Chapter 26 – Distribution of Profits to Policy Owners

Additional Space for Notes

Introduction

This chapter focuses on the distribution of profits to participating policies.

Distribution of Profits

The traditional participating policy is one of several solutions to the problem of how to share risk between the shareholders of life companies and the owners of life insurance policies. At one extreme is the traditional non-participating policy. This type of policy has premiums and benefits that do not change in response to actual experience after the policy is issued. All of the risks arising from the issue of the policy are borne by the life company's shareholders.

At the other extreme, an investment-linked policy offers very little in the way of guarantees and the investment risks are entirely borne by policy owners. An investment-linked policy offers policy owners the likelihood of higher benefits than a traditional non-participating policy, but with considerable volatility and downside risk.

Participating policies are an intermediate solution where risks are shared between policy owners and shareholders. A traditional participating policy has higher premiums than a non-participating policy with the same guaranteed benefits, but in return the policy owner is entitled to increases in benefits financed by distributions of profits. On the other hand, the expected benefits are lower than for an investment-linked policy with the same premiums as shareholders must be compensated for the cost of capital provided to support the policy guarantees. As well as providing minimum guaranteed benefits, distributions of profits are smoothed so that the value of a participating policy does not fluctuate from day to day in the same way as an investment-linked policy.

Traditional participating policies originated in the 18th century in the United Kingdom. Reversionary bonuses were a simple method for sharing mortality and investment risks between a life company and its policy owners. The amount of bonus added to a policy each year could be calculated and recorded by hand on a life company's policy records and on the bonus notices sent to policy owners. The bonuses could be valued relatively easily by multiplying their face value by a commutation function. By comparison, investment-linked policies would have been extremely difficult and expensive, if not impossible, to administer prior to the advent of computers.

Investment returns are the main factor affecting profit emergence for modern participating business, although mortality, expenses and surrender experience can also have a significant impact.

The Life Insurance Act requires participating policies to have a significant exposure to investment risk. Section 15 of the Life Act says that a participating benefit is a benefit that is not a non-participating benefit. It then goes on to define non-participating benefits to be those that do not have an entitlement to share in distributions of surplus or profits and the benefits are not able to be altered by a decision of the life company. Additional types of non-participating benefits are defined in APRA's Prudential Standard LPS 600. The description of non-participating benefits given in LPS 600 effectively requires a participating benefit to have a substantial exposure to investment risk. For example, group risk business with profit-sharing features via premium refunds is not regarded as participating business. Nor is investment account business if the account balances will always be between 95% and 103% of the value of the assets.

For traditional policies in Australia, profits are distributed by means of reversionary and terminal bonuses. The most common methods of profit distribution are examined in some detail in this chapter.

In the 1980s, alternative types of participating policies - investment account policies – became popular in Australia. These policies have their own particular issues and these are also discussed in this chapter.

Section 62 of the Life Insurance Act 1995 requires the actuary to provide advice to the directors on the consequences of any proposed distribution of profits. This includes distributions to participating policy owners. The Actuaries Institute Professional Standard 200 gives some guidance on the issues the actuary should consider when providing this advice.

The actuary must provide advice on the amount of profit that is to be distributed as well as the method of distributing the profits. The issues the actuary must consider as part of this advice include:

- policy owners' reasonable expectations;
- equity between policy owners and shareholders;
- equity between different groups of policy owners;
- the timing of profit emergence;
- the impact on the company's capital requirements;
- the capabilities of the policy administration system;
- potential impacts on future surrender experience; and
- potential impacts on future sales of new business.

Reasonable Expectations

The concept of policy owners' reasonable expectations is not well defined. However it has been commonly used in relation to participating business, both in Australia and overseas, for many years. Reasonable expectations are based on a combination of policy documentation, promotional material, annual statements, and the past practice of the company. Reasonable expectations are not the same as actual expectations. Life companies do not normally carry out surveys of their policy owners when establishing what their reasonable expectations are.

