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# SOA International Experience Survey—**Embedded Value Financial Assumptions**

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Starting in 2003, the Society of Actuaries International Experience Study Working Group has been conducting surveys of published embedded value (EV) financial assumptions.[3] This article updates the survey with 2010 data.

The purpose of this survey is to provide international actuaries with benchmark assumption data. Since many companies make this information publicly available, no formal data request was issued. Instead, the survey was based on reports published on the Internet by 38 companies centered in Asia, Australia, Canada and Europe, many of which are active internationally. The same 38 companies were included in the 2009 survey.

Each financial assumption presented in this article is the average value of the assumption reported by all companies in their 2010 embedded value reports. If no companies reported a specific assumption in a given country, then that assumption is labeled "NA" to signify that data is not available. Some companies vary assumptions by calendar year, while other companies use a single assumption; if a company varies an assumption by calendar year, the value for the earliest period is used in this study.

## Financial Assumptions From Survey

Financial assumptions presented in this article include:

- Discount rate—for companies with traditional embedded value (TEV) calculations, the rate used to calculate the present value of future distributable earnings;
- Implied discount rate—for companies with market consistent embedded value (MCEV) calculations, the TEV discount rate that when used to discount "real world" cash flows, would produce the MCEV;
- Equity return[4]—the total return on common stock investments;

- Property return[4]—the total return on investments in real estate;
- Fixed return[4]—the yield on a corporate bond portfolio held by an insurance company;
- Risk-free return—typically the yield on a 10-year bond offered by the local government or the 10-year swap rate (swap rates are commonly used as risk-free yields for MCEV purposes);
- Inflation—the rate used to increase future expenses and, possibly, revalue policy terms that are tied to inflation; and
- Tax rates—income tax rates by jurisdiction.

These results are presented in two separate tables. Table 1 provides the number of companies contributing data as well as discount rates for TEV companies and the implied discount rates for MCEV companies. Table 2 contains the rest of the financial data.

When reading Table 1 (pg. 13), several thoughts should be kept in mind:

- The methodologies followed by the companies to determine discount rates were as follows:

| Methodology | Number of Companies |
|---|---|
| MCEV | 28 |
| WACC | 10 |

## COMPANIES INCLUDED IN SURVEY

| | |
|---|---|
| Aegon | Ageas |
| Allianz | AMP |
| Aviva | AXA |
| Chesnara | CNP |
| Dai-Ichi | Delta Lloyd |
| Eureko | Generali |
| Groupama | Hannover Re |
| Himawari | Ind. Alliance |
| Irish Life & Perm | KBC |
| Legal & Gen | Lloyds Banking Grp |
| ManuLife | Mediolanum |
| Mitusi | Munich Re |
| Old Mutual | Prudential UK |
| Royal London | SCOR |
| SJP | SNS Real |
| SONY | Standard Life |
| Swiss Life | T&D |
| Uniqa | Vienna |
| Vital | Zurich |

## LIMITATIONS

Readers should use judgment when interpreting the results of the survey and note that:

- When comparing one assumption to another, it should be noted that different companies might be contributing data to different assumptions, so that differences between variables may reflect differences between companies, rather than differences between the assumptions.
- Some cells include data from many companies, while others include data from as few as one company.

- A methodology is considered market consistent if conceptually each cash flow is valued consistently with traded instruments that display similar risks. Thus under the MCEV approach each cash flow is theoretically discounted using a risk discount rate (RDR) appropriate for valuing similar cash flows in the market.
- Companies following MCEV strictly speaking do not have risk discount rates that are comparable to those used by companies employing a more traditional approach. For companies employing an MCEV methodology, discount rates in Table 1 are the RDRs inferred from the MCEV calculation. That is, they are discount rates that would develop the MCEV value using TEV techniques and assumptions. Many companies that publish MCEV results do not publish implied discount rates.
- Companies that explicitly set risk discount rates are referred to as calculating traditional embedded values. A common method used by these companies is to set the risk discount rate equal to the company's own weighted average cost of capital (WACC).

When reading this and other tables, it should be noted that some companies use identical assumptions for multiple countries (on the basis that this results in immaterial differences), and this practice would tend to dampen differences between countries.

