Actuarial Innovation and Technology

Overview of Nonguaranteed Elements (NGEs)

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Section 1: Background and History of Nonguaranteed Elements in Insurance Policies

Nonguaranteed elements (NGEs) are numeric parameters of life insurance and annuity policies that are not fixed and guaranteed at issue. The principal characteristics of NGEs are that they 1) affect the cost of contractual benefits or the values developed in a policy, 2) are not guaranteed, except for minimum or maximum values, and 3) may be changed unilaterally by the insurer, often subject to certain contractual or legal restrictions. Common NGEs include cost of insurance charges, expense loads, credited interest rates, index parameters, nonguaranteed bonuses, and indeterminate premiums.

NGEs, as the term is normally used, do not include policyholder dividends, and dividends are not covered in this study note. Dividends have their own conceptual basis, actuarial development, and regulatory regime. Policies that pay dividends are usually participating policies, in that they participate in the profits of a company or block of business. NGEs are almost always determined based on expectations of future experience, but the key determinant for dividends is actual past experience.

Products in the United States with NGEs were a response to problems and opportunities in the insurance market during the 1970s and 1980s.

- Pricing was difficult for traditional individual guaranteed life and annuity products with long term premium and interest rate guarantees. These products had previously usually been priced with fully guaranteed premiums and policy values using experience assumptions projected over expected coverage periods. However, interest rates during the period were volatile and historically high. Benchmark 10-year US Treasury yields doubled over ten years to a high in 1981 of more than 15% before falling steeply over the next ten years. Inflation rates followed a similar trajectory. Mortality improvement rates during the decade of the 1970's were historically high, but pricing actuaries were concerned about the sustainability of those improvement rates. Traditional guaranteed nonparticipating product designs did not have sufficient flexibility to respond to rapidly changing conditions. Further, the long-term nature of their guarantees discouraged companies from pricing with favorable experience assumptions that might prove to be temporary.
- Non-insurance accumulation products of the period responded to changing new money investment rates by revising credited rates, further highlighting insurance product inflexibility, and putting additional pressure on traditional insurance products.
- The late 1970s also saw the introduction of personal computers and software that facilitated actuarial modeling and the potential to illustrate policy values. While not an insurance development in itself, the new computational power available fundamentally enabled the development of life and annuity products with nonguaranteed elements.

The consumer demand for responsive products combined with life insurer need to control the risks they assumed resulted in new nonparticipating, non-variable life and annuity products with crediting and expense elements that were not fully guaranteed. In general, the partial elimination of guarantees resulted in lower initial product prices.

A variety of product designs with NGEs ultimately emerged. "Universal life" is an example. The universal life insurance design was said to

Linkage

Only in the earliest generation of UL products was there a direct linkage of anticipated experience factors and corresponding NGEs. In other words, where each NGE was derived from the numerical value(s) of an anticipated experience factor, with the potential addition of a load for adverse deviation and profit. The incidence of product charges necessary to cover insurer acquisition expenses led to low early account values and unattractive products. Designs quickly changed to charge and crediting structures in which those parameters reflected insureds' preferences and were expected in total and over time to cover expenses and benefits.

"unbundle" the death protection and investment aspects of traditional whole life insurance. In its basic form, it incorporated a dynamic calculation of policy values based on premiums that could be varied at the discretion of the policyowner combined with crediting and charge elements, some of which could be varied by an insurer within limits specified in a policy. The flexibility and functioning of flexible elements came to be commonly illustrated to prospective policyowners with projections of future accumulation values, death benefit amounts and policy loan amounts at time of issue and periodically during the continuation of a policy. While the NGEs and their functioning varies considerably by product, the NGE concept is fundamental to universal life design.

Some of the most commercially significant early product designs were:

- Fixed deferred annuities with crediting rates that could be changed, subject to guaranteed minimums, at the discretion of insurers,
- Universal life policies with account value crediting rates, bonus elements and charges that could be changed by insurers, subject to contractual restraints, and
- Indeterminate premium term and permanent insurance products with otherwise traditional designs for which premium rates could be changed after issue, subject to maximums.

Many of the NGEs in these policies are commonplace in the current annuity and life insurance markets, in basic and evolved forms.

Actuarial guidance and related regulation soon followed in the United States. The first recommendations of the then Interim Actuarial Standards Board addressed nonguaranteed elements, becoming Actuarial Standard of Practice (ASOP) No. 1 adopted in 1986 (before a subsequently revised version was renamed ASOP No. 2). Also in 1986, a new actuarial statement concerning NGEs was added to the statutory annual statement. To protect the consumer, insurance product illustrations became subject to state adoptions of the Life Insurance Illustrations Model Regulation beginning in 1997. The Universal Life Insurance Model Regulation was put in place by state regulators to address nonforfeiture, valuation and disclosure issues related to the presence of NGEs and flexible premium payments. Updated versions of this actuarial guidance and regulation continue today in an effort to ensure the practices of insurers around NGEs are transparent to the consumer and that insurer solvency is maintained.