One of the challenges in managing participating business is avoiding the creation of unreasonable expectations. This can be achieved by regularly reminding policy owners how bonus rates might vary in future and by applying this bonus philosophy in a consistent manner when declaring bonus rates.

The following extract comes from an annual report to policy owners published in 2010 by AMP. The extract summarises the way AMP determines bonus rates and helps to define the reasonable expectations of policy owners. Other documents published at various times in the past may provide additional information relevant to reasonable expectations.

The distribution of profit (in the form of bonuses) is made in accordance with the Life Insurance Act (1995). Under the Life Insurance Act, AMP's Actuary regularly assesses the strength of the AMP Statutory No.1 Fund and advises how much policy owner profit it can prudently pay out, and how to share it fairly amongst different groups of policies.

In determining bonus rates, the Actuary not only considers the recent investment performance, but also likely future investment returns, estimated future rates of mortality, assumed rates of taxes, fees and other expenses.

Annual (reversionary) bonuses are allocated to plans each year as additions to the sum insured. As the rate of bonus is dependent on AMP's investment experience and our estimates of future experience including investment returns, annual bonuses may fluctuate from year to year. However, once declared they are guaranteed and payable in full when the sum insured becomes payable (i.e. usually on death or maturity).

Terminal bonuses are currently paid in addition to annual bonuses on maturity, death or disability claims (where appropriate) on plans which have been in force for 5 years or more. Terminal bonuses are currently allotted as a percentage of attaching annual bonuses. They are a means of passing on a greater level of capital appreciation, usually from growth oriented assets, such as equities and property. While there is still some smoothing there is a greater recognition of underlying market values, and terminal bonus rates are more volatile than annual bonuses. Terminal bonuses are not guaranteed and may be increased or decreased based on movements in underlying markets relative to policy values.

Changes to investments can be made according to the outlook for the various investment sectors and the nature of the plan. The long term strategic mix of assets that back your plan are usually in the following ranges: shares and alternative investments 25% - 55%; property 10% - 30%; fixed interest and cash 25% - 60%.

Points to note in this disclosure:

- the asset allocation has very broad bands and is not binding on the company. This gives scope for the company to reduce its capital requirements by moving to a less aggressive asset mix if necessary. Alternatively it could adopt a quite aggressive investment strategy if capital is not a constraint;
- the bonus distribution policy explicitly refers to "strength" and "prudence". This implies that bonuses might be held back if the capital position of the fund is, or might become, unsatisfactory;
- fairness of distributions amongst different groups of policies is mentioned;

- some of the factors affecting bonus rates are mentioned. Presumably other factors such as recent mortality, surrender and expense experience are ignored as they are unlikely to have a material impact on bonus rates;
- for reversionary bonuses the reference to future investment returns is important. It means that reversionary bonus rates can be reduced if long term interest rates fall, even though recent investment returns may have been better than expected;
- terminal bonuses are more volatile than reversionary bonuses and can increase or decrease in response to movements in asset values. The use of the words "currently paid" indicates that terminal bonuses might stop being paid at any time;
- the Actuary is described as providing advice on bonus distributions (rather than being the final decision maker) – however it is strongly implied that the company will always follow this advice.

Another important factor in determining policy owners' reasonable expectations (not mentioned in the extract above) is the way a company has managed bonus rates in the past. Policy owners should reasonably expect consistent management of bonuses from year to year.

Some overseas countries have more stringent regulatory requirements regarding disclosure to policy owners of how participating business is managed. The "With-Profits Guides" of major UK life insurers can be useful as additional background reading.

Reversionary Bonuses

The reversionary bonus system is used for the distribution of profits for traditional (conventional) participating life insurance business in Australia, New Zealand, the United Kingdom and a number of other countries.

Under the reversionary bonus system, policy owners' profits are converted into their reversionary equivalent (i.e. an amount payable on death and/or maturity) and allocated pro-rata to policy owners according to the size of their policies. The reversionary bonus becomes a contractual liability of the life company which cannot be revoked.

