

OPTIONS FOR ACTUARIES

by Michael Frank



With the continuing merger of the insurance industry and capital markets, actuaries have been given more options. Actually in this case, these options are new opportunities for actuaries pricing financial instruments such as “options” for the capital markets. With the potential growth in the premium finance and life settlement industry, private equity and hedge funds are exploring ways to be involved in this market. One area is providing options to the industry. This has opened a door for actuaries to use their expertise to help price options for the capital markets.

Before diving into this topic, we may want to define several terms. First, what is an option? An option is a right, typically contractual, to purchase or sell something (e.g., stock) at a future time or within a specified period at a specific price.

A life settlement occurs when an unwanted life insurance policy is sold rather than lapsed or surrendered. Upon completing a life settlement transaction, the policyholder receives an amount significantly greater than their cash surrender value. The covered insured is the same as before. However, the policy owner and the beneficiaries will most likely change, usually to the life settlement company buying the policy.

The buyers of life settlements structure the underwriting box to reflect individuals that were senior cit-

izens (over age 65) with large policies (\$250,000 or above) and low to moderate life expectancies (between two and 10 years). With a growing senior population owning insurance policies, there is a potential for a large number of policies to be settled.

Premium financing is the financing of insurance policies with a low down payment and low monthly payments. The policyowner is traditionally not subject to a credit check. The only requirement is that the customer is being sold a valid insurance policy that qualifies for financing. This concept is common in the property casualty insurance environment with companies financing premium payments for coverages such as Errors & Omissions/Professional Liability. Insurance companies want an upfront annual payment while the policy owner or insured would like to finance over the year, so this is handled through a premium finance company.

This industry has evolved and expanded into the life insurance field, where insureds purchase insurance and fully finance premium for the first two to three years of the policy. The policyholder then pays back the loan with interest, or chooses not to pay back the loan and policy ownership transfers to the premium financing company. This is known as non-recourse premium financing and is becoming more popular. In some cases, premium finance companies provide a payment to the policyholder if they elect not to keep the policy. There are many hybrids developing, but the above example is typical.

The period before policy transfers to the premium finance company is usually set at two to three years, since this is consistent with the incontestability clause for the insurance policy. Then the policy transfer or the underlying circumstances under which the policy was purchased cannot be contested or rescinded, even if a fraud was potentially committed such as lying on the application. The transfer of the policy to the premium finance company is in essence a life settlement. There is a significant debate pertaining to premium financing since it results in the “manufacturing” of new policies that might not have been purchased, plus it opens up issues of interpretation of insurable interest, incon-



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restability and underwriting practices around premium financing.

Regardless, there is a growing demand for investments in life settlements and premium financing with the perception that the life settlement industry makes significant returns. Little imputed data is available in the market to determine whether or not this perception is reality. Life settlement companies and investment bankers have modeled portfolios to show significant returns. In the past, many used reinsurance coverage, actually life extension risk coverages, to ensure meeting that return on investment (ROI).

One important point is that success in the life settlements industry is driven by the ability to predict mortality and price policies accordingly. These companies are taking on life extension risk or finding partners (e.g., investors, risk takers, etc.) to assume this function.

Life extension risk is the risk of setting life expectancy projections too low, resulting in longer and greater payouts in premium (additional cost to life settlement providers) as well as delay in receiving life insurance benefits (revenue to life settlement providers). Remember, a life settlement company's revenue comes from the death of an insured (maturity of a policy) since the company is the beneficiary, while their expenses include the cost of paying premium plus other costs for managing the business. The longer an insured lives, the more premium is paid and the less, or later, death claims are paid.

How is this risk mitigated? Prior to 2003, reinsurance was commonly used to limit volatility risk, in particular for smaller life settlement portfolios, since the downside exposure was set to a maximum life expectancy for each policy. This protected the life settlement company from the risk of insureds living too long and helped the company meet its ROI objectives. The reinsurance was a stop-loss policy whereby the life settlement provider paid an upfront premium, a percentage of benefit (face) amount, and then received the face amount payable at some pre-defined duration, typically the projected life expectancy plus two years, if the policy was still in force. The reinsurer would then become the policy

owner, collecting future benefits/maturities and paying future premiums.