Statutory, generally accepted accounting principles (GAAP), and other insurance accounting regimes had to evolve their reporting requirements to accommodate product designs with NGEs. The methods of determining actuarial components on the income statement and balance sheet had to be redefined to accommodate NGEs.

Revision of NGE values has, in some cases, attracted lawsuits by policy owners. While most often arising after changes that increase costs or lower benefits, some lawsuits have been brought for an insurer's inaction. Typical complaints are that the particular change is not allowed by the terms of the policy, is inappropriately calculated, or recoups past losses or underperformance. Class action status is often sought. Court rulings have been inconsistent as of the date of this study note.

The adoption and early development of NGEs in individual annuity and life insurance policies helped shape their use and treatment in the current market. The remainder of this study note covers the types of NGEs in use today, professional guidance available to the practicing actuary responsible for NGEs, model regulations affecting NGEs, practical issues facing companies offering these products, considerations for products outside the United States market and an NGE case study.

Trend versus variance

A common, but flawed, expectation is that trends in experience elements should necessarily result in changes in policy charges and credits. In fact, it is variance in experience elements from values used to set NGEs that leads to changes. For example, population and insured mortality rates have generally trended downward. If that trend was anticipated in setting NGEs, the lack of variance might lead to no pressure from that experience element to change NGE rates.

Section 2: Context

Nonguaranteed elements (NGEs) allow for increased flexibility in products. Accumulation products such as universal life or deferred annuities include a policyholder cash value, which is calculated as the premiums paid, plus interest credited, less loads and charges (such as cost of insurance charges for universal life or per policy loads on annuities). Policyholders often have the flexibility to choose the level of premium to pay to fund their policy. When allowed by policy provisions, insurers have the flexibility to set the initial charges and credits based on anticipated future experience at the time of product issue and then revise the charges and credits in the future as anticipated future experience changes.

2.1 Types of NGEs

The amount and incidence of nonguaranteed insurance charges affects the performance of life and annuity products. Differences in purpose, product type, market, policy size, and buyer preferences influence whether specific nonguaranteed elements are included in a product design, as well as their values. The use of nonguaranteed elements and the limits placed on their values have changed over time with changes in the life insurance market and regulation.

- Credited interest rates: An insurer's earned interest rates will vary over time based on investment performance. Insurers can revise the credited interest rate derived from this earned rate and that is applied to policyholder cash values in life and annuity products that have accumulation accounts. These credited rates are subject to guaranteed minimum credited rates, which are usually specified in policy forms.
- Premium loads and other expense charges: Insurers may cover a portion of their expenses by reducing the portion of gross premiums paid into a universal life or annuity accumulation account by a percentage, or by collecting a per policy or per thousand of face amount expense charge, or both. Initial values of such loads and charges and their guaranteed maximum amounts are specified in policy forms.
- Cost of insurance charges: These are usually expressed as rates applied to the net amount at risk. Cost of insurance scales for a given product often vary by underwriting class and sex, as well as attained age or issue age and policy year. Maximum guaranteed cost of insurance rates are generally set at nonforfeiture basis mortality table rates for reasons related to satisfaction of state nonforfeiture law and federal internal revenue code compliance. However, for products where anticipated mortality rates exceed nonforfeiture basis mortality rates, guaranteed cost of insurance rates may be set at higher levels. Guaranteed maximum rates are specified in policy forms.
- Index parameters: These include cap rates and participation rates, which can be found on fixed indexed annuity and indexed universal life products. These features effectively manage the level of upside potential that is available to the policyholder. For example, a fixed indexed annuity has an underlying reference index (such as the S&P 500) that is used to determine the index crediting on the policy. The cap rate is the maximum percentage gain in that reference index that an insurer will credit to an account value in a given period. Participation rates work by applying a specified reduction to the percentage gain in the reference index. Both the current cap rate and the current participation rate are periodically declared by the insurer but each of these are subject to guaranteed rates that are specified in the policy.
- Bonuses: Products may contain various kinds of nonguaranteed bonuses that credit an additional amount to account value or refund a portion of charges if certain conditions are met.
- Rider charges: Variable annuity policies often have explicit charges for enhanced guaranteed living benefit riders, such as guaranteed lifetime withdrawal benefits or guaranteed minimum income benefits. For more recent variable annuity sales, some insurers have introduced a feature that allows them to increase these rider charges under certain conditions (or in response to policyholder actions, such as choosing to reset a guaranteed period), subject to certain maximum values that are specified in the policy.

- Indeterminate premiums: Some typically older term and permanent traditional products specify a guaranteed premium scale and a nonguaranteed premium scale (the indeterminate premium). The current premium scale may be guaranteed for some period of time.

Levels of these NGEs are set at the time of product pricing based on anticipated future experience at the time. Once issued, contract language allows insurers to revise these elements and defines a guaranteed maximum or guaranteed minimum level for each element. Charges cannot be increased higher, and credits cannot be decreased lower than guaranteed levels, though the insurer typically enjoys broad discretion on adjustments within those guaranteed limits. Policy forms and state law may limit the amount of any such adjustment or the frequency or timing of such adjustment.

