

# PREDICTABLE INVESTING

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**HISTORY LESSON – October 2006.**

**THE PI USER'S MANUAL.**

## **Part 1- PHILOSOPHY and FUND SELECTION.**

**INTRODUCTION:** This month we explain the Predictable Investing methodology, and how to pick the best stock and bond funds. Next month we will show how to best use this website for managing an investment portfolio.

First we discuss the basic philosophy of our technique, followed with definitions and explanation of terms and how to go about picking the best stock and bond mutual funds for your portfolio.

**BASIC PHILOSOPHY:** History tells us that significant amounts of money can be made by being fully invested in the stock market during long-term rising bull markets. For instance during the 17.4 year period between August 1982 and March 2000, the S&P500 gained an incredible 14.92 times. A \$1,000/- investment in the S&P500 in 1982 grew to \$14,920/- at the top of the market in the year 2000.

On the other hand, large amounts of money can also be lost by remaining fully invested during falling bear markets. For instance during the 3 year period between March 2000 and March 2003, the S&P500 lost 52%. Investors who remained fully invested during this period saw their portfolios lose more than half their value, and are only just beginning to see their portfolios break even 6.5 years later.

*Therefore, the primary job of the PI model is to tell us when conditions are favorable for a bull market and those periods when a bear market is likely.* Our model portfolio is fully invested in index mutual funds during favorable conditions, or is completely out of the market in the safety of money market funds when conditions are unfavorable.

**LONG-TERM MARKET TIMING:** We do not believe that it is possible to predict the direction of the stock market over the short or medium term, which are periods of weeks or months. This is because so many extraneous events and factors affect the short and intermediate direction of the market. Over the long-term however, fundamental economic factors dominate the market performance, and all the "random noise" is cancelled and averaged out.

*Our models are therefore set up to focus on the long-term market direction only, and will not catch short or intermediate term trends.* Please remember, that our primary job is to pull us out during a long, protracted, multi-year bear market, and also to make sure we are fully invested during a long period of rising prices i.e. a bull market.

**FAVORABLE ODDS:** Our methodology takes advantage of long-term market odds. During a bull-market, the odds are that 66.7% of the time the market will close *higher* on any given day. This means that we are likely to *make* money 2 days out of 3, and lose money 1 day out of 3 days. Therefore we need to be fully invested during this period.

Conversely, during a bear-market the odds are reversed. Odds are that 66.7% of the time the market will close *lower* on any given day, and we are likely to *lose* money 2 days out of 3. We definitely need to be out of the market during this period.

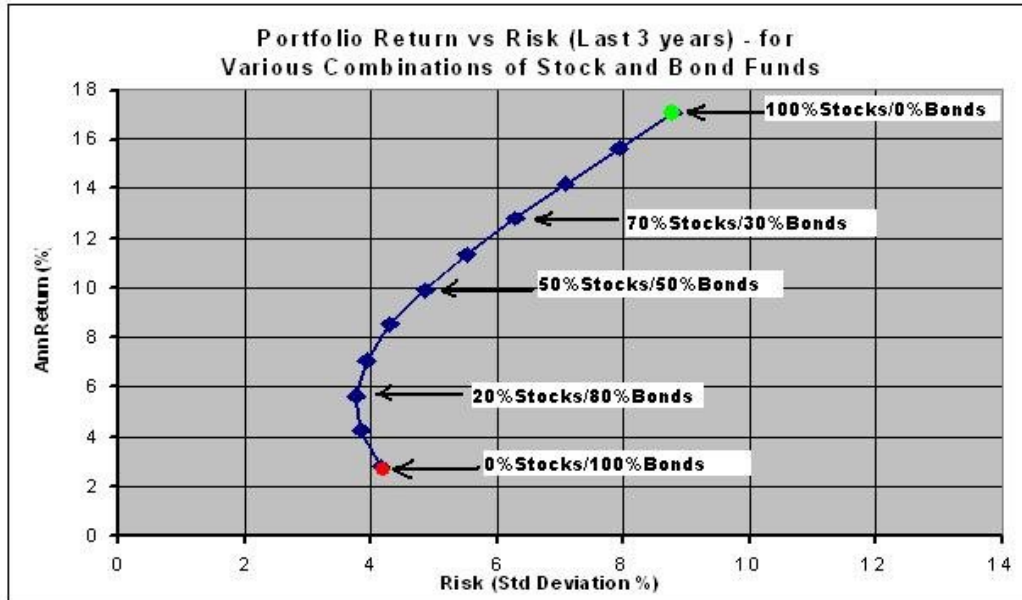
**VERY BORING METHOD:** The Predictable Investing system grows the money the slow, very boring, old-fashioned way, and yet manages to handily beat the indexes and most of the hot-shot portfolio managers in the business (see the statistics on the Portfolio Page).