There are three main types of reversionary bonus:

- simple reversionary bonuses are calculated as a bonus rate multiplied by the sum insured;
- compound reversionary bonuses are calculated as a bonus rate multiplied by the sum insured plus existing reversionary bonuses; and
- super-compounding reversionary bonuses are calculated as a bonus rate multiplied by the sum insured plus a higher bonus rate multiplied by existing reversionary bonuses.

The most common bonus systems used in Australia today are the compounding and super-compounding systems.

The spreadsheet accompanying this chapter shows a simplified projection for a 10 year pure endowment. Expenses and shareholder profits have been ignored.

The first part of the spreadsheet shows the projected asset shares, together with reversionary bonuses calculated under the 3 different bonus systems. The bonus rates have been determined using "goal seeking" so that the maturity value matches the asset share. For the super-compounding method a fixed differential between the two rates has been assumed.

The calculation of asset shares was described in Chapter 22. The asset share of a policy is the accumulation of the premiums with actual rates of investment return less deductions for expenses, tax, the cost of death cover and a margin to provide for shareholder profits. Sometimes a "cost of capital" will be deducted instead of shareholder profits. The asset share is a measure of what the maturity value should be if bonuses are distributed in an equitable way.

The compound and super-compounding methods result in a later distribution of profits than the simple method. The differences between the three methods are relatively small when investment returns are low. The differences become much more significant when investment returns are high and, for the super-compounding method, the gap between the two bonus rates is increased.

The second part of the spreadsheet shows the impact if, from year 6, the rates of investment return increase substantially. The bonus rates for years 6 onwards have been re-equated so that the maturity values again match the asset shares. The simple bonus rate has to increase by more than the other rates.

The third part of the spreadsheet shows the results for a new policy that commences at the beginning of year 6. The bonus rates are the same as in the second part. If these bonus rates continue right through to maturity, the maturity values will be well in excess of the asset share. In theory, this outcome could be avoided by reducing the bonus rates from year 11 (after the policy in the second part of the spreadsheet matures). However it would be hard to explain to policy owners why bonus rates have reduced from year 11 when investment returns are unchanged. Alternatively, a separate bonus series could be started for new policies, but this would add significant administrative complexity.

This example illustrates why reversionary bonuses do not cope well with fluctuating investment returns. The mathematical reason for this is that the bonus rate is applied to the sum insured (and existing reversionary bonuses for compound bonuses), whereas investment returns are earned on the asset share. In the early years of a policy, the sum insured greatly exceeds the asset share and the asset share may even be negative if there are high acquisition costs. The sum insured remains constant whereas the asset share grows continuously throughout the term of the policy. At times when interest rates are unusually high, the super-compounding method provides a more equitable outcome as it allows higher investment returns to be passed to policies with longer durations and substantial asset shares, whilst limiting the amount of bonuses added to newer policies with small asset shares.

Up until the late 1980s, one of the main sales tools of life companies was projections of future benefits made using current bonus rates. The examples show that such projections can significantly overstate the likely benefits when interest rates and investment returns are abnormally high.

Interim bonuses

A life company that declares reversionary bonus rates at the end of each year will normally pay an interim bonus on policies that terminate during the year. Interim bonus rates are sometimes set conservatively to minimise the possibility of having to adjust

policy values downward (for those policies that have not terminated) when the final bonus is declared. An interim reversionary bonus will be pro-rated to reflect the portion of the year that the policy remained in force.

Terminal Bonuses

Terminal bonuses were introduced around the 1960s in Australia as a response to changes in the investment strategies of life companies. In the 1950s, life companies began investing a significant proportion of their assets in more volatile asset classes such as equities and property. Previously, life company assets had predominantly been invested in loans and fixed interest investments.

Terminal bonuses were a useful mechanism for adjusting policy values in response to fluctuating investment returns. Unlike reversionary bonuses, existing terminal bonuses could be reduced or removed from a policy in response to poor investment returns.