2.2 Original Determination

As mentioned above, NGEs allow for increased flexibility in insurance products; NGEs affect the performance of a product; and the specific type of NGEs are influenced by a product's purpose, market, buyer preferences and other drivers. All of these characteristics are considered by the actuary during the product pricing exercise. After all, the pricing exercise aims to end with an insurance product that performs well for the insurer through achieving its targeted profitability measures, as well as performing well for the consumer in that their insurance needs are met. This balancing act includes considerations such as:

- How much will mortality claims cost? This depends on the underwriting program, target market, types of risk classes offered, policy sizes, etc. In other words, the anticipated mortality experience.
- How much will the insurer charge each insured for cost of insurance charges (an NGE)? And what relationship if any will that have to the cost of expected mortality claims?
- How will the insurer cover its expenses of issuing the policy? What portion of the premium will be used to cover these costs, and what is the source of revenue if the product offers flexible premium provisions, and no premium is paid during the period? These considerations are important in determining policy load and expense charge NGEs.
- What will be the basis for interest crediting for this policy? Will the assets purchased with premium revenue yield investment income sufficient to support the credited interest rate NGE and have investment income left over to help cover costs inherent in the policy?

One can easily see that an unbundled product such as universal life insurance or an interest-intensive product such as a deferred annuity requires actuarial expertise to balance the cash income from the product against the expected cash outflows of death claims, surrender benefit payments, interest credits, and expenses. This is precisely why company and industry experience studies and sensitivity testing are such important tools in the actuarial toolchest.

Complicating the pricing exercise is the concept that various methods of setting NGEs have evolved over time. For example, the next section highlights the ways insurers have approached the setting of the interest credited rate. In other words, there is more than one way an insurer can determine the interest NGE from its asset investments. This discussion can apply to either life insurance or annuity products similarly. As well, the methods of setting other NGEs (mortality, loads, etc.) have become more sophisticated with time. For brevity, only credited interest is covered.

The process used to set initial current crediting rates at product pricing for accumulation products such as universal life and fixed annuities can vary but is often based on the asset yield on the underlying assets backing the liabilities. Some insurers will use a new money method, which uses the prevailing new money rates on a portfolio of assets that they anticipate purchasing to back these new liabilities. Other insurers may consider the new accumulation product as similar to an existing product offering and will use the asset yield on the portfolio of assets backing these existing liabilities as the asset yield. In either case, the actuary generally defines a spread that is deducted from the asset yield to determine the initial current credited rate. The pricing exercise is then an iterative and holistic process that involves modifying this spread, and other product features, such as cost of insurance charges, premium loads, and expense charges, and analyzing whether the resulting margins on the product are reasonable and competitive both individually and in aggregate.

Regardless of approach, other factors, such as product performance and internal and external competitive pressures may also impact the NGEs that are declared by the insurer.

2.3 Impacts of Revising NGEs

From the policyholder perspective, a product with NGEs (such as universal life) will typically have lower initial premiums needed to fund a policy than fixed products (such as whole life). However, under policies with NGEs, the policyholder is agreeing to take the risk that if anticipated experience deteriorates in the future and insurers revise NGE scales accordingly, there will be an impact on one's policy accumulation value, and higher premiums may later be required to keep one's policy in force.

Because policyholder cash values are impacted by changes to NGEs, illustrations showing the impact of current and guaranteed rates allow policyholders to evaluate their premium funding level and make adjustments to premiums paid as insurers revise credits and charges. There are model regulations on how to illustrate, which we discuss later in this study note.

From the insurer perspective, product performance depends on how well the NGEs align with anticipated experience. At the time of product pricing, levels of NGEs are set based on anticipated experience factors to meet the insurer's profit objectives. In the future, if experience emerges differently than originally anticipated, the insurer, in accordance with the provisions in the policy form and insurance laws and regulations, may revise NGEs to reflect new anticipated experience factors; however, there may be no obligation to do so.

Next, we will discuss how an NGE framework and determination policy can guide insurers in this analysis and decision-making process.

Section 3: Professional Guidance related to NGEs

Actuarial Standards of Practice

The Actuarial Standards Board (ASB) is a body that sets the standards for appropriate actuarial practice through the development and promulgation of Actuarial Standards of Practices (ASOPs or standards), providing guidance to actuaries who perform work in the United States. They apply to all facets of actuarial work, including life, health, pension, casualty, and enterprise risk management, and have been developed, and in some cases, revised, to reflect emerging industry practices and perspectives.

Similar standards are in place for work in other countries.

There are several Actuarial Standards of Practice (ASOPs) that apply either directly or indirectly to the development of NGEs for life insurance and annuity products. ASOP 2 (Non-guaranteed elements for life insurance and annuity products)[1] is the most directly applicable guidance, although actuaries working with NGEs will typically consider other relevant ASOPs in their work as well, including but not limited to ASOP 12 (Risk Classification (for All Practice Areas)), ASOP 23 (Data Quality), ASOP 24 (Compliance with the NAIC Life Insurance Illustrations Model Regulation), ASOP 25 (Credibility Procedures), ASOP 41 (Actuarial Communications), ASOP 54 (Pricing of Life Insurance and Annuity Products) and ASOP 56 (Modeling). In recent years, updates to these standards have reflected emerging industry practice, product evolution, and advances in actuarial modeling, regulation, and governance.