Once the model switches to a BUY or SELL, it tends to stay in this mode for many years. There is no "action", other than yearly rebalancing (see "Portfolio Rebalancing" below) and investing new money that is destined for the stock market (see "What to do with New Money" in Part 2 next month).

For many people this patient waiting over many years is very boring as they feel that "they should do something" to react to the splashy media headlines. Please do not act hastily as it will destroy the PI system, and most likely cause you to lose money.

For those seeking fast action with lots of trading, I suggest you take no more than 5% of your total portfolio and do whatever you wish to satisfy your gambling urge. If you lose some of the 5% it will not materially hurt your financial net worth, and if you make lots of money, well then you will feel very smart.

**ASSET ALLOCATION:** We discussed Asset Allocation in detail in the History Lesson for June 2006 (see the Archives Page). We showed that including some fixed income, such as bonds in every portfolio, significantly reduced the risk or the price volatility of the entire portfolio. This lower risk came with only a slight reduction in the annual return. The figure below shows the Annual Return versus Risk for a simple, 2 asset, portfolio consisting of varying amounts of the Vanguard S&P500 Index Fund, symbol VFINX, and the Vanguard Total Bond Index Fund, symbol VBMFX.



The green data point is the return to risk data of a portfolio consisting of 100% stocks (VFINX), and 0% bonds (VBMFX). The red data point is 0% stocks and 100% bonds. Note that adding 20% stocks to an all bond portfolio, causes the Risk to *decrease* and actually *increases* the return.

**RISK TOLERANCE:** The asset allocation for an investor depends on their age and risk tolerance. A high risk portfolio will have high returns in a rising market, but will also drop much faster than a lower risk portfolio when the market falls.

The market will eventually recover, since there has never been a 10 year period during which an investor has lost money. As an example, investors who held on to equities through the bear market that started in March 2000, are just now breaking even after 6.5 years.

However, older investors may need to withdraw funds to live on before the market has recovered from a downturn. Their investing horizon is just not long enough to take on high risk investments.

But a younger investor has a much longer investing horizon in which to recover losses, and can therefore take on higher risks hoping to get larger profits.

In either case, investors should be cautious not to get frightened and sell their stocks at the bottom of the market. If they do that, it is certain that they will never recover their bear market losses.

Therefore we recommend the following guidelines:

1. The retired (or near retirement, age 50+ years old) investor the portfolio should have a balanced portfolio of around 50% in stocks and 50% in bonds. The 50:50 asset allocation captures 84% of the return of an all stock portfolio with only 51% of the risk.

2. The aggressive younger investor can have **up to** 80% in stocks and 20% in fixed income. The 80:20 asset allocation captures 94% of the return of an all stock portfolio with 80% of the risk. Conservative, younger, investors can opt to take on much lower risk, somewhere between the balanced approach and the 80:20 allocation number.

**EXPENSE RATIO:** Expense Ratio is the yearly management fee charged by a mutual fund company to run the fund. The amount charged is a percentage of the total amount invested. For instance, an investment of \$100,000/- in a fund with a 0.18% Expense Ratio would charge a yearly fee of \$180/-. This fee is transparent to the investor, and is buried in the fund price. Higher expense ratios mean that the annual return of the fund is lower than it could have been with a lower expense ratio.

**SELECTING STOCK FUNDS:** The stock portion of the portfolio should consist of no-load, widely diversified, low-expense ratio, index mutual funds, such as an S&P500 fund, or a Total Stock Market Index Fund. Such funds are offered by all the major mutual fund companies and discount brokers such as Vanguard, Fidelity and Schwab, etc. There is no reason to pay expense ratio's larger than 0.20%.

Our portfolio (see Portfolio Page) uses the Vanguard S&P500 Index fund ,VFINX, or the Vanguard Total Stock Market Fund ,VTSMX. These funds charge around 0.18% per year. For portfolios larger than \$100K, Vanguard offers a class of funds called Admiral which has an even lower expense ratio of 0.09%. The ticker symbols of the Admiral Funds for the S&P500 Index and Total Market Index are VFIJX and VTSAX.