## Table 1: Average 2010 Explicit and Implicit Discount Rates

| | | | Traditional | | | Implied Discount Rate | |
|---|---|---|---|---|---|---|---|
| | | Companies | Discount Rate | | Companies | (In Force) | (New Business) |
| | Country | | (1) | | | (2) | (3) |
| America Latin | | | | | | | |
| | Brazil | 1 | 6.5% | | 0 | NA | NA |
| | Mexico | 1 | 11.4% | | 0 | NA | NA |
| America North | | | | | | | |
| | Canada | 3 | 7.3% | | 1 | 6.9% | 6.5% |
| | US | 4 | 7.5% | | 2 | 19.2% | 15.8% |
| Asia / Pacific | | | | | | | |
| | Australia | 1 | 8.6% | | 1 | 7.7% | 7.1% |
| | China | 2 | 10.7% | | 0 | NA | NA |
| | Hong Kong | 2 | 6.7% | | 1 | 6.8% | 5.3% |
| | Indonesia | 1 | 13.0% | | 0 | NA | NA |
| | Japan | 2 | 5.6% | | 1 | 4.9% | 2.6% |
| | Malaysia | 1 | 7.1% | | 0 | NA | NA |
| | New Zealand | 1 | 9.0% | | 1 | 7.7% | 7.1% |
| | Philippines | 1 | 13.2% | | 0 | NA | NA |
| | Singapore | 1 | 6.1% | | 0 | NA | NA |
| | South Korea | 1 | 8.1% | | 0 | NA | NA |
| | Taiwan | 1 | 5.2% | | 0 | NA | NA |
| | Thailand | 1 | 10.5% | | 0 | NA | NA |
| | Vietnam | 1 | 18.9% | | 0 | NA | NA |
| Asia / Mideast | | | | | | | |
| | India | 1 | 13.1% | | 0 | NA | NA |
| | Turkey | 1 | 15.0% | | 0 | NA | NA |

| Europe Central | | | | | | |
|---|---|---|---|---|---|---|
| | Czech | 1 | 8.8% | | 1 | 6.8% | 6.4% |
| | Greece * | 1 | 8.3% | | 0 | NA | NA |
| | Hungary | 1 | 13.0% | | 0 | NA | NA |
| | Poland | 1 | 10.6% | | 1 | 7.3% | 7.3% |
| | Romania | 2 | 11.1% | | 0 | NA | NA |
| | Slovakia | 2 | 8.4% | | 0 | NA | NA |
| **Europe Western** | | | | | | |
| | Belgium * | 1 | 7.8% | | 1 | 8.9% | 6.8% |
| | France * | 2 | 7.5% | | 3 | 6.9% | 6.0% |
| | Germany * | 1 | 7.8% | | 3 | 5.5% | 5.1% |
| | Ireland * | 2 | 7.6% | | 3 | 5.4% | 5.6% |
| | Italy * | 0 | NA | | 3 | 7.5% | 7.2% |
| | Netherlands * | 5 | 7.3% | | 1 | 14.8% | 14.8% |
| | Norway | 1 | 7.0% | | 0 | NA | NA |
| | Spain * | 1 | 8.4% | | 2 | 7.8% | 7.9% |
| | Switzerland | 0 | NA | | 1 | 3.8% | 3.5% |
| | UK | 4 | 7.4% | | 3 | 7.4% | 6.9% |

* euro currency zone

A few observations can be made concerning Table 1 when compared to similar data published last year[5]:

- Traditional discount rates generally decreased or remained constant. Exceptions included Vietnam, Czech Republic, Hungary, Poland, France, and Ireland where they increased.
- Decreases were more than 2 percent except in Malaysia, Philippines, Taiwan, Thailand and Romania. Increases were less than 1 percent except in Vietnam.
- Implied discount rate changes were more mixed with some increasing and others decreasing. The largest change was a decrease in the average implied discount rate for the United States. However, the average implied discount rate still remains higher than for any other country. The next highest implied discount rate is that for the Netherlands.

