

Commentary

BUFFIN PARTNERS INC.

ECONOMIC INVESTMENT AND ACTUARIAL RESEARCH

Exposure-Related Investment Metrics

A concept that is commonly applied in mortality studies is the “exposed-to-risk” (ETR). In its simplest form ETR measures the average number of persons exposed to mortality risk in a specified group over a period of one year. ETR is both additive and sub-divisible; ETRs measured over successive periods may be added together where the observation period comprises multiple years; ETR may be subdivided by age, gender, or other groups such as smokers and non-smokers. ETR serves as the denominator in the computation of mortality rates. A crude mortality rate for a group of individuals with a common characteristic is computed as the number of observed deaths divided by ETR. It also serves to quantify the magnitude of the mortality study in terms of the aggregate value of the ETRs.

The concept of an exposure measure is also widely used in demographic and economic applications. For example, a measure of man-hours of work is used as the denominator in measuring output or productivity where the number of units of production is divided by the corresponding number of man-hours of work to provide a measure of productivity. Another example from demographic studies is the fertility rate where the number of live births is recorded in relation to the ETR of women at child-bearing ages.

The ETR concept may be extended to investment management to provide a basis for measuring and monitoring investment performance. A problem that exists with many published investment performance metrics is that the ETR is not shown. Rates of return are typically shown as annualized rates for specific periods of observation and for subsets of an investment portfolio. However, ETR metrics are not tracked systematically and disclosed with the published rates of return.

Often, investment rates of return are chain-linked for successive periods of observation on a time-weighted basis without regard to the actual ETR for each period. ETR has a number of powerful characteristics including the important features of additivity and divisibility for combining periods of observation or analyzing the investment experience of sub-components of a fund's portfolio of securities. Conventional performance measurement systems that are developed from net cash flow analysis do not typically produce the same extent and variety of performance metrics as ETR methods.

In its simplest form an investment ETR may be computed on a “bottom-up” basis from the individual security level and then aggregated for any desired sub-component of the portfolio. ETRs may be computed separately for equities, fixed-income, economic sector, industry, investment style, long-term, short-term, as well as for existing portfolio holdings and previously-held securities. The basic ETR may be measured from the initial cost basis or from a market value basis. When measured as a product of the initial value and the exposure period, this ETR produces rates of return that are “simple” in nature and these can be converted to an equivalent standard compound form.

A complete picture of the investment performance of a fund requires the monitoring and combining of the exposure and performance of both the current portfolio holdings of open positions and the closed portfolio of securities previously held and sold or matured. The distinction between the open and closed portions of the portfolio performance and their relative contributions to performance are typically not recorded in conventional performance analysis. These conventional systems are limited in terms of the amount of analysis they are capable of providing.

For example, these systems do not generate the breakdowns to provide both ETRs and rates of return or more complex statistical measures (such as the alpha, beta and r-squared from modern portfolio theory analytics) for a multitude of sub-classifications and for a number of sub-periods of measurement. Yet these extended measures are readily and easily developed by using the ETR methodology. Another problem with the conventional systems is allocating dividend and interest income in aggregate rather than to the specific security to which it belongs. By contrast, when ETR methodology is applied, rates of return are computed accurately for each strata of the portfolio down to the level of the individual security; this is achieved directly with the “bottom-up” ETR methodology.

Investment ETR is an important metric that merits attention and disclosure as a significant component of the analysis of investment performance. The practice of chain-linking time-weighted rates of return to produce results for multiple periods may be a useful practical device in certain circumstances, but these artificial rates of return may be misleading and do not represent the true rates of return actually earned by the fund as recorded by the ETR methodology. In summary, we advocate the use of ETR methodology, disclosure of ETRs and the development of detailed analysis of investment performance utilizing ETR-derived rates of return.

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