TIP$TER® VERSION HISTORY

I. 9/22/08 – TIP$TER® version 1.0 released

A. Immediate Retirement Feasibility Estimates and Charts

As you enter your current retirement savings, the additional savings you plan to make between now and retirement, and the pension and social security income you expect to receive in retirement, TIP$TER® projects and charts what you could "safely" spend every year, beginning with your first year of retirement and annually adjusted for inflation, if your portfolio was completely invested in TIPS.

TIP$TER® also displays a chart showing the inflation-adjusted balance that your "all-TIPS" portfolio would experience if you spent only the "safe" amount. This gives you a "baseline" against which to compare a range of probable performances of a diversified portfolio.

B. Two-basket Retirement Savings Model

TIP$TER® assumes that your retirement savings are divided into 2 baskets -- a first basket of completely safe securities that yield a constant inflation-adjusted rate of return (e.g., I-bonds or TIPS), and a second basket of risky assets, like stocks or real estate, that are riskier (as defined by the standard deviation of annual returns) but offer a "risk premium" above the returns of the first basket. The returns of the two baskets are assumed to be uncorrelated -- an assumption that is true for I-bonds, but not entirely true for TIPS.

C. Monte Carlo Simulation of a Rebalanced Porfolio

TIP$TER® simulates the life of a portfolio 1000 to 10000 times, using randomly generated log-normally distributed (or, if you prefer, normally or historically distributed) returns for the second basket. TIP$TER® assumes that your % asset allocation between the first and second baskets are rebalanced every year. Therefore, the results of the simulation reflect the “rebalancing bonus” that such disciplined behavior obtains.

D. "Risk-Free" All-TIPS Baseline Portfolio

Unlike most monte carlo simulators, TIP$TER® calculates the sustainable retirement draw that your hypothetical portfolio would sustain if it were completely invested in TIPS, and displays this amount as a baseline against which TIP$TER® compares the results of the simulation of your hypothetical diversified portfolio. This comparison helps you to evaluate your risk tolerance and identify an asset allocation that provides an acceptable risk-reward tradeoff.

E. Presenting Simulated Outcomes Using Relevant Measures of Risk and Reward

TIP$TER® takes abstract measures of risk and reward – like expected stock returns and standard deviations, which you enter – and transforms them into far more practical measures of

risk and reward – like the retirement lifestyle your portfolio is likely to sustain and the risk that you or your spouse, if any, will "outlive" your portfolio.

TIP$TER's most favored measure of reward is the annual draw (in $/year) that your diversified portfolio is likely to support. One of TIP$TER's most favored measures of risk is the probability (i.e., the "shortfall risk") that you or your spouse, if any, will outlive your diversified portfolio. TIP$TER® also represents risk with graphs showing a projected or simulated 5-percentile result (or other "bad case" scenario) of the diversified portfolio in relation to the expected result of the baseline portfolio.

F. Tactical Asset Allocation

TIP$TER® allows you to model your portfolio with dynamic asset allocation modifications. First, you can direct that your asset allocation become more conservative with each passing year. Second, you can assume that markets can become relatively under- or overvalued (relative to the "risk premium" you input) but tend to eventually (in the very long term) revert to the mean, and to tactically adjust your asset allocation %'s accordingly.

G. Flexible Retirement Spending Parameters

TIP$TER® simulates a flexible retirement draw from your portfolio based upon the simulated performance of the stock portion of your portfolio.

H. Incorporating Actuarial Assumptions into Computation of Summary Statistics.

Unlike most monte carlo simulators which do not factor in life expectancies into the computation of shortfall risk, TIP$TER® calculates the shortfall risk as a function of two time-dependent variables -- the targeted portfolio life and the joint husband or wife life expectancy of a married couple -- as well as the couple's retirements savings inputs and retirement spending plans.

I. Multiple Configurable Portfolio Inputs and Outputs

TIP$TER® allows you to enter your current portfolio balance, expected social security benefits, and up to 5 other portfolio inputs. You can specify when a savings inflow or cash outflow begins, for how many years, and at what rate of real growth. With these additional inputs, TIP$TER® can model the effects of a future inheritance, pension, reverse mortgage, college expenses, and the like.

J. Taxes & Inflation

TIP$TER® assumes that all portfolio inputs, returns and annual withdrawals are adjusted for inflation. No adjustment is made for taxes -- it is assumed that all assets are either effectively tax-managed or held in tax-sheltered accounts, like IRAs. In any case, your annual draw is assumed to be sufficient to pay any necessary taxes.

K. Asset Allocation Chart

TIP$TER® includes a chart that displays the dispersion of probable performance results for 10 different diversified portfolios having asset allocations that range from 10% to 100% to the corresponding expected performance result of a baseline, "risk-free" portfolio. This chart is intended to help someone comparatively evaluate the risks and rewards of different asset allocations.