The methods for distributing terminal bonuses include:

- terminal bonus equal to a percentage of existing reversionary bonuses;
- terminal bonus equal to a percentage of sum insured and existing reversionary bonuses multiplied by the number of years the policy has been in force;
- terminal bonus equal to a percentage of existing reversionary bonuses, the rate varying by year of policy commencement; and
- terminal bonus equal to a percentage of surrender value multiplied by the number of years in force.

The methods vary as different life companies have different views on how equity between different groups of policy owners can best be achieved. Administration systems may also be a constraint on the method adopted.

Terminal bonuses are payable on death and maturity benefits. Most life companies also pay them on surrenders, but using a more penal surrender basis than for reversionary bonuses. Using a penal basis results in a smoother progression of surrender values from year to year, even though terminal bonus rates might vary significantly. It also reduces the risk of anti-selective surrenders occurring after a major drop in asset values, but before a company has been able to implement a reduction in its terminal bonus rates.

Life companies typically declare terminal bonus rates annually, but may vary the rates more frequently if they deem it necessary. A more frequent variation in bonus rates will improve equity between policy owners whose policies terminate at different times. It will also potentially reduce a life company's capital requirements as benefit payments can be reduced more rapidly in response to major falls in asset values.

The main advantages of using terminal bonuses are improved equity between policy owners and a reduction in shareholder capital requirements. A significant disadvantage for shareholders is the deferral of profit emergence.

Equity

Equity is an often-mentioned, but hard to define concept. For participating business, equity has two dimensions: between policy owners and shareholders, and between different groups of policy owners.

Equity between shareholders and policy owners

The Life Insurance Act 1995 clearly defines the interests of participating policy owners and shareholders in a statutory fund. Since 1996, life companies have had to maintain separate allocations of retained profits and capital for participating policy owners and shareholders. Under the 1945 Act this was not the case and ownership was not clearly demarcated. On transition to the 1995 Act, the "starting amounts" of policy liabilities and policy owners' retained profits had to be determined by the appointed actuary. The starting amounts were required to be consistent with the history and structure of the business of the statutory fund and needed to be sufficient to secure the reasonable benefit expectations of policy owners.

Conflicts of interest between participating policy owners and shareholders can still occur under the 1995 Act. Potential areas of conflict include the allocations of expenses, investment income and tax. For example, judgement is required in allocating overhead expenses amongst different categories of business. The majority of overhead expenses allocated to participating business will be borne by policy owners, whereas overhead expenses allocated to non-participating business will be borne entirely by shareholders.

Capital requirements can also create potential conflicts of interest. Participating business always provides guaranteed minimum benefits in some form (e.g. for traditional business the sum insured and premiums are guaranteed). Guarantees must be supported with capital. A life company can potentially minimise the amount of shareholder capital required to support participating business by moving the asset allocation towards a more conservative asset mix, by placing greater reliance on non-guaranteed terminal bonuses instead of reversionary bonuses, or by suppressing bonus distributions so that policy owners' retained profits build up over time. However, all of these actions are likely to disadvantage policy owners.

APRA's prudential practice guide LPG 260 Conflicts of Interest under Section 48 is useful background reading on the management of conflicts of interest between the policy owners and shareholders of a life company.

One issue to note is that the method of allocating profits on participating business between policy owners and shareholders may not be particularly equitable in all circumstances. A participating policy effectively guarantees a minimum rate of investment return to policy owners. For traditional business this is the rate using in the premium basis. For investment account business the minimum guaranteed rate is usually zero, but can sometimes be greater. Investment returns greater than the guaranteed rate (together with profits from other sources) are split between policy owners and shareholders, usually in the ratio of 80:20.

When long-term interest rates are very low, there can be a significant risk that actual investment returns will be less than the minimum guaranteed rate. Shareholders" capital will be required to support this guarantee, but the expected return on capital will be unduly low (and if interest rates are extremely low losses might be expected). In contrast, when long-term interest rates are high, the risk of inadequate investment returns and the capital required will be much smaller and the expected return on shareholder capital will be unduly high. A theoretically correct pricing of risk would allocate a higher proportion of profits to shareholders when long-term interest rates are low and a lower proportion when long-term interest rates are high. In practice this is not possible because the allocation of profits to shareholders is limited to maximum of 20%. In addition, policy conditions or reasonable expectations may prevent a life company from varying the allocation of profits.