ASOP 2 provides guidance for the practicing actuary to consider when determining NGEs for life insurance and annuity policies written on individual policy forms, where NGEs may vary at the discretion of the insurer[2]. In this context, determination applies to both the initial NGE determination at product pricing or issue, and subsequent NGE determinations for inforce business at dates after issue.

3.1 General Practice

ASOP 2 introduces the concept of an NGE Framework, which is defined as a combination of the company's determination policy, method by which the insurer defines a policy class, and any other relevant criteria or principles that are used to determine NGEs. This framework is a key component for actuaries working with NGEs, and the ASOP provides guidance on examples of elements to include.

The determination policy reflects the insurer's governing principles or objectives for determining NGEs. The policy could be a single document or a collection of documents. It includes profitability and capital objectives, along with requirements for and frequency of reviews of NGEs. Per ASOP 2, while a specific cadence is not prescribed, the company should declare a "maximum time period" that is not exceeded between successive reviews of NGEs[3]. Each of these reviews affords the actuary the opportunity to assess whether the existing NGE scale can be revised given the currently anticipated experience factors applicable to the inforce business in question.

Policy classes are policies that are grouped together when determining NGEs. The methodology for defining classes for both future sales and inforce policies is included in the NGE framework. Different NGEs can have different class definitions, as long as they are appropriately reflective of differences within anticipated experience factors. Class definition is not expected to change after issue but if necessary, it can be redefined or combined if new information supports the change.

[1] http://www.actuarialstandardsboard.org/asops/asop-no-2-nonguaranteed-elements-for-life-insurance-and-annuity-products/
[2] http://www.actuarialstandardsboard.org/asops/asop-no-2-nonguaranteed-elements-for-life-insurance-and-annuity-products/, Section 1.2
[3] Ibid, Section 3.2.1.f

3.2 Determination Process

ASOP 2 lays out a four-step determination process for revising NGE scales for inforce policies[4]:

1. First, review any prior determinations, including the original determination at product pricing. If the prior determination is not available, actuaries are instructed to use a reasonable approach to reconstruct it. The actuary should consider whether the NGE scales are consistent with policy language.
2. Second, analyze how experience is emerging relative to what was anticipated at the prior determination. The development of the original NGE scale determination at product pricing is made with the expectation that the scale will not be revised unless the anticipated experience factors change.
3. Third, consider whether to recommend a revision to NGE scales. This is not purely a mathematical exercise, and there are multiple criteria[5] for the actuary and other stakeholders, such as senior management, the marketing, legal and administrative teams, to consider when weighing this decision.
4. Finally, if a revision is to be made, determine the revised NGE scales. NGE scales are not determined with the objective of recouping past losses or distributing past gains[6]. Rather, the determination is a purely prospective exercise that focuses on future profitability levels.

3.3 Documentation

The requirements for actuarial communications from ASOP 41 apply to any documentation prepared as part of the determination process. In addition, the most recent version of ASOP 2 has significantly more documentation and disclosure requirements than prior versions[7], including the stipulation that even if an insurer elects not to revise NGE scales they must still go through the process of analyzing the experience relating to the relevant anticipated experience factors, carrying out the NGE determination exercise itself and either documenting this entire process (including the rationale for choosing not to make a revision) or otherwise explicitly disclose that they are deviating from the documentation requirements of the ASOP.

3.4 Data Considerations

When formulating and issuing actuarial opinions on the determination of NGEs, actuaries usually need to deal with data, such as mortality experience data or transaction data that may be used in actuarial models. ASOP 23 stipulates that actuaries that use data are not required to audit the data, but must review the data, or disclose why they did not do so[8]. If the actuary determines that there are significant limitations with the data, ASOP 23 requires that the actuary should disclose these limitations and any implications that may result[9] [10]. For example, policies that have been inforce for many years may not have the original pricing and/or NGE determination sufficiently documented, or such documentation may no longer exist. As noted earlier, the actuary is allowed under ASOP 2 to exercise professional judgment when attempting to recreate these past determinations. Similarly, ASOP 2 also indicates that the actuary should disclose any reliances on the data used[11]. Such reliances do not relieve the actuary from the responsibility to review the data (and if applicable, the methodology and actuarial models that use that data) for reasonableness and consistency.

[4] Ibid, Section 3.4.2
[5] Ibid, Section 3.4.2.3
[6] Ibid, Section 3.2.b
[7] Ibid, as described in Sections 3, 3.10 and 4
[8] http://www.actuarialstandardsboard.org/asops/data-quality/, Section 3.3
[9] Ibid
[10] Ibid, Section 3.1
[11] Ibid,, Section 3.5

ASOP 25, which discusses selecting and developing credibility procedures and the application of those procedures to sets of data[12], may also be relevant during original and subsequent determination when reviewing emerging experience factors against the current NGE scale.