**LOAD and NO-LOAD FUNDS:** *Never buy a load fund.* A load is the commission paid to the salesman or broker, and is subtracted from the principal amount **before** being invested in the fund. Many loaded funds routinely charge 4% to 6% either up-front (called front-end load), or when you withdraw your money (called back-end load). If you invest \$10,000/- in an index fund that charges a 6% front-end load, then only 94% or \$9400/- will be ultimately invested in the fund, while \$600/- will be confiscated as sales fees. During the following year, if the fund grows by 6.38%, your portfolio will again be worth \$10,000/-, and you will merely have broken even after risking your money for one whole year in the market.

But if, instead, you had invested in a no-load fund as I recommend, your portfolio would be worth \$10,638.00/-.

Some fund salesmen will claim that loaded funds have higher performance than no-load funds. A quick comparison of the two on [www.Morningstar.com](http://www.Morningstar.com) will show that this is a bogus claim. Also, the performance of loaded funds usually lags even further because the fund price data does not take into account the amount reduced by the load. Furthermore, loaded funds almost always have higher "Expense Ratios" than no-load funds. We will in the next section, demonstrate how much you could lose by using a loaded fund.

**COMPARE LOAD vs NO-LOAD FUND:** Let us compare the performance of a load versus a no-load S&P500 Index fund. The Evergreen Equity Index Class A (ESINX)

charges a 4.75% up-front load and has an expense ratio of 0.57%. The Vanguard Index 500 has 0.0% load and an expense ratio of 0.18%. The performance over the last 4 years is shown below:

<b>SYMBOL</b>	<b>ExpRatio</b>	<b>2002 Return</b>	<b>2003 Return</b>	<b>2004 Return</b>	<b>2005 Return</b>
<b>VFINX</b>	0.18%	-22.2%	28.5%	10.7%	4.8%
<b>ESINX</b>	0.57%	-22.5%	27.7%	10.3%	4.4%
<b>Difference</b>	-0.39%	-0.4%	-0.8%	-0.4%	-0.4%

The bottom row shows that the difference between using VFINX and ESINX is 0.4% to 0.8% per year. Almost the entire 0.4% lower annual return of ESINX is due to its higher expense ratio, except for 2003 when its return was lower by 0.8%. This 0.4% lower annual return of the loaded fund seems like such a minor matter, but unfortunately the loss to the investor balloons out to large numbers over long periods of time, as we shall show next.

Consider a 45 year investing horizon for the average working person, starting work at age 20 and retiring at age 65. Let's assume an initial principal of \$10,000/-, and use 10.1% as the annual return of the VFINX. The final portfolio after 45 years of compounding would be worth an incredible \$759,328/-. The table below shows the detailed values.

<b>SYMBOL</b>	<b>Principal</b>	<b>Years</b>	<b>AnnRet</b>	<b>Final Value</b>	<b>Difference</b>	<b>Diff.</b>	<b>Comments</b>
<b>VFINX</b>	\$10,000	45	10.1%	\$759,328	---	---	No-load
<b>ESINX</b>	\$9,525	45	9.7%	\$613,992	\$145,335	-16.8%	Loaded

The bottom row shows that the annual return of ESINX is 9.7%, which is lower than of VFINX by its 0.4% higher expense ratio. The initial principal of ESINX is \$9,525/- which is \$475/- lower than that of VFINX by the 4.75% up-front load. The final portfolio after 45 years of compounding would be \$613,993/-.

***Using the loaded fund ESINX instead of VFINX would reduce the final portfolio value at retirement by \$145,335/- or 16.6%.***

***PLEASE DO NOT BE TALKED INTO BUYING LOADED FUNDS!***

**INDIVIDUAL BONDS and BOND FUNDS:** For the fixed income portion of their portfolio, investors have a choice of buying individual bonds or buying bond mutual funds. Each has its advantages and disadvantages.

**Price:** The price of a bond or bond fund fluctuates inversely with interest rates. As interest rates rise, the price of bonds go down, and vice-versa. An individual bond will always pay back your entire principal when it is redeemed at maturity.

A bond mutual fund on the other hand, does not have a fixed maturity date. This is because the fund consists of many bonds, each of which has its own yield and maturity. As bonds within the fund mature and are redeemed, they are replaced by new ones which are purchased by the fund manager. At any given time, the price of a bond fund may be

higher or lower than what you purchased it for. Unlike an individual bond which returns 100% of its original price at redemption, there is no guarantee that a bond fund will ever return its original purchase price.