Achieving equity between policy owners and shareholders is a more difficult issue in overseas countries where there is no legislative requirement for life companies to allocate capital and retained profits between shareholders and participating policy owners. In this situation the ownership of the "orphan estate" (unallocated capital and retained profits in excess of amounts required to meet reasonable expectations) can become problematic. The question of ownership becomes important if shareholders need to inject additional capital or wish to withdraw excess capital from a life company. Shareholders will be reluctant to inject capital if it is not clearly identified as belonging to them and can be repaid when it is no longer needed. If the ownership interests of existing capital and retained profits are not clearly identified, it becomes difficult to decide whether any excess capital should be distributed to policy owners or shareholders.

Equity between policy owners

Bonus or crediting rates will usually vary between the following groups:

- policies with fundamentally different designs (e.g. traditional and investment account policies);
- ordinary, superannuation and exempt (retirement income) business. Bonus rates much reflect differences in rates of taxation;
- policies with significantly different benefits, guarantees or asset allocations. For example, whole of life policies have very long terms and may have a different asset allocation from shorter term endowments. Pure endowments may be distinguished from endowment policies that provide death cover;
- policies with premium rates based on different pricing assumptions (e.g. different bonus loadings);
- policies that commenced at different points in time. There will be differences in historical experience for different cohorts of policies and there may also be differences in pricing assumptions.

The level of subdivision used in setting bonus rates for different groups of policies is a matter for judgement. A balance must be struck between having an excessively complicated bonus structure and achieving a reasonable degree of equity between policy owners.

Equity between different groups of policies can be assessed by comparing endowment maturity values (or death benefits at advanced ages for whole of life policies) with asset shares. This comparison can be made for current maturities when setting terminal bonuses and, on a projected basis, when setting reversionary bonus rates for policies that will mature in the future.

If the distribution of bonuses is equitable between different groups of policy owners, the ratio of maturity values to asset shares should be similar for all policies maturing at the same point in time.

There should also be a reasonable degree of equity between policies that mature at different points in time. However, one of the key features of participating business is the smoothing of investment returns, so some degree of inequity between policies maturing at different points in time is to be expected. The smoothing of investment returns is also one of the reasons why there will normally be differences between maturity values and asset shares at any point in time.

The distribution of non-investment experience profits between different types of policies can be a difficult issue to resolve. In particular, it is not always clear how surrender experience profits should be distributed. For groups of policies that are in rapid run-off, the distribution of surrender profits or losses to the remaining policies in that group can create tontine effects. On the other hand, distributing losses arising from one type of policy (e.g. investment account) to a different type of policy (e.g. traditional) could be considered unfair to the latter.

Profit Emergence

Under the Life Insurance Act 1995, the distribution of profit is nominally independent from the emergence of profit. However, the best estimate bonuses must be consistent with the actual method of bonus distribution. If terminal bonuses are used in practice to distribute part of the profits, the best estimate bonuses must also include a realistic allowance for terminal bonuses.

Terminal bonuses are only distributed when a policy terminates. The use of terminal bonuses therefore delays the emergence and distribution of profits to both policy owners and shareholders. This feature can cause distortions in profit emergence. For example, if an unusually large number of policies terminate in a single year there can be a temporary increase in reported profit, even though there has been no real improvement in the financial position of the life company. This is one of the reasons why embedded values are a useful form of supplementary financial reporting.

Capital Requirements

Policy owners' retained profits (PRP) are included in the participating policy liability for the purpose of calculating a life company's capital base. A distribution of retained profits in the form of reversionary bonuses should normally have only a minor impact on the capital base (refer to the formula for adjusted policy liabilities in LPS 112). A minor impact is almost certain to occur because the cost of the declared bonus (deducted from PRP) reflects its surrender value, whereas the resulting increase in RFBEL depends on best estimates of future experience and the discount rate. The surrender basis for reversionary bonuses is unlikely to be the same as the valuation basis for RFBEL.