3.5 Modeling Considerations

When determining NGEs on inforce business, an ideal place to start might be with the original pricing model or the model used to support a prior redetermination. However, in many cases due to the passage of time these models are not always readily available. In lieu of this, practitioners may consider starting with models that have been originally designed for a separate purpose, such as cash flow testing or asset adequacy analysis, and layering on necessary modifications specific to the NGE exercise itself since the original purpose of these models may not necessarily be consistent with the purpose of the NGE exercise. For example, the primary purpose of cash flow testing is to determine if assets backing the reserves make sufficient provision to fund the underlying policy liabilities under a variety of scenarios. This is typically undertaken at a relatively aggregate level, with potential simplifications made for relatively immaterial plan codes and/or product features, with due consideration of ASOP 56[13], which deals with modeling. (One such simplification might be to map such minor plans into major plans and/or product features). Actuarial assumptions used for cash flow testing can also include provisions for adverse deviation that are not appropriate to reflect in a determination exercise.

Regardless of the starting point of the model used in determining NGEs, the guidance of ASOP 56 is paramount. Here, the actuary can find criteria for designing, developing, selecting, modifying, using reviewing, and evaluating models.

[12] http://www.actuarialstandardsboard.org/asops/credibility-procedures/, Section 1.1
[13] http://www.actuarialstandardsboard.org/asops/modeling-3/

Section 4: Regulations affecting NGEs

Because NGEs are a significant driver of a life insurance policy illustration, certain regulatory restrictions exist to protect consumers and enhance the public's education around life insurance. The NAIC's Life Insurance Illustrations Model Regulation (Model 582) provides the framework for how insurers interface with prospective insured persons ("applicants") in the United States during the marketing of their products. Every individual and group life insurance policy is subject to Model 582, with these exceptions: (1) variable life insurance policies, (2) individual and group annuity policies, (3) credit life insurance, and (4) life insurance policies with no illustrated death benefits on any individual exceeding $10,000[14].

Model Regulations are promulgated by the National Association of Insurance Commissioners (NAIC) for adoption by each state. Because insurance is generally regulated by states and not the federal government, Model Regulations provide a degree of uniformity from state to state regarding the rules and requirements insurers must follow.

Not all policies are illustrated, however. As part of the product filing process, the insurer will notify the commissioner as to whether a policy form is to be marketed with or without an illustration. For those marketed with an illustration, a basic illustration is provided to each applicant. Model 582 requires the basic illustration to include a numeric summary of the death benefits, policy values and premium outlay. Three bases are required:

a. Policy guarantees
b. Insurer's illustrated scale
c. Insurer's illustrated scale but with the NGEs reduced as follows:
- Non-guaranteed credited interest at rates that are the average of the guaranteed rates and the rates contained in the illustrated scale used.
- All non-guaranteed charges, including but not limited to, term insurance charges, mortality and expense charges, at rates that are the average of the guaranteed rates and the rates contained in the illustrated scale used.

When the illustration portrays NGEs, these cannot be based on a scale more favorable to the policy owner than the insurer's illustrated scale at any duration (i.e., projecting improvements to the NGEs is prohibited). All NGEs must be clearly labeled as "non-guaranteed". Limits on the illustrated scale are also found in Model 582. The illustrated scale must not be more favorable than the lesser of:

- The Disciplined Current scale (DCS), or
- The Currently Payable scale

Determining the DCS is where the actuarial work comes into play. The DCS means a scale of NGEs (collectively interest credits, cost of insurance charges, policy loads, etc.) that is reasonably based on the insurer's recent historical experience. The DCS must be consistent with the provisions of Model 582, reflect only insurer actions that have already been taken, not include any projected trends of improvements in experience, and include expense assumptions no less than minimum assumed expenses as defined in the model. Model 582 points to ASOP 24 (Actuarial Standard of Practice for Compliance with the NAIC Model Regulation on Life Insurance Illustrations) to provide the basis for the actuarial work and the corresponding certifications of the Illustration Actuary. ASOP 24 is applicable specifically for actuaries performing professional services in accordance with Model 582.

ASOP 24 lays out the parameters for the DCS, which is a scale of NGEs, certified annually by the illustration actuary, and limiting the values being illustrated by the insurer. The DCS serves as one of the limiting caps on the illustrated scale, together with the Currently Payable scale. Assumptions underlying the DCS must be based on the insurer's recent experience. Should changes in experience be deemed significant and ongoing, assumptions must be adjusted

[14] Model Reg 582, Section 3. Applicability and Scope

to reflect these changes. Besides being based on actual experience, the DCS, when used as an illustrated scale, must demonstrate "self-support", i.e., pass a self-support test. Most actuaries will employ an asset share exercise in evaluating the self-support test. The self-support test is passed when, at every illustrated point in time starting with the 15th policy anniversary (with the 20th policy anniversary for second-or-later-to-die policies), the accumulated value of all policy cash flows (where those cash flows are based on the assumptions underlying the insurer's DCS) is at least as great as the illustrated cash surrender value. There is also a corresponding requirement against lapse-supported illustrations. The illustration actuary must also certify to the values being illustrated as "not lapse-supported". The same exercise as described above is used, with one important exception. The persistency assumption is modified such that the same rates as used in the self-support test are used for the first five policy years, then 100% persistency rate (0% policy surrender rate) is used for policy years six and later.

