Financial & Economic Assumptions

Finance & Investment Committee
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Background

In 2005, Council asked the Finance & Investment Committee to establish a standard set of economic assumptions to be used as a starting point for setting financial assumptions in Actuarial Standards of Practice (ASPs) across the different practice areas.

This document sets out the base set of assumptions that Practice Committees are expected to take into account in setting financial assumptions in ASPs. The Finance & Investment Committee will review this base set annually.

There might be differences between the pure economic assumptions and the final financial assumptions included in ASPs for a variety of reasons—for example, policy guidelines advised by regulators. Such differences should be noted explicitly in the assumption-setting process.

This document is also available for information to members generally. ***If actuaries use these assumptions for their own work, they will need to exercise judgment on the appropriateness and suitability of the assumptions for their particular purposes. The Society does not accept responsibility or liability for any loss to any person or body as a result of any decision or action taken on foot of information or opinions set out in this note****.*

Interest rates

Whenever an actuary is required to use a set of interest rates—including forward rates—that are as low risk as possible, the rates used should be no higher than the current market yields on the highest-rated eurozone government bonds of appropriate duration; actuaries should apply equivalent principles to determining what yield curve to use if non-euro interest rates are required. The ECB publishes a curve of such yields every day: http://www.ecb.int/stats/money/yc/html/index.en.html; similar curves are also usually available elsewhere for other currencies. Alternatively, if it is believed that interbank interest-rate swaps or EONIA swaps are lower risk than the bonds mentioned above, then the relevant swap rates should be used as the maximum instead.

However, as noted above, the restrictions on assumption choice set out in this note apply only where the actuary has an otherwise free hand in the assumption-setting process rather than being required to use a particular assumption. Therefore, the requirement to use least risk rates no higher than the yields or swap rates described above does not apply when, for example, regulations stipulate the use of a different set of least risk rates.

The practice committees must decide what size of change in market rates warrants a change in their ASPs.

Price inflation

Because of the lack of an appropriate market that could be used to benchmark Irish inflation and derive a market-based assumption, it is necessary to set assumptions with reference to a euro-inflation market that is liquid and transparent. The market-implied inflation rate should be based on the differential between the yield on a euro nominal bond and that on a euro inflation-linked bond of similar duration and the same issuer; the French government is the recommended issuer at present, because of the currency that it uses and the range of nominal and index-linked bonds that it issues. Please note that the market-implied rate of euro inflation depends heavily on duration, so careful consideration should be given to the duration when deciding which reference bonds to use.

Because of the differential between Irish CPI and European HICP (excluding tobacco), there is scope for a different assumption from that described above. For example, historical Irish-inflation trades have implied that Irish inflation sometimes trades at a premium to euro inflation and sometimes at a discount; this premium or discount can include elements other than the market expectation of the difference between Irish and euro inflation (for example, the impact of an illiquid market). Therefore, euro inflation can be adjusted before arriving at an assumption for Irish inflation, and we recommend that the adjustment be between -50 and +50 basis points per annum. However, given that the market in Irish inflation is neither deep nor liquid, this range should be taken only as an indication, and there may be circumstances where it would be appropriate to choose a different assumption, as long as sufficient evidence exists to justify it (for example, the spread between realized Irish inflation and market-implied European inflation).

As with non-euro interest rates, similar principles to those described above should be applied if it is necessary to set a price-inflation assumption for a non-euro currency.

Earnings inflation

There is very limited data available to set any specific range for earnings inflation. It may be appropriate to consider the particular features of the population in question and to set the earnings-inflation assumption in conjunction with the employer. In the absence of any specific reasons to assume otherwise, we recommend that earnings be assumed to inflate at a higher rate than prices.

Cash

One way of calculating the lowest-risk return over a particular projection period is to roll up the expected cash returns. Using these returns, rather than basing the lowest-risk return on the yield of a bond with the appropriate term, has the advantage of excluding term & illiquidity premiums and credit spreads. Estimating these future returns on cash involves projecting how short-term interest rates will develop. The future development of short-term rates will be driven by, inter alia, realized & expected price inflation, central-bank monetary policy, and politics. These items are hard to predict, but some information can be gleaned

from the capital markets by examining the yield curve. For example, if the market expects short-term interest rates to increase over the next 20 years, then the 20-year interest rate should be higher than the short-term rate. However, not all the difference between a long-term rate and the current short-term rate can be explained by market expectations of interest-rate increases: Some of the difference is due to term & illiquidity premiums and credit spreads. And the impact of these premiums and spreads tends to increase the further out the yield curve one goes. Therefore, the yield curve can act as a starting point for calculating the expected cash return rather than as the final answer. In this manner taking a yield of appropriate tenor on the highest rated Eurozone government bonds may be thought of as providing an upper limit on the cash return assumption.

Equity risk premium

To help inform the setting of the equity risk premium (ERP), the Society has prepared a database of historical economic data. However, it is not clear yet which specific parts of it have the most value and credibility and, therefore, how the database should be used for the purpose of determining a reasonable ERP assumption. Using different historical data—either different stock markets or different periods—produces significantly different estimates for the ERP, and there appears to be no fundamental reason to choose a particular market or period over any other. Using different assumptions or analysis would also lead to different ERPs. This means there is considerable uncertainty about what an appropriate ERP is. Because of this, we think it sensible to recommend a range for the ERP rather than a central estimate.

Using reasonably long periods and large economies (as observed today), high-level analysis of the database could support an ERP anywhere from 2.0% to 5.5% per annum in excess of the lowest-risk return, that is, 2.0% to 5.5% per annum in excess of the return expected on low-risk cash over the projection period, so we recommend using an ERP within this range, recognizing both the range of outcomes observed historically and the variety of portfolio structures an assumption may be applied to. Please also note that ERPs near the extremes of the above range have not been very common in the past, so before using such an ERP, actuaries should consider whether they expect such historically atypical economic conditions to prevail over the relevant investment horizon.

Because of the uncertainty about the ERP, using an assumption outside the recommended range may be appropriate, but before doing so, an actuary should be able to supply sufficient evidence for the chosen ERP and show why the data and analysis it is based on are more reliable than the Society's database.

When deciding what ERP to use, an actuary should take into account inter alia what the ERP is being used for, the financial knowledge of the recipient of the advice or communication, and whether the risk and uncertainty associated with equities are being allowed for or communicated.

Comparison with previous notes & alternatives

Please note that setting an ERP relative to expected cash returns is a change from previous versions of this note, which set the ERP relative to long-term interest rates.

Adding an ERP to the expected return on cash is not the only method that can be used to set an assumed rate of return on equities, and the intention of this note is not to preclude the use of other methods; rather, the note is intended to be used as for reasonableness and consistency checks across all methods and practice areas. If a different method is used and produces an equity return towards the upper end of the recommended range, then careful consideration should be given to the reasonableness of the method and the underlying assumptions; for example, whether the growth rate used in a dividend-growth model is consistent with the future inflation implied in the risk-free curve.

Other assets

Unless there are sufficient reasons and evidence for doing otherwise, any assets not covered in the paragraphs above should be assumed to produce a return equal to that of cash. If a higher return than cash is chosen, the risk premium must be commensurate with the level of risk associated with the asset. Regardless of the level of risk, the risk premium must be no higher than the assumed ERP. The same considerations should be given to deciding on the level of the risk premium as those applying to the ERP.