A distribution in the form of terminal bonus would normally not affect the capital base or Prudential Capital Requirement as terminal bonuses are, in effect, paid directly from policy owners' retained profits to the owners of the terminating policies.

In contrast, a reversionary bonus is guaranteed and the declaration of a reversionary bonus reduces the ability of the capital base to absorb the stresses applied in the calculation of the insurance risk charge and the asset risk charge. The capital base is more resilient to these stresses if the distribution of retained profits is deferred by declaring terminal bonuses instead of reversionary bonuses.

Administration Systems

Any change to the method of bonus distribution will affect administration systems. If the product is open to new business it will also potentially affect sales systems. The actuary will have to consider whether the cost of making system changes is justified by benefits in other areas.

An example of this issue would be a change in the frequency of declaration of terminal bonus rates from once each year to quarterly (or even more frequently). In periods when asset values are volatile, more frequent changes to terminal bonus rates would

improve equity between policy owners for claims paid at different points in time. It would also reduce the amount of capital needed to support the business as claim payments could be reduced quickly in response to a fall in asset values. However the system change could be costly if the administration system is old and inflexible. In this type of situation it can be difficult to judge whether the benefits of the change outweigh the costs.

Impact on Surrenders

Distributions of profit can have an impact on future experience and profit emergence. The most direct effect is on future rates of surrenders. If bonus rates are lower than policy owners expect, rates of surrender may increase. This can lead to experience profits or losses, depending on whether surrender values are lower or higher than policy liabilities. It will also affect a life company's appraisal value, usually adversely. On the other hand, if a company is struggling to meet its target capital requirements an increase in surrenders can be a good thing as capital will no longer be required to support the surrendered policies.

If a life company maintains bonus rates in the face of falling investment returns it can create an expectation that its bonus rates will not fall. This creates the likelihood of future capital strains and the potential for poor profitability if over-crediting cannot subsequently be recouped. The company could suffer a loss of reputation due to its failure to meet expectations when it does eventually reduce its bonus rates at some point in the future.

In Australia AASB 1038 acts as a deterrent to over-crediting of bonuses as policy owners' retained profits (known as "unvested benefit liabilities" in AASB 1038) cannot become negative. Once unvested benefit liabilities reach zero, any further distributions to policy owners must be reported as a loss to shareholders. For APRA and Life Act reporting purposes, policy owners' retained profits can become negative.

Impact on New Business

In some overseas countries where traditional business continues to be sold, the financial press regularly compares the current maturity values for endowment policies issued by different life companies. In some countries it may still be permissible to illustrate future maturity values using the latest declared bonus rates. A life company that continues to sell participating business in either of these circumstances may be reluctant to cut bonus rates in response to low investment returns as there is likely to be an impact on future sales of new business unless other companies make similar cuts.

Variations in Policy Owners' Retained Profits

As noted in earlier chapters, for participating business investment experience is included within the VSA and hence the policy liability. However mortality, expense and surrender experience emerges as an experience profit. This leads to variations in policy owners' retained profits unless these experience items are immediately distributed to policy owners. The investment returns on the assets backing policy owners' retained profits will also result in variations.

Another source of variation is the differences between actual and best estimate bonus rates. One of the reasons for these differences is the need to run-off retained profits as the closed book of participating business runs off. Another reason is that changes to actual bonus rates are often smoothed.

Best estimate bonus rates are normally set using an algorithm. Typically, the algorithm assumes the best estimate bonus rates remain unchanged until the business has run off. The best estimate bonus rates will be heavily dependent on actual investment returns and estimates of future investment returns. Both of these items are volatile. Estimates of future investment returns are usually linked to a prevailing long-term interest rate, such as the 10 year government bond yield or a long-term swap rate which can vary significantly from year to year. Life companies typically aim to dampen the volatility of their declared reversionary bonus rates, so that they follow a relatively smooth trend. Policy owners' retained profits can therefore act as a form of smoothing reserve for bonuses.