Model 582, together with ASOP 24, lays out the regulatory framework for life insurance illustrations presented to applicants as well as other explanatory materials used in the marketing of insurance so as to provide applicants with the best possible understanding of the benefits, and more importantly the limits, of the insurance products they are considering.

While Model 582 specifically deals with NGEs within insurance policies, other model regulations cover requirements on communications to policyholders, illustrations for applicants, contractual policy provisions, state-approval filing requirements and various other provisions relevant to policies with NGEs. Most of these model regulations are specific to a type of insurance contract and are listed below. These regulations may be peripheral to the actuary's involvement in product development, NGE determination or NGE redetermination.

Model 235: Interest-Indexed Annuity Contracts Model Regulation.
Model 250: Variable Annuity Model Regulation
Model 270: Variable Life Insurance Model Regulation
Model 580: Life Insurance Disclosure Model Regulation
Model 585: Universal Life Insurance Model Regulation

Most of these model regulations also cover aspects of statutory reserve requirements. While not the focus of this paper, reserves are critical to the product development and in force management processes of blocks with NGEs. Formulaic reserve methods typically value the underlying guarantees of the policy, since the guaranteed death benefit and policy values are what the insurer is obligated to pay to an insured person when the insured qualifies for these benefits. One may think of the formulaic reserve as the floor to the statutory reserve amount. Amounts in excess of this floor amount are typically determined using cash flow modeling methods such as cash flow testing, principle-based reserve methodology and GAAP methods. For these, the NGEs are recognized in forecasted anticipated cash flows using the company's NGE policies, experience assumptions, and varying levels of margins for conservatism, depending on the reporting regime.

4.1 New York Regulation 210

In addition to the ASOPs promulgated by the ASB, New York Regulation 210[15] also establishes requirements for the determination of NGEs for insurers that have life insurance and annuity policies issued in the state of New York. This regulation was effective in March 2018 and applies both to inforce and new business. The regulation is generally more prescriptive than ASOP 2, notably requiring a maximum time period between NGE reviews of no longer than 5 years. There is also a requirement that companies have a formally documented and board approved NGE determination policy. There are also specific reinsurance considerations, as well as waiting period requirements for filings and disclosures to policyholders.

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[15] https://www.carltonfields.com/files/Uploads/Documents/2017/Final-NYDFS-Regulation-210.pdf

Section 5: International Considerations

5.1 Canada

Regulation of NGEs in Canada can be found in promulgations of the Office of the Superintendent of Financial Institutions (OSFI) and in the Insurance Companies Act (ICA). The ICA details the expectations for the company's board of directors regarding the operation of participating policies and management of adjustable policies. The ICA requires a company establish a policy for determining dividends and bonuses to be paid to participating policies and establish criteria for changes made by the company to the premium or charge for insurance, amount of insurance or surrender value in respect of adjustable policies. The company must also maintain and manage certain accounts held separately for participating policies, called participating accounts[16].

The duties of the actuary are also outlined in the ICA. The actuary has a duty to report to the board of directors in writing at least annually on the fairness to participating policyholders of the board's policy regarding participating policy management. The actuary should report in writing on the fairness to adjustable policyholders of the criteria the board has established around these policies. A report on continuing fairness should also be performed at least once each year.

In response to these ICA requirements, the Canadian Institute of Actuaries issued an Educational Note titled "Guidance on Fairness Opinions Required Under the Insurance Companies Act Pursuant to Bill C-57"[17]. The note establishes general principles in determining fairness, which should balance the interests of the company with the interests of the policyholders, and balance interests between policyholders. General principles include:

- Establishing experience factor classes at issue
- Applying policies consistently over time
- Methods for determining dividends and changes to adjustable policies should be based on objective quantifications, to the extent practicable
- Dividends and adjustable policy changes should be consistent with the provisions of the policy and with the policies and criteria established by the board
- Pooling experience beyond reasonable policy owner expectations or arbitrary cross-subsidization across classes should be avoided to the extent practicable

Documentation in support of the actuary's fairness opinions is also addressed by the note. In particular, the note stresses the importance of documenting areas where judgment was used in applying the company's policies and criteria impacting these policies.

5.2 Asia

Regulation relevant to NGEs can also be found in regions such as Hong Kong, Singapore, Malaysia, and India.

The main NGEs on life policies in Asia tend to be bonuses, dividends for participating policies and crediting rates on traditional universal life business. Cost of insurance charges for unit-linked products, and to a lesser extent for universal life products, as well as premium rates for some term products (particularly critical illness riders) can also be non-guaranteed. For universal life crediting rates, companies often set the crediting rate with reference to the yield on fixed income assets that are held to back the liabilities, using long-term target expected returns for any non-fixed income assets.