The second table presents the balance of the financial assumptions used in embedded value calculations. Note that:

- Equity and property returns normally include both cash income (that is, stockholder dividends and rental payments) and asset value appreciation (or depreciation), and these yields may be reported net of investment expenses. Alternatively, equity returns may represent a fund appreciation prior to any fees or charges made against the fund. In all cases, equity and property returns will be influenced by company investment strategy.
- Fixed returns reflect the investments in an insurer's bond portfolio. Amortized book yields are typically used in countries where investments are accounted for on an amortized cost basis, while current market redemption yields are used when investments are accounted for on a market value basis. Companies generally do not disclose whether the fixed income returns are net of defaults or investment expenses.
- The inflation assumption may differ from general inflation (for example, the increase in a consumer price index).
- Tax rates are dependent upon individual company circumstances (for example, the existence of tax loss carry forwards) and thus these rates cannot necessarily be applied to other companies.

## Table 2: Average 2010 Financial Assumptions

| | Country | Companies | Equity Return (4) | Property Return (5) | Fixed Return (6) | Government Return (7) | Inflation (8) | Income Tax Rates (9) |
|---|---|---|---|---|---|---|---|---|
| **Africa** | | | | | | | | |
| | South Africa | 2 | 11.7% | 9.7% | NA | 8.2% | 7.2% | 35.3% |
| **America Latin** | | | | | | | | |
| | Brazil | 1 | 12.0% | NA | 13.5% | NA | 5.0% | 40.0% |
| | Mexico | 1 | NA | NA | NA | 4.9% | 4.4% | 40.0% |
| **America North** | | | | | | | | |
| | Canada | 6 | 8.1% | 7.1% | 4.0% | 3.3% | 1.6% | 26.2% |
| | US | 17 | 7.5% | 6.0% | 5.2% | 3.8% | 2.6% | 34.2% |
| **Asia / Pacific** | | | | | | | | |
| | Australia | 3 | 9.3% | 7.7% | 7.2% | 5.6% | 2.8% | 30.0% |
| | China | 3 | 10.9% | NA | 5.5% | 4.0% | 2.8% | 25.0% |
| | Hong Kong | 5 | 8.0% | 5.6% | 6.0% | 3.3% | 2.4% | 16.5% |
| | Indonesia | 1 | NA | NA | NA | 7.8% | 5.0% | NA |
| | Japan | 10 | 4.8% | 3.4% | 2.1% | 1.2% | 0.3% | 36.0% |
| | Malaysia | 2 | 10.0% | NA | NA | 4.0% | 2.5% | 22.0% |
| | New Zealand | 2 | 9.0% | 8.0% | 6.5% | 6.0% | 3.0% | 30.0% |
| | Philippines | 1 | NA | NA | NA | 6.4% | 4.0% | NA |
| | Singapore | 2 | 8.7% | NA | NA | 2.7% | 2.0% | 18.0% |
| | South Korea | 3 | 9.6% | 5.6% | NA | 4.6% | 3.0% | 23.1% |
| | Taiwan | 2 | NA | NA | NA | 1.6% | 1.0% | NA |
| | Thailand | 2 | NA | NA | NA | 3.8% | 3.0% | NA |
| | Vietnam | 1 | NA | NA | NA | 12.1% | 5.5% | NA |
| **Asia / Mideast** | | | | | | | | |
| | India | 1 | NA | NA | NA | 8.1% | 4.0% | NA |
| | Isreal | 1 | NA | NA | NA | 2.2% | NA | NA |
| | Turkey | 2 | 15.0% | NA | NA | 8.5% | 5.0% | 20.0% |
| **Europe Central** | | | | | | | | |
| | Croatia | 1 | NA | NA | NA | NA | NA | 20.0% |
| | Czech | 7 | 6.7% | 5.6% | 4.6% | 4.1% | 2.0% | 18.1% |
| | Greece * | 2 | 8.0% | 7.0% | 5.0% | NA | 3.3% | 22.0% |
| | Hungary | 5 | 13.0% | 13.0% | NA | 8.0% | 2.5% | 19.8% |
| | Poland | 6 | 9.9% | 7.7% | NA | 6.1% | 2.8% | 19.0% |
| | Romania | 4 | 10.2% | 7.9% | 5.9% | 7.0% | 4.0% | 16.0% |
| | Slovakia | 3 | 7.8% | 6.1% | 4.1% | 3.3% | 2.7% | 19.0% |

