A plan offered by a mutual fund company under which a fixed dollar amount of a mutual fund is redeemed at regular intervals. An SWP can drain a portfolio rapidly.

**T-Bills** - Also called Treasury Bills. Short-term (thirty days to one year) debt issued by the Government of Canada, issued at a discount to face value.

**TIPS** - Inflation-indexed bonds offered by the U.S. government. They should be held in an RRSP, RRIF, or LRSP to avoid unfavourable tax treatment.

**TSX** - Toronto Stock Exchange.

**Unsystematic Risk** - The extra risk above the systematic risk (see above) that is associated with holding a particular security. Unsystematic risk can be reduced by holding a larger number of securities in that market.

**Value Stock** - A stock representing a company that is felt to be inexpensively priced, sometimes because of underlying problems or limited growth prospects. A selection of value stocks can be used to form a **Value ETF**. See "**Growth Stock**". Historically, value stocks give a higher rate of return than do growth stocks.

**Variance** - The square of the standard deviation.

**Volatility** - How much a security varies in price. Usually measured by standard deviation.

**Wilshire 4500 Index** - Extended-Market Index representing the Wilshire 5000 less the S&P 500 stocks. Investors who already hold the S&P 500 can use the Wilshire 4500 to broaden their holdings with smaller stocks.

**Wilshire 5000 Index** - Index representing the U.S. total stock market. Sometimes referred to as "W5K".

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### Stock Exchange Symbols for Some ETFs

**AGG** - Amex-traded Barclays Global Investor ETF tracking the Lehman Aggregate Bond Index, which provides investors with exposure to the Treasury, investment grade corporate and mortgage sectors of the US taxable bond market.

**EEM** - Amex-traded Barclays Global Investor ETF tracking the MSCI Emerging Markets Free (EMF) Index.

**EFA** - Amex-traded Barclays Global Investor ETF tracking the EAFE Index.

**EFG** - NYSE-traded Barclays Global Investor ETF tracking the MSCI EAFE Growth Index.

**EFV** - NYSE-traded Barclays Global Investor ETF tracking the MSCI EAFE Value Index.

**GLD** - NYSE-traded Street Tracks ETF representing 1/10 of an ounce of gold.

**IAU** - Amex-traded Barclays ETF tracking the price of gold. IAU also trades on the TSX as IGT.

**IGT** - Toronto Stock Exchange symbol for IAU.

**IJJ** - Amex-traded Barclays ETF tracking the "value" portion of the "mid-cap" S&P 400 Index.

**IJR** - Amex-traded Barclays ETF tracking the "small-cap" S&P 600 Index.

**IVE** - Amex-traded Barclays ETF tracking the "value" portion of the "large-cap" S&P 500 Index.

**IVV** - Amex-traded Barclays ETF tracking the "large-cap" S&P 500 Index.

**IWB** - Amex-traded Barclays ETF tracking the "large-cap" Russell 1000 Index.

**IWN** - Amex-traded Barclays ETF tracking the "value" portion of the "small-cap" Russell 2000 Index.

**LQD** - Amex-traded Barclays ETF tracking the Goldman Sachs corporate bond index.

**SPY** - Amex-traded ETF tracking the "large-cap" S&P 500 Index.

**TIP** - NYSE-traded Barclays ETF tracking the Lehman Treasury Inflation Notes Index.

**VGK** - Amex-traded Vanguard ETF tracking the MSCI Europe Index.

**VNQ** – Amex-traded Vanguard ETF tracking Morgan Stanley REIT Index.

**VPL** - Amex-traded Vanguard ETF tracking the MSCI Pacific Index.

**VTI** - Amex-traded Vanguard ETF tracking the Wilshire 5000 Total Market Index.

**VWO** - Amex-traded Vanguard ETF tracking the Select Emerging Markets Index.

**VXF** - Amex-traded Vanguard ETF tracking the Wilshire 4500 Extended Market Index.

**XBB** - TSX-traded Barclays Canadian ETF based on Scotia Capital Universe Bond Index.

**XDV** - TSX-traded Barclays ETF tracking the Dow Jones Canada Select Dividend Index.

**XIC** - TSX-traded Barclays Canadian ETF based on the S&P/TSX Capped Composite (see **Capped Index**).

**XIN** - TSX-traded Barclays Canadian ETF tracking the currency-hedged EAFE Index.

**XIU** - TSX-traded Barclays Canadian S&P/TSX 60 ETF.

**XFN** - TSX-traded Barclays Canadian financial services sector ETF.

**XGD** - TSX-traded Barclays Canadian gold sector ETF.

**XMD** - TSX-traded Barclays Canadian ETF based on middle-sized and small companies.

**XRB** - TSX-traded Barclays Canadian ETF based on the Scotia Capital Real Return Bond Index.

**XRE** - TSX-traded Barclays Canadian ETF based on the S&P/TSX REIT Index.

**XSB** - TSX-traded Barclays Canadian ETF based on the Scotia Capital Short Term Bond Index.

**XSP** - TSX-traded Barclays Canadian ETF tracking the currency-hedged S&P 500 Index.