The primary writer of this reinsurance exited the market in the fall of 2003. Therefore, many of the current providers are using other means for managing their exposure, for example revised underwriting guidelines. Others have purchased surety bonds (sometimes referred to as "death bonds" since guaranteeing maturity), while many have just retained life extension risk. A newer approach is the use of options.

WITH FEW ORGANIZATIONS WILLING TO ENTER THE MARKET OFFERING REINSURANCE, RISK MANAGEMENT IS BEING EXPLORED THROUGH ALTERNATIVE MEANS SUCH AS THE USE OF OPTIONS.

New Evolution of Options

With few organizations willing to enter the market offering reinsurance, risk management is being explored through alternative means such as the use of options. These options are not being underwritten by insurance companies or reinsurers, but rather by the capital markets and in many cases through hedge funds and private equity firms. Sellers of these options feel they can meet profits and provide a solution for a product with high demand. Buyers of these options feel this is a way to ensure meeting returns and mitigating risk.

Methodologies used for pricing options are similar to those used by actuaries today for premium development and reserve valuation for life insurance. These include selection of mortality tables, interest rate discounts, expense margins and projected profit returns. Actuaries may be using commutation functions or life contingency functions such as A's, a's, V's, px's, qx's and many other actuarial formulas.

Challenges of Options

There are several key questions that will need to be addressed when developing pricing for an option.

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First, what is the actual option providing? For example, is the option payout price a pre-set number or does it have a “lookback” provision whereby price is not determined until the option is actually exercised.

If the price is pre-set with rights to exercise during a specified time period, then this is referred to as a “put” option. The greater the value of the pre-set price, the more the cost of the option. There may be much debate between the buyer and seller on whether the pre-set price is greater than or less than the price projected to be in the market.

Next, who is guaranteeing the option? If not an insurance company, then is it being securitized and how? This becomes important since the underwriter of these options might form a NewCo, a company formed for the sole purpose of writing these types of risks.

It is important to understand how the risk will be financially guaranteed and risk becomes greater with the greater duration of the option exercise date. The more requirements for the option underwriter to provide guarantees or securitize the risk that they are offering the buyer, the higher the potential risk charges (premium) for the option or the lower the benefits.

Another key question is whether medical underwriting will be involved. Medical underwriting exists today in the life settlement market and is a key driver to the success and failure of life settlement risk takers. Medical underwriting is used for projecting life expectancy and durations that policies will be in force. As a result, options may incorporate a component of medical underwriting. Will options have medical underwriting and will they be based on insurance company original underwriting at time of policy issuance or done by a third party underwriter at some other date in time?

Do policies have to be transferable (does underwriter of option own the policy) or do they solely provide financial relief and the policy lapses or is maintained by the policyholder (they solely get a

benefit)? This will influence the pricing because of the risk components, administrative costs (if underwriter assumes policyholder responsibility), and licensing (and financial requirements along with licensing) for maintaining policies.

Once past the above items, the actuary or underwriter is faced with determining the appropriate assumptions to use, such as discount rate and mortality table, along with percentage discount or load to that table. This leads into the next question: whether premium or option benefit amounts are fixed or vary by age and duration. Other assumptions will be required as well, such as administrative expenses/overhead, loan facility costs (if borrowing money), underwriting fees, capital requirements, profit margins/ROI, etc.

There are many moving parts, so it is important that the actuary or underwriter pricing options make sure that they understand what these parts are and document calculations, provisions and assumptions accordingly. The buyers and sellers of these options are not traditionally insurance companies and their contractual arrangements and policies may not have the same rigor that a traditional insurance policy would have. As a result, it is important for the actuary to document assumptions appropriately since their work product could be subject to interpretation and scrutiny in the future.

If you, as an actuary, have a contract to provide consulting services to a NewCo, it is important to make sure they have the financials to pay your fees and meet any contractual obligations that they promise. Will the NewCo have a parental guarantee or some entity step in that is financially viable if they cannot meet their obligations?

It may also make sense to make sure you have a physical “contract” which outlines what is being done, so you and your client are on the same page on what components are being priced into the option. Remember, you are not dealing with traditional insurance people anymore, so the rules of engagement will be very different and terminology may differ as well. ✱