| Europe Western | | | | | | | |
|---|---|---|---|---|---|---|---|
| Austria * | 2 | NA | NA | NA | NA | 2.0% | 25.0% |
| Belgium * | 4 | 7.4% | 6.1% | 4.6% | 3.4% | 1.9% | 34.0% |
| France * | 12 | 7.3% | 5.1% | 4.4% | 3.3% | 2.1% | 34.3% |
| Germany * | 11 | 7.2% | 5.0% | 3.9% | 3.1% | 2.1% | 31.5% |
| Ireland * | 8 | 6.9% | 5.9% | 4.7% | 3.7% | 2.7% | 12.5% |
| Italy * | 9 | 7.2% | 4.8% | 4.2% | 4.8% | 2.1% | 32.6% |
| Lichtenstein | 1 | 7.3% | 5.3% | NA | NA | NA | 13.0% |
| Luxembourg * | 2 | 6.8% | 5.3% | NA | NA | NA | 22.0% |
| Netherlands * | 6 | 7.2% | 6.0% | 4.0% | 3.4% | 1.8% | 24.5% |
| Norway | 1 | 7.4% | 6.2% | 3.7% | NA | 3.5% | 28.0% |
| Portugal * | 2 | 6.2% | 5.2% | NA | NA | NA | 26.5% |
| Spain * | 6 | 7.2% | 6.9% | 4.6% | 3.3% | 2.1% | 30.0% |
| Sweden | 3 | 6.7% | 5.7% | NA | 3.7% | 2.8% | 26.3% |
| Switzerland | 5 | 6.5% | 4.6% | 3.8% | NA | 1.2% | 21.4% |
| UK | 19 | 7.4% | 6.2% | 4.3% | 3.8% | 3.7% | 25.3% |

* euro currency zone

A few observations can be made concerning Table 2 when compared to similar data published last year[6]:

- Average 2010 government return assumptions decreased from last year for most countries. The most significant decrease was for Taiwan where government return assumptions decreased by 3.9 percent from 5.5 percent in 2009 to 1.6 percent. Government return assumptions increased for Vietnam and Italy, while government return assumptions did not change for Hungary and Sweden. It should be noted that for each of these countries, 2010 results were only available from one company.

- Average 2010 tax rate assumptions did not change significantly overall from 2009, but it is worth noting that the average tax rate assumption for Malaysia and the United States increased by 5.6 percent (from 16.4 percent to 22.0 percent) and 4.0 percent (from about 30.1 percent to 34.2 percent) respectively. 2010 results were available from one company for Malaysia and eight companies for the United States.

It should be noted that several companies calculating MCEVs as of year-end 2010 adjusted their risk-free rates by including an illiquidity premium adjustment resulting in a higher risk-free return.

## Investment Premiums and Other Marginal Relationships

Investment premiums are the additional yield an investor is expected to receive by purchasing an asset other than a government bond.

- Equity Premium—the excess yield from investing in common stock over the risk-free return,
- Property Premium—the excess yield from investing in real estate over the risk-free return, and
- Credit spread—the excess yield from investing in a mix of corporate and government bonds over the risk-free return.

In addition the following two marginal relationships may be of interest:

- Risk premium—the excess of the traditional embedded value discount rate over the risk-free return, and
- Real return—the excess of the riskfree return over inflation.

Table 3 (pg. 17) presents the marginal relationships derived from Table 2. The column numbering continues the numbering in the prior table.