II. 10/12/08 – TIP$TER® version 1.1 released

A. Calculation of PV of an Inflation-Adjusted Longevity Annuity with Purchase Option

TIP$TER® version 1.1 now calculates the present value of a "longevity annuity" with the following characteristics: (1) its payouts begin the year following the expiration of the user's targeted portfolio duration; (2) the annual benefit is equal to the difference between the user's targeted retirement draw and all other lifetime retirement income sources (such as Social Security); and (3) its payouts continue through the lifetime of the last surviving spouse. TIP$TER® version 1.1 also includes a "Buy Annuity" checkbox. If selected, TIP$TER® assumes that such an annuity is purchased, at a cost equal to its present value, with the user's existing retirement savings.

B. Minor refinements

TIP$TER® version 1.1 also includes code that more reliably positions and sizes TIP$TER's charts. TIP$TER® version 1.1 also includes links to the user manual and TIP$TER® tutorials on Prospercuity's website.

III. 10/18/08 – TIP$TER® version 1.2 released

TIP$TER® version 1.2 replaces references to "draws" with references to "retirement budgets." This reflects the fact that TIP$TER's calculated retirement budgets are supported not only by "draws" from the portfolio, but also by Social Security and other retirement income sources.

IV. 11/05/08 – TIP$TER® version 1.3 released

TIP$TER® version 1.3 clarifies that the longevity annuity for which the PV is calculated is inflation-adjusted. The longevity annuity cell also now indicates the income stream that would be provided each year, along with the year the payments would begin.

V. 05/18/09 – TIP$TER® version 1.4 released

TIP$TER® version 1.4 adds the "Leave to Heirs" option in the first "Additional Portfolio Inputs and Outputs" entry, treats this additional input specification as a special case, and ensures that TIP$TER's "Retirement Expeditures" graph does not include the planned bequest.

VI. 05/26/09 – TIP$TER® version 1.5 released

TIP$TER® version 1.5 adds the "double lognormal" return distribution option described in Section VII(E).

VII. 08/31/09 – TIP$TER® version 2.0 (Beta) released

TIP$TER® version 2.0 introduces the "exploratory simulation" of "mean-adjusted" S&P 500 returns option, which TIP$TER® uses by default to model returns instead of normal or lognormal distribution models.

TIP$TER® version 2.0 significantly revises and reorganizes the user input section:

- changes the "Your Age Inputs" section heading to a "Your Life Status" heading
- replaces "Husband's Age" and "Wife's Age" inputs with marital status drop down box and "Your age" and "Spouse age" inputs. When a non-marital status is indicated, enters "N/A" into the "Spouse age" input
- moves the targeted portfolio duration option from the "Retirement Budget Plans" section to the "Your Life" section
- adds separate "Social Security" section
- carves out a new "Asset Allocation" section from former "Your Savings Goals" section
- carves out a new "Additional Return Model Parameters" section from the "Your Return Expectations" section
- hides the "Additional Return Model Parameters" section underneath a concealing comment when the default "exploratory simulation" option is selected
- adds "look up real yields" and "guidance on ERP" links to the "Return Expectations" section
- eliminates the "mean reversion" section, moving the tactical asset allocation input to the new "Asset Allocation" section and the RTM time-factor input to an "Additional Return Model Parameters" section
- subdivides "Retirement Budget Plans" into a smaller "Retirement Budget Goals" section and a "Retirement Budget Constraints" section
- adds a "Leave this much to kids/heirs" option to the "Retirement Budget Goals" section
- moves the longevity comment underneath the targeted portfolio duration option, and modifies it to display the probability of living past your targeted portfolio duration
- moves "longevity option" to "additional inputs/outputs" section
- promotes the "Your Simulation Model" drop-down menu (itself made more aesthetically appealing) above the "Run Simulation" button, and adds a comment box explaining the selected simulation option

TIP$TER® version 2.0 makes other improvements to the interface:

- improves the appearance of the Asset Allocation Risk/Reward Spectrum chart
- adds ability to toggle scaling of Asset Allocation Risk/Reward Spectrum chart

- makes X-label of chart Asset Allocation Risk/Reward Spectrum chart indicate whether the stock asset allocation was just the "initial" stock asset allocation.
- adds translucent comments noting the stale data to partially conceal the charts after inputs are changed
- adds "click to clear old data" button to the retirement budget and portfolio size charts
- replaces buttons and drop-down menus with better looking and better-explained controls

TIP$TER® version 2.0 is locked with LockXLS, which (1) speeds up the application on some platforms, (2) eliminates the requirement that users enable macros, and (3) conceals TIP$TER's proprietary simulation engine.

VIII. 09/27/09 – TIP$TER® version 2.06 (Beta) released

- Includes Tax Option tab with limited ability to estimate impact of taxes on retirement budget
- Includes C++ DLL for faster execution (approximately 6X faster execution) of core simulation calculations

IX. 02/15/10 – TIP$TER® version 2.08 released

- Historical dataset updated through Dec. 2009
- Repackaged as msi installation package, to eliminate need for unzipping
- Registration requirement eliminated