Closed Books and the Tontine Problem

Participating business in Australia is effectively closed to new business and in run-off. The reasons for this state of affairs were briefly mentioned in Chapter 1. They include the inflexible and opaque product design for policy owners and the inadequate returns on capital these products provide for shareholders in a low interest rate environment. Run-off will, however, take many years to complete as much of the participating business is in the form of whole of life policies.

The Life Insurance Act only allows Australian policy owners' retained profits to be distributed to Australian participating policy owners. Hence life companies need to plan the distribution of these retained profits to their remaining policy owners. Otherwise an amount of policy owners' retained profits could in theory remain as a liability on the balance sheet forever after all of the participating policies have terminated.

A tontine is a type of investment contract that was common in the 18th and 19th centuries. The members of a tontine each received a lifetime annuity. On the death of a member, their share of the tontine passed to the survivors. On the death of the last survivor the tontine expired. The annuity payable to the last survivor could potentially be very large indeed.

A closed book of participating business can behave like a tontine if policy owner retained profits are not carefully managed as the business runs off. In order to run policy owner retained profits down to zero, profit distributions need to closely match the profits emerging and also allow for the distribution of existing retained profits. As the business runs off it may become necessary to adopt strategies that reduce the volatility of emerging profits, so that bonus distributions do not become unduly volatile. These strategies might include a gradual move to a more conservative asset allocation, the reinsurance of mortality risks and the adoption of a surrender basis that closely matches the policy liabilities and retained profits.

Investment Account Policies

The previous sections of this chapter highlight the difficulty of achieving an equitable distribution of profits to traditional policies. One solution to the problem of equity is the investment account policy, where profits are distributed as interest additions to policy owners' account balances. The account balance for an investment account policy is similar to an asset share but with smoothed investment returns. These contracts were very popular during the 1980s but largely disappeared from sale during the 1990s. Some Australian life companies still have significant amounts of this type of business in force.

Crediting rates can be declared either in advance or in arrears. If rates are declared in advance, the latest declared rate will continue to apply until the life company announces a change to the rate. If rates are declared in arrears, the crediting rate for each year is announced after the end of that year and an interim crediting rate is applied to terminating policies for the period since the last year end.

Competition and Market Pressures

In theory, investment account policies are meant to smooth crediting rates by paying less than the actual investment return in years when investment returns are good and more than the actual investment return in years when investment returns are poor. However, this creates a strong potential for anti-selection by policy owners.

Crediting rates for investment account policies, unlike bonus rates for traditional business, are easily compared with interest rates offered by banks and other financial institutions. In simple terms, if a life company experiences poor (potentially negative) investment returns it will smooth the impact on policy owners by declaring a crediting rate that is higher than the rate it earned on its investments. But it can only recoup the excess of past interest credits over past investment returns by crediting less than it earns on its investments in future periods. The impact of these reductions may make future crediting rates uncompetitive. In this situation, policy owners will be more likely to surrender and the company may find itself unable to recoup all of its past over-crediting.

As an example, consider a company that invests entirely in fixed interest assets. When market interest rates rise, fixed interest assets fall in value. Crediting rates would need to rise to maintain their competitive position with other market interest rates. However a life company may not be able to increase its crediting rates as it will need to recoup its investment losses. In fact, if the expected duration of the liabilities is similar to the duration of the fixed interest assets, the crediting rates should stay broadly unchanged.

Similarly, if recent investment returns have been better than expected, crediting rates may become excessive compared to other market interest rates. This will encourage increased volumes of new business whilst the product remains open for sale. Crediting rates for new policies will be cross-subsidised from the excess investment returns already earned on assets backing existing policies.

The risk of anti-selection can be mitigated by applying penalties on the surrender of a policy. Surrender penalties can only be applied if they are allowed by the policy and have been clearly disclosed at the point of sale. The ability to reduce surrender values is a desirable feature for life companies, but makes these products less marketable. Some investment account policies have no maturity date. In these circumstances payment of the full amount of the account balance might be guaranteed on surrender at specific times, whilst at other times a penalty might be applied.