**Credit Quality:** measures the likelihood that the organization that issued the bond will be able to make the interest payments and return the principal at maturity. Credit reporting agencies such as Moody's and S&P issue ratings that tell us the financial soundness of the organization. The highest rating is AAA, followed by AA, and A. Anything above BBB is rated "investment grade". Lower ratings are categorized as "junk bonds", which are euphemistically called "high-yield bonds" by Wall Street.

**Yield:** The yield paid by a bond or bond fund depends on its credit quality. Higher quality bonds pay lower yields than poorer quality bonds. The highest quality bonds are Treasury bonds issued by the Federal Government, since the interest and repayment of principal are guaranteed by the US Treasury. Government Agencies like GNMA have slightly lower ratings followed by Municipal bonds issued by states and municipalities, and Corporate Bonds issued by companies.

**Junk Bonds:** Organizations with low bond ratings have to pay higher yields to entice investors to buy their bonds. These lower quality junk-bonds carry the additional risk of default. This means that the issuing organization gets into financial trouble and cannot pay either the interest or return the principal at maturity.

***You are taking on additional risk whenever you buy a bond that pays a higher yield than a Treasury bond of the same maturity. The main risk is that you may not get back your principal when the bond matures.***

For instance, there is low risk in buying a 20 year bond from the AAA rated General Electric, a company that has over 100 years of history and proven ability to negotiate vast changes in history, technology, and lifestyles. But would you buy a 20 year BB rated bond from a high-technology company with a 5 year history, even if it paid 50% more interest than GE? What is the probability that this company will be around in 20 years to return the principal?

**Diversification:** is the main reason for buying a bond fund over an individual bond issue. A bond fund consists of many bonds of varying maturities and credit quality, which are selected by a manager to match the objectives of the fund.

While an individual junk bond is very risky, a fund with a portfolio of 100 junk bond issues has much lower risk because of diversification. It can provide increased yield than a much higher rated bond fund, with a small increase in risk.

For instance, the Vanguard High Yield Corporate Bond Fund, VWEHX, has an average rating of BB, and delivers 7.3% yield, at a slightly higher risk. It can be included ***as a small part of a diversified bond fund portfolio.***

**Expense Ratio:** Expense ratio for a bond fund is even more important than for a stock fund. This is because the annual return of a bond fund is much lower than that of a stock fund and the expense ratio represents a higher percentage loss in performance. The

Vanguard family has the lowest expense ratio of all bond funds and that is why I use them in the PI portfolio.

**Duration:** The duration of a bond fund is the weighted average maturity of the individual bonds within it expressed in years. Duration is used to estimate the price change of a bond fund to changes in interest rates, and can be found in the fund prospectus.

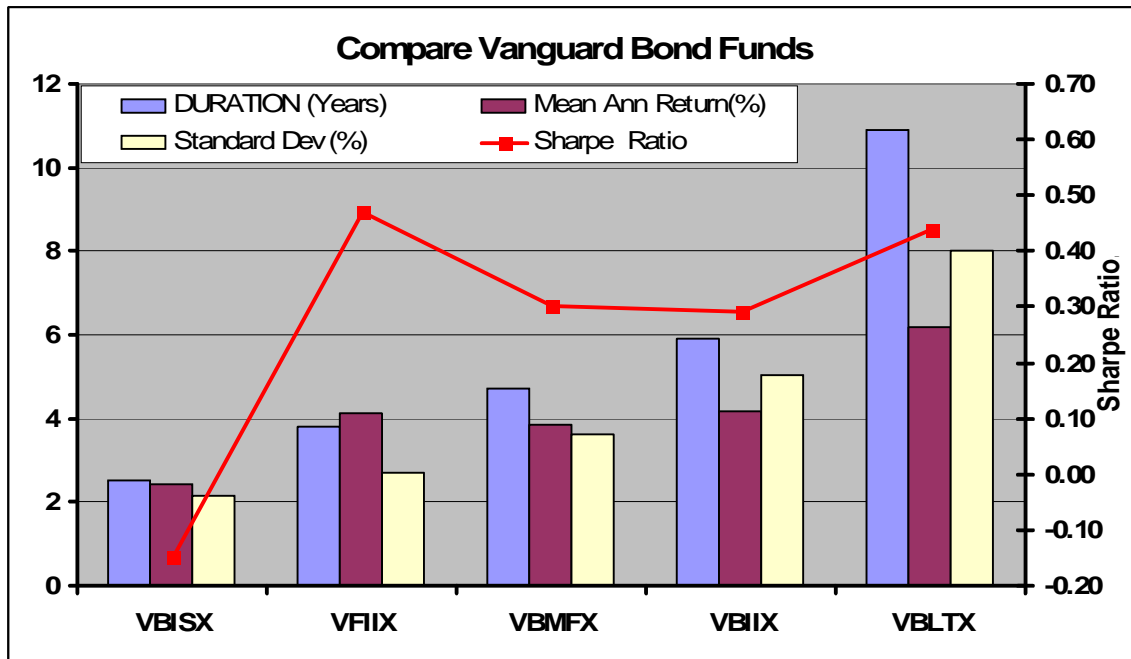
A 1% change in interest rates will cause the price of the bond fund to vary by the amount of the duration in percent. For instance, a 1% *increase* in interest rates in VBLTX which has a duration of 11 years, will cause its price to *drop* by 11%.