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[16] ICA, Section 456: Participating accounts are those maintained by the company specifically for participating policies separately from those maintained for other policies.
[17] CIA Guidance, December 2011

In Singapore, the Monetary Authority of Singapore issued Notice 320: Management of Participating Life Insurance Business[18]. This notice sets out requirements for insurers to have in place an internal governance policy, governance and controls related to allocation of charges and expenses, and disclosures related to the management of participating life insurance business. The Monetary Authority requires adherence to this policy and sets out the roles and responsibilities of the insurance company's board of directors, senior management, and the appointed actuary. In concert, the Singapore Actuarial Society issued Standard of Actuarial Practice L03 for Appointed Actuaries on Participating Fund Management for Life Insurance Business, intended as the actuary's supplement to Notice 320. The regulations and guidance for bonus rates are mainly concerned with getting companies to set their own policy for how they will manage the fund but leaving it up to the discretion of each company to decide how to implement that in practice.

In Hong Kong, the Insurance Authority issued Guideline 16: Underwriting Long Term Insurance Business (Other than Class C Business)[19] which sets out the requirements for insurers to adhere to with respect to fair treatment of customers. In particular, according to this guideline, the appointed actuary has the duty to advise the board of the company of his or her interpretation of policyholders' reasonable expectations, which needs to be considered when determining the level of NGEs - although there is no prescribed approach to NGE determination. For unit-linked business, there is a similar guideline in place (Guideline 15: Guideline on Underwriting Class C Business[20]) that requires companies to determine fees and charges in a fair manner. In late 2021, the Insurance Authority and the Securities and Futures Commission issued a respective set of requirements to their so-called "green light process" for unit-linked product approval. These requirements aim at strengthening the governance and disclosure for unit-linked business and also to ensure the principle of treating customers fairly is considered, particularly with respect to fees and charges. Under the new rules insurers will need to perform benchmarking to demonstrate their level of charges (such as cost of insurance rates, platform fees, and surrender charges) are comparable to other "alternatives" in the market.

In Japan, there are no formal ASOPs specific to NGEs, although an ASOP for the appointed actuary function does mandate that an appointed actuary confirm that the annual policyholder dividend resource is adequately funded.

5.3 United Kingdom

In the early 2000s, a fair amount of regulation was introduced that required insurers to ensure that NGE determinations were compatible with the original terms and conditions introduced at product pricing. Such regulations also focused on treating customers fairly (referred to as the "TCF principle"), requiring disclosure at point of sale for the circumstances of when NGEs are subject to determination and notifying policyholders in good time when changing NGEs as a result of a determination.

There are not any current active UK actuarial professional standards or guidance that adds to these earlier regulations. The Association of British Insurers, a UK industry body, has published some industry guidance around examples of fair contract terms relating to NGEs[21].

Relating to NGE frameworks, with-profits (i.e., participating) insurers in the UK will publish a Principles and Practices of Financial Management ("PPFM") document that sets out how discretionary elements such as NGEs will be managed. The principles are high level, overarching statements of how the business will be run. The level of detail included in PPFMs varies between insurers. Principles and practices can be amended by insurers at any time, with

[18] https://www.mas.gov.sg/regulation/notices/notice-320
[19] https://www.ia.org.hk/en/legislative_framework/files/GL16.pdf
[20] https://www.ia.org.hk/en/legislative_framework/files/GL15.pdf
[21] https://www.abi.org.uk/globalassets/sitecore/files/documents/publications/public/migrated/income-replacement/advice-on-practical-aspects-of-unfair-contract-terms-for-non-investment-protection-policies-with-reviewable-premiums.pdf

written notice to policyholders required. The requirements for a PPFM in the UK are set out in the Financial Conduct Authority's Conduct of Business Sourcebook[22].

[22] https://www.handbook.fca.org.uk/handbook/COBS/20/3.html

Section 6: Common Practical Issues

Policies with nonguaranteed elements give insurers the flexibility to revise NGE scales as anticipated experience factors change.

There are several practical issues to consider when embarking on this analysis:

6.1 Available pricing documentation

A key part of this analysis is reviewing documentation and anticipated experience factors at the time of product pricing or prior determination. In an ideal world, this documentation exists and includes the relevant details; however, from a practical perspective, for business that has been in force for many years, it is common for working papers and other information relating to the original product pricing to be inaccessible or not sufficiently detailed. If complete documentation is not available, that does not prevent companies from doing this analysis. In fact, in the case where information related to prior determinations is not available, ASOP 2 instructs actuaries to select and document a reasonable approach to reconstructing the prior determination.

6.2 Company framework

ASOP 2 instructs actuaries to recommend the creation of an NGE Framework if one does not already exist or is incomplete[23], and the framework should include periodic review of NGE scales in in force policies. This framework can serve as a guide for how to evaluate blocks of business and make the necessary revisions. The form of the framework is not specified by the ASOP. It can include existing documentation and be consistent with the company needs and governance structure.

6.3 Experience data

Examples of anticipated experience factors listed in ASOP 2 include investment income, mortality, morbidity, policy persistency, and expense. Insurers may already have processes set up to monitor emerging experience as part of business-as-usual activities in support of periodic financial reporting processes. However, if this is performed for a larger block of business, the actuary may want to consider whether the conclusions reached are appropriate for the NGE analysis or whether more granular analysis needs to be carried out. Other considerations include, but are not limited to, the credibility of the experience, whether the existing assumptions that correspond to the anticipated experience factors are supported by the emerging experience, the materiality of changes in the experience, and the sensitivity of profitability to changes in assumptions for the anticipated experience factors.