Common methods of applying surrender penalties include:

- market value adjustments – multiply the account balance by a factor that broadly reflects the ratio of asset shares to account balances;
- terminal bonuses – part of the investment return is credited as a terminal bonus which can be reduced or removed at any time;
- deferred payment of surrender values with a reduced crediting rate payable during the deferral period. This method was sometimes used for group investment contracts sold to superannuation funds. The deferral period could be several years. If the superannuation fund needed the money earlier, the surrender value would more closely reflect the asset share.

For investment account policies without surrender penalties, the amount of capital required can be substantial if there are risky assets backing the policies. APRA's capital adequacy standards effectively require life companies to hold sufficient capital so that

all surrender values can be paid immediately following a substantial drop in asset values.

A variation on the investment account policy that was popular in the UK for a time was the "unitised with-profits contract". This looked liked an investment-linked contract, but the unit price was smoothed by the life company and guaranteed not to reduce.

Non-participating investment account policies

As noted previously in this chapter, if the account balances will always be between 95% and 103% of the value of the assets, an investment account policy is classified as non-participating and all profits are allocated to shareholders. In order to avoid breaching the limits, these types of policy must have a conservative asset mix consisting mostly of short term fixed interest assets and the crediting rates must be actively managed. The crediting rate will tend to move in line with short term market interest rates, with some additional adjustment to reflect differences between actual and expected investment returns. Crediting rates are not affected by non-investment experience as profits from these sources are allocated entirely to shareholders.

The Contribution Method

The contribution method is an example of an alternative method of profit distribution. It is commonly used in the United States. Under this method of profit distribution, a policy's share of profit is paid immediately as a cash dividend. The share of profit is calculated by a "dividend formula" which expresses the contribution made by each policy to profits from the three sources of interest, mortality and expenses. The dividend formula can be written as:

$$D = (V_0 + P) \cdot (i'' - i) - (q'' - q) \cdot (1 - V_1) + (P' - P - e'') \cdot (1 + i'')$$

Symbols have the usual meanings, double accent denotes actual experience, single accent the premium basis and unaccented symbols the valuation basis.

In practice, actual experience is usually based on an average of recent trends.

The interest component is usually the largest part of the dividend and it increases with policy duration. The mortality contribution tends to decrease with duration.

A simple cash dividend calculation is shown below:

Sample Cash Dividend Calculation as at			**30/06/2004**		
Date of entry		30-Jun-02	30-Jun-84	30-Jun-99	30-Jun-94
Age at entry		30	30	30	30
Current age		32	50	35	40
Policy year (t)		2	20	5	10
Policyholder share	A	50%	80%	70%	80%
Actual investment return	B	5%	5%	5%	5%
Pricing interest rate	C	3%	3%	3%	3%
Reserve @ t-1	D	5	940	120	360
Reserve @ t	E	40	1000	170	420
Interest contribution	O=A*(B-C)*0.5*(D+E)	0.23	15.52	2.03	6.24
Policyholder share	F	50%	0.8	0.7	0.8
Actual pricing mortality ratio	G	50%	0.68	0.54	0.71
Pricing mortality rate	H	0.00091	0.00322	0.00098	0.00141
Death benefit	I	1,000	1,000	1,000	1,000
Reserve @ t-1	J	5	940	120	360
Mortality contribution	P=F*(1-G)*H*(I-J)	0.23	0.05	0.28	0.21
Policyholder share	K	50%	80%	70%	80%
Actual pricing maintenance expense ratio	L	85%	65%	65%	65%
Maintenance expense as % of premium	M	8%	8%	8%	8%
Annual premium	N	50	0	50	50
Expense contribution	Q=K*(1-L)*M*N	0.30	0.00	0.98	1.12
Total cash dividend	O + P + Q	0.76	15.57	3.29	7.57