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Our IncomePay System – Now More Powerful!

—Jackie Smith, Actuarial Assistant

The issue of *Horizons* that came out in May 1997 introduced the IncomePayAnnuity system. I will pause for a moment while you dig out your archived copy...

For our new clients and those of you who keep your old PolySystems newsletters in a not-so-convenient location, such as an attic or hidden wall safe, I will start here today with a little background.

Background

PolySystems' IncomePayAnnuity System supports all common forms of income pay annuities including single and joint life, certain periods, structured settlements and supplementary contracts. The system also supports terminated pension plans. The calculations performed allow you to report statutory, tax and GAAP reserves and project future cash flow events.

The income payment structures are described via one or more annuity payment records linked to a base record. This record design allows the flexibility needed to describe structured settlements, for example, without adding unnecessary complexity to the structure of simpler annuity forms.

The Policy Detail History (PDH) file holds the accumulated history of each individual annuity. This file contains the base records, annuity payment records, death records, retirement records and factor records.

The valuation process computes statutory, tax and GAAP reserves. Up to 25 valuation bases can be defined and run at the same time. The statutory routines include the adjustments described in Guidelines 9A and 9B. The GAAP procedures support *SFAS 60*, *SFAS 91* or *SFAS 97* calculations, where you choose which accounting standard to follow.

In addition to the current reserve, the system generates reserve roll-up information from the prior valuation date. This roll-up information can be

used to facilitate the investigation of any unexpected earnings shocks.

The projection process operates concurrently with the valuation. Assumptions are added to estimate future deaths. Administrative expenses are projected. Statutory, tax and GAAP reserves are projected using the calculation structure used in the valuation.

Now that you know a little about how IncomePay works, let's talk about what is new. Exciting projection capabilities have been added to IncomePayDelphi. Additionally, support for experience studies has been added with the creation of IncomePayMeasure. We will start with experience studies.

IncomePayMeasure

IncomePayMeasure performs mortality experience studies, comparing actual death events to the expected mortality. In IncomePayMeasure, the actual amounts are stored in the same PDH the valuation and projection program uses, and the expected values are defined by one of the 25 expected bases assigned to the IncomePayMaster Plan. The fact that Measure uses the same PDH and does not require any additional table coding means that all current IncomePayMaster clients are ready to start using IncomePayMeasure today.

Measure counts actual values whenever Death Register Records (RECORD_TYPE = 02) are encountered in the PDH. Each life is studied separately, and studies can be based on "lives" or "consideration." When a study is based on "lives," each life contributes a unit of exposure while alive. In a "consideration" study, exposure is based on the gross premium amount from the GROSS_PREM field in the Annuity Identification Record (RECORD_TYPE = 00).

Other common Measure features are also available in IncomePayMeasure. Partitions

can be assigned and Measure Selection Criteria can be defined in order to study subsets of your data. Measure reports can be organized by using up to ten different reporting keys, allowing for thousands (or maybe millions) of report combinations. Reports can be formatted in one of four ways and created as a text, spreadsheet or database file. Measure reports detail exposure, actual and expected amounts as well as actual-to-expected ratios, standard deviations and 95th percentile confidence intervals.

IncomePayDelphi – Stochastic Projections

Stochastic mortality processing has recently been added to IncomePayDelphi's projection routine. Stochastic projections are an alternative to expected value processing. Expected value processing generates one set of outcomes and reports partial deaths over the year. Stochastic projection processing generates a distribution of outcomes assuming that each life either lives or dies every year. This distribution can then be ranked so CTE values, confidence intervals and standard deviations can be calculated.

The Stochastic processing feature required the addition of three new tables. *Actual/Expected Ratios* allows you to input A/E Ratios and standard deviations by sex and class. A/E ratios and standard deviations can be complicated and complex calculations. You can perform all of the calculations by hand, or you can use IncomePayMeasure. IncomePayMeasure calculates A/E ratios and standard deviations by sex and class, thus generating all of the values you need to input to the *Actual/Expected Ratios* table.

SIP Table and *Seed Table* work together to link the *Actual/Expected Ratios* to the projection process. You can select the seed that is used as the starting point in the expected mortality rate generation process for each scenario. This information is stored, so the scenario runs can be reproduced.

IncomePayDelphi – Shock Assumptions and Bundle Codes

A production environment is a necessity, and PolySystems' parameter-tables fit seamlessly

into a production environment. The defined statutory, tax and GAAP assumptions do not change from one reporting period to the next. The parameters defined within each table are saved, so jobs can be reproduced.


Projection capabilities are growing, and processing power is increasing. Companies want to test the impact of various shocks and ensure they have enough capital to withstand those shocks. Projecting shock assumptions by changing the projection assumptions that are used each reporting period would be a step away from the production environment. PolySystems' IncomePayDelphi has a solution.

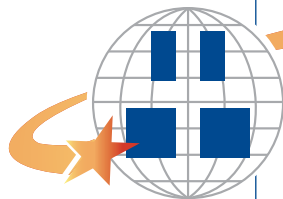
The new *Shock Assumptions* table allows you to perform calamity studies on a calendar-year or policy-year basis. Shock assumptions are then defined when the projection is run. Using *Shock Assumptions* allows you to produce alternate sets of projection assumptions without changing any table coding.

Bundle Codes are another way to alter your projection assumptions while preserving your table coding. A new field, *Bundle Code*, has been added to the projection program execution screen for the purpose of running with a bundle code, thus facilitating sensitivity testing. Three new tables are used to define Bundle Codes: *Bundle Codes*, *Bundle Code Assignments* and *Bundle Assumption Items*.

Want to know more?

Our IncomePayAnnuity suite is a very powerful system. It was designed with the same flexibility that you can count on in all of PolySystems' software.

Contact Bob Keating at 312.332.5670 or via email at BKeating@PolySystems.com for more information on adding the IncomePayAnnuity suite to your current financial reporting process and upgrading your current setup with the latest features. 



BITS & BYTES

Horizons Took a Summer Vacation

—Tom Cook, Documentation Specialist

Your June issue of *Horizons* was not lost in the mail. *Horizons* went on a summer vacation and is back after some much needed rest and relaxation.

See you next month! 