In addition to knowing the insurer's current anticipated experience factors for these items, policyholder behavior characteristics such as premium payment patterns and other lapse behavior can be key elements of modeling product performance. If the insurer is not already tracking these experience factors, it could consider doing so as a future modeling enhancement.

6.4 No industry standard

There is not an industry standard methodology for evaluating changes in anticipated experience factors for purposes of revising NGE scales. ASOP 2 provides some general guidance - review prior determinations, analyze experience, consider whether to recommend a revision, then determine revised NGE scales - but is far from prescriptive, and the precise methodology that is employed to revise NGE scales may vary from company to company. In addition, in the litigation that has arisen for the insurers that do revise NGE scales, particularly to cost of insurance charges, there is inconsistent case law.

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[23] http://www.actuarialstandardsboard.org/asops/asop-no-2-nonguaranteed-elements-for-life-insurance-and-annuity-products/, Section 3.1

One example approach outlined in ASOP 2 is to revise NGE scales such that the prospective profitability from the time of revision, taking into account the prospective pattern of profits by duration, is not materially greater than that using the original NGE scales and original anticipated experience factors, holding all other assumptions constant between the projections[24].

6.5 Litigation

Potential litigation associated with significant NGE scale revisions may discourage insurers from making revisions. However, litigation has arisen in recent years for inaction on the insurer's part, so avoiding revisions will not necessarily avoid litigation.

6.6 Implementation

Older products are often on legacy administration and illustration systems that may have limitations to consider during the determination of new NGE scales. There may also be extra staffing needs for preparing rates for implementation, notifying policyholders, and producing new illustrations. ASOP 2 states that other costs, practical implementation difficulties, and materiality can also be considered when deciding whether to make a revision.

6.7 Communication

Consistent messaging across all areas of the company, including annual statements, illustrations, and other communications with policyholders and agents will help the process go more smoothly and ensure no one is caught off guard if revisions are made due to changes in anticipated experience factors.

6.8 Establish a repeatable process

Taking the time to properly analyze company NGE scales - understand what performance levels were expected at product pricing, evaluating how experience has emerged differently than anticipated and what impact those differences have on product performance, and making revisions to NGE scales - will ultimately help the insurer maintain expected product performance. Establishing a framework for evaluation and creating a process for periodic review and continued revisions as needed will help ensure consistency going forward.

[24] Ibid, Section 3.4.2.4.c

Section7: Case Study

Company ABC is concerned about why profits are so low relative to pricing expectations for their UL block of business. Management asks the actuaries on the inforce management team to investigate and come up with some recommendations on actions that ABC could take to restore future profitability of these products closer to the level assumed at the time of pricing. The actuaries review ASOP 2 and come up with the following list of items to investigate, then note their findings:

- Does the company have a framework or determination policy for evaluating NGEs?

    Company Response: An NGE Framework includes the determination policy, methodology for establishing policy classes, and any additional methods and criteria used to determine NGE scales. ABC has portions of these elements, but it does not yet have a fully complete and documented framework. To comply with the ASOP[25], the actuaries at ABC should recommend that the framework be created.

    The determination policy includes the insurer's principles or objectives for determining NGEs. Portions of ABC's determination policy can be found in the governance processes and corporate policies but given the latest guidance in the newly revised ASOP 2, ABC should revisit the determination policy and expand it to include elements suggested by the ASOP. Note that a determination policy should include a timetable for periodic review of NGEs, so ABC should set up a repeatable process and continue to perform this analysis on a regular basis.

- What nonguaranteed elements are included in the UL product designs?

    Company Response: ABC's UL products include nonguaranteed cost of insurance charges, expense charges, and credited interest rates. Some products also have nonguaranteed interest bonuses.

- What does the policy form contract language say about changes to nonguaranteed elements?

    Company Response: For cost of insurance charges, ABC's policy forms state:

    > *"We may use Cost of Insurance rates lower than the guaranteed rates, but we will never charge rates in excess of the Guaranteed Cost of Insurance rates shown in the data pages. Any change in cost of insurance rates will be based on our expectation of future mortality, interest, expenses, lapses, and any applicable federal, state, and local taxes. Any change in the cost of insurance rates used will be on a uniform basis for Insureds of the same class."*

    For expense charges, ABC's policy forms state:

    > *"We may use expense charges lower than the guaranteed maximum expense charge shown in the data pages. We will never use higher expense charges."*

    For interest rates, ABC's policy forms state:

    > *"We may credit an interest rate higher than the guaranteed minimum at any time. We will never declare an interest rate that is lower than the guaranteed minimum interest rate."*

- What should be considered in determining Policy Classes?

[25] http://www.actuarialstandardsboard.org/asops/asop-no-2-nonguaranteed-elements-for-life-insurance-and-annuity-products/, Section 3.1

Company Response: Classes should be appropriate for each NGE and