Similarly, the price decrease in the shorter-term VFIIX with a duration of 3.8 years, will be 3.8%.

**SELECTING BOND FUNDS :** The bond portion should be in high-quality US intermediate bond funds of around 4 to 5 year duration. These may be Government Agency funds such as GNMA, Tax-Free Municipal bond funds, or Corporate bond funds rated BBB or higher.

Suitable Vanguard bond funds are the GNMA fund , VFIIX, the California Intermediate Tax-Free Fund, VCAIX, or the corresponding fund for your state of residence. Also recommended are the Total Corporate Bond Market Fund Index, VBMFX.

The figure below shows the relative performance of these and several other Vanguard bond funds.



These 5 funds are plotted in order of increasing duration (blue bar), while the Sharpe Ratio is plotted as the red line.

We recommend the intermediate term GNMA bond fund, VFIIX, as the best fund for our portfolio, since it has the highest Sharpe Ratio of all the high-quality Vanguard bond funds.

**MARGINAL TAX BRACKET:** Is determined from the IRS tax tables at [www.irs.gov](http://www.irs.gov) . For instance, a married couple filing jointly with an Adjusted Gross Income between \$61.3K and \$123.7K, has a marginal federal tax bracket of 25%. The tables from the income tax collection authority of your state will provide your marginal state tax rate. Your total combined Federal and State marginal tax bracket is the sum of the Federal and State tax rates.

**TAXABLE vs TAX-FREE BONDS and FUNDS:** In a tax-deferred account such as an IRA, 401K or 403B, current taxes do not matter and we should pick the bond or bond fund with the highest yield.

However, in a regular taxable brokerage account, we must pay taxes every year on the interest paid by the bond or fund. We can avoid paying income taxes if we used municipal bonds or muni-bond funds, which are tax-exempt. However, muni's pay lower yields than taxable funds. So, to compare the two, we must first convert the muni bond yield to a "tax-equivalent yield" to see which is higher.

The formula that converts the tax-free muni yield to an equivalent taxable yield is:

Tax-equivalent yield = (tax free muni bond yield) / (1.0 – Marginal Tax bracket)

For example should an investor in a combined Federal and State marginal tax bracket of 35% choose VFIIX, which is a taxable bond fund yielding 5.18%, or VCAIX the California Tax-Free Intermediate Municipal fund yielding 3.72%?

The tax-equivalent yield of the VCAIX =  $3.72 / (1.0 - 0.35)$  or 5.72%, which is higher than the 5.18% yield of VFIIX. Therefore VCAIX is the better fund choice for this investor.

**PORTFOLIO REBALANCING:** After a period of rising or falling asset prices, the asset allocation can have drifted to a significantly different value than the desired proportion of equities to fixed income. Portfolio rebalancing is the process of buying and selling assets in order to revert back to the desired asset allocation.

**FULLY INVESTED:** If the percentage of stocks in your portfolio matches your Asset Allocation, you are said to be fully invested. If your stock percentage is higher than desired, you will sell some stocks and buy some bonds during Portfolio Rebalancing. Conversely, you will buy some stocks and sell some bonds if your stock percentage is lower than desired.

**CLOSING THOUGHTS:** Next month we will use the concepts developed in this article to present a "PI User's Manual" to manage your portfolio. I promise that the subject will

be interesting, but the slow, low-action implementation may be very boring. But who cares, as long as we are making lots of money?