## Table 3: Investment Premiums and Other Marginal Relationships

| | Country | Traditional Risk Premium (10)=(1)-(7)** | Equity Premium (11)=(4)-(7)** | Property Premium (12)=(5)-(7)** | Credit Spread (13)=(6)-(7)** | Real Return (14)=(7)-(8)** |
|---|---|---|---|---|---|---|
| Africa | | | | | | |
| | South Africa | NA | 3.5% | 1.5% | NA | 1.0% |
| America Latin | | | | | | |
| | Mexico | 6.5% | NA | NA | NA | 0.5% |
| America North | | | | | | |
| | Canada | 4.0% | 4.7% | 5.3% | 1.2% | 1.7% |
| | US | 3.6% | 4.3% | 3.7% | 1.7% | 0.9% |
| Asia / Pacific | | | | | | |
| | Australia | 3.0% | 3.0% | 2.0% | 0.5% | 2.6% |
| | China | 6.7% | 6.8% | NA | 1.4% | 1.3% |
| | Hong Kong | 3.4% | 5.1% | NA | NA | 1.1% |
| | Indonesia | 5.3% | NA | NA | NA | 2.8% |
| | Japan | 4.4% | 3.5% | NA | 0.3% | NA |
| | Malaysia | 3.1% | 6.0% | NA | NA | 1.5% |
| | New Zealand | 3.0% | 3.0% | 2.0% | 0.5% | 3.0% |
| | Philippines | 6.8% | NA | NA | NA | 2.4% |
| | Singapore | 3.4% | 6.0% | NA | NA | 0.7% |
| | South Korea | 3.5% | NA | NA | NA | 1.6% |
| | Taiwan | 3.6% | NA | NA | NA | 0.6% |
| | Thailand | 6.7% | NA | NA | NA | 0.8% |
| | Vietnam | 6.8% | NA | NA | NA | 6.6% |
| Asia / Mideast | | | | | | |
| | India | 5.0% | NA | NA | NA | 4.1% |
| | Turkey | 6.5% | 6.5% | NA | NA | 3.5% |
| Europe Central | | | | | | |
| | Czech | 4.9% | 3.4% | 2.9% | NA | 1.9% |
| | Hungary | 5.0% | 5.0% | 5.0% | NA | 5.0% |
| | Poland | 4.5% | 4.5% | NA | NA | 3.1% |
| | Romania | 4.5% | 4.5% | NA | NA | 2.8% |
| | Russia | NA | NA | NA | NA | NA |
| | Slovakia | 5.1% | 5.1% | NA | NA | 0.3% |
| | Romania | 1.5% | 1.5% | 0.0% | 0.0% | 0.9% |
| | Slovakia | 0.2% | 0.0% | 2.6% | 2.6% | 0.0% |

| | | Traditional Risk Premium | Equity Premium | Property Premium | Credit Spread | Real Return |
|---|---|---|---|---|---|---|
| Europe Western | | | | | | |
| | Belgium * | 4.3% | 5.2% | 3.7% | 0.6% | 1.4% |
| | France * | 4.2% | 3.8% | 1.5% | 0.6% | 1.3% |
| | Germany * | 4.3% | 3.1% | 1.7% | -1.1% | 1.0% |
| | Ireland * | 3.1% | 3.0% | 2.0% | 3.0% | 0.7% |
| | Italy * | NA | 1.1% | -0.7% | NA | NA |
| | Netherlands * | 4.2% | 4.3% | 3.0% | 0.8% | 1.8% |
| | Spain * | 5.1% | 5.1% | 5.1% | 1.3% | 1.3% |
| | Sweden | NA | 3.0% | 2.0% | NA | 0.5% |
| | UK | 3.6% | 3.4% | 2.6% | 0.4% | -0.2% |

\* = euro zone
\*\* = calculated including only companies with complete data

A few observations can be made when comparing Table 3 to last year's results:

- Traditional risk premiums changed most significantly in Cyprus and Croatia (decreases of 4.8% and 4.0% respectively).
- Equity premiums changed most significantly in Japan and Spain (increases of 5.3% and 4.0%).
- Property premiums changed most significantly in Spain and Hungary (increases of 4.0% and 3.0%).
- Credit spreads changed most significantly in Romania and Ireland (increases of 2.2% and 1.5% respectively).
- Real returns generally decreased except for a few countries in Asia/Pacific and Europe.

Please note that the data is relatively sparse outside of Western Europe and North America, so observations and conclusions could be different if additional data was available.

## Stochastic Market Assumptions

A number of companies are calculating the values of options and guarantees following stochastic approaches. Thirty of the 38 companies surveyed disclosed some level of stochastic market assumptions in their 2010 embedded value reports. Averages of several of these assumptions are shown in Table 4 (volatility may also be referred to as standard deviation).

**Table 4: Sample Stochastic Assumptions[7]**

| | | Risk Free | | Equity | | Property | |
|---|---|---|---|---|---|---|---|
| | Country | Rate | Volatility | Rate | Volatility | Rate | Volatility |
| Africa | | | | | | | |
| | South Africa | 8.0% | NA | 11.7% | 27.0% | 9.7% | 15.9% |
| America North | | | | | | | |
| | Canada | 3.5% | NA | NA | NA | 5.5% | NA |
| | US | 3.7% | 17.1% | 7.4% | 25.1% | 6.5% | 12.8% |

| Asia / Pacific | | | | | | |
|---|---|---|---|---|---|---|
| | Australia | 6.2% | NA | NA | NA | NA | NA |
| | Hong Kong | 3.2% | 22.5% | 6.2% | 23.8% | 5.2% | 28.0% |
| | Japan | 1.1% | 23.4% | 4.7% | 22.3% | 1.7% | 23.9% |
| | South Korea | 4.6% | 12.8% | NA | 22.7% | NA | 13.8% |
| | Taiwan | 1.9% | NA | NA | NA | NA | NA |
| | Thailand | 4.1% | NA | NA | NA | NA | NA |
| Asia / Mideast | | | | | | |
| | Isreal | 2.2% | NA | NA | NA | NA | NA |
| Europe Central | | | | | | |
| | Croatia | 6.1% | 17.6% | NA | 23.9% | NA | NA |
| | Czech | 3.4% | 17.7% | NA | 25.3% | 2.6% | NA |
| | Hungary | 7.3% | 17.6% | NA | 24.1% | NA | NA |
| | Poland | 5.7% | 19.9% | NA | 24.1% | NA | NA |
| | Romania | 6.1% | 17.6% | NA | 23.9% | NA | NA |
| | Slovakia | 3.4% | 17.6% | NA | 24.4% | NA | NA |
| Europe Western | | | | | | |
| | Austria * | 3.5% | 17.6% | NA | 24.1% | NA | NA |
| | Belgium * | 3.8% | 15.4% | 7.4% | 23.8% | 6.1% | 13.6% |
| | France * | 3.5% | 17.4% | 7.1% | 26.0% | 5.5% | 13.5% |
| | Germany * | 3.4% | 17.1% | 7.6% | 26.0% | 5.5% | 14.2% |
| | Ireland * | 3.7% | 14.3% | 5.5% | 25.6% | 4.7% | 18.1% |
| | Italy * | 3.6% | 18.2% | 7.5% | 25.8% | 5.4% | 14.6% |
| | Lichtenstein | 3.3% | 18.2% | 7.3% | 27.3% | 5.3% | 13.0% |
| | Luxembourg * | 3.3% | 16.1% | 6.8% | 23.1% | 5.3% | 12.6% |
| | Netherlands * | 4.2% | 6.4% | 8.0% | 22.9% | 7.5% | 15.7% |
| | Norway | NA | NA | 7.7% | 25.8% | 6.2% | 6.4% |
| | Portugal * | 3.8% | 16.0% | 6.2% | 22.4% | 5.2% | 13.6% |
| | Spain * | 3.6% | 18.7% | 6.3% | 27.4% | NA | 14.8% |
| | Sweden | 3.5% | NA | 6.7% | NA | 5.7% | NA |
| | Switzerland | 2.2% | 28.2% | 6.1% | 21.7% | 5.5% | 10.3% |
| | UK | 3.7% | 10.3% | 6.8% | 23.9% | 5.8% | 14.3% |

 * = euro zone
 ** = calculated including only companies with complete data

Note that some companies reported volatility without reporting yields. Some companies determined volatilities from historical market experience while others measured the implied volatility in current derivative prices, which may result in significant differences between companies.

## New Developments in 2010

It has been our practice to comment on new developments each year. Last year the article addressed provisions for nonhedgeable risks and 2010 practices were largely consistent with 2009 practices. This year comments will be made on liquidity premiums and the emergence of EV over time.

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## Liquidity Premium

In last year's study we included data for the first time on companies' assumptions with regard to liquidity premiums.[8] This year there has been some further evolution of practice in this area. A number of companies have adopted a consensus approach to quantifying the liquidity premium. This approach was recommended by the European CFO Forum and CRO Forum for use in the QIS5 study in connection with the development of Solvency II capital standards. Under this approach a simplified formula is used to estimate the liquidity premium available in a particular market. Products are classified into "buckets" based on how predictable the cash flows are, and a sliding scale of percentages (100 percent, 75 percent, 50 percent and 0 percent) is applied to the full liquidity premium to arrive at the liquidity premium for each product type. For example, immediate annuities are generally classified in the 100 percent bucket, and variable deferred annuities would be classified in the 0 percent bucket.

Thirteen companies disclosed information about the liquidity premiums they used in computing 2010 embedded values for at least some portion of their business. (Two companies made specific mention of the fact that they did not apply any liquidity premiums in their calculations.) Of these thirteen companies, seven indicated that they based their liquidity premiums on the CFO/CRO Forum recommended approach for QIS5. Five of the seven companies disclosed the liquidity premium for the 100 percent bucket by currency. The other two companies disclosed the range of weighted average liquidity premiums for the various legal entities in their group. The arithmetic average liquidity premiums disclosed by the five companies that disclosed the value for the 100 percent bucket are shown in Table 5.

**Table 5**

| Liquidity Premiums | |
|---|---|
| Currency | Average |
| EUR | 0.40% |
| USD | 0.59% |
| GBP | 0.89% |
| CHF | 0.08% |

Of the remaining six companies that disclosed data on their liquidity premiums, three used a liquidity premium that did not vary by product. The liquidity premiums for these three companies were relatively small, ranging from 14 to 25 basis points for the Euro currency as of 2010 year end. The three remaining companies disclosed that they applied liquidity premiums for one or two product groups only, most commonly immediate annuities. The liquidity premiums for these four companies were generally larger, ranging from 45 to 92 basis points as of 2010 year end.

The remaining companies (in total 23) made no disclosure regarding the use or non-use of liquidity premiums. Of these 23, six are on a non-market consistent EV basis and so therefore explicit liquidity premium assumptions would not be expected. That leaves 17 companies on an MCEV basis with no disclosure. Presumably these companies do not apply liquidity premiums, but it would be helpful for the users of the EV reports if these companies made a statement about whether or not liquidity premiums have been applied.

## EV Emergence

A few companies have begun disclosing either the pattern of emergence of embedded value over time or the timing of future liability cash flows. The more common disclosure was to show the portion of current embedded value that is expected to emerge over future five-year time periods. Four companies contributed data to table 6 (pg. 21).

**Table 6**

| Future Years | EV Emergence |
|---|---|
| 1 to 5 | 38% |
| 6 to 10 | 26% |
| 11 to 15 | 16% |
| 16 to 20 | 9% |
| 21 + | 10% |
| Total | 100% |

On average for these four companies, almost 40 percent of EV will emerge in five years and almost two-thirds will emerge in 10 years. Only 10 percent of the current EV will emerge after 20 years.

## Summary

The SOA International Experience Study Working Group (IESWG) publishes this survey to enhance the knowledge of actuaries about current international market conditions and practices. Practices continue to evolve and we wish to encourage an open discussion on appropriate methodologies and further disclosure of both assumptions and the thoughts behind their formulation.

The IESWG intends to update this survey annually. We invite additional companies to provide data, on a confidential basis, to be included in this and future surveys. Please contact Ronora Stryker (rstryker@soa.org) or Jack Luff (jluff@soa.org) at the Society of Actuaries for further information. ❑

**ENDNOTES**

[1]  Charles would like to thank Peter Duran for his assistance in interpreting the EV report for Mitsui Life.
[2]  Dominique would like to thank Pammi Yeung and Grant Fredricks for their assistance in gathering the data for this article.
[3]  Previous versions of this study can be found on the Society of Actuaries website.
[4]  Note that for companies on an MCEV basis, the expected returns on assets are those that are used to derive the implied discount rate.
[5]  ibid.
[6]  ibid.
[7]  Average liquidity premiums for all companies reporting them have not been shown because the liquidity premiums reported by the companies are not on a comparable basis.
[8]  The liquidity premium is an addition to the reference rate which represents the additional return demanded by the market to invest in illiquid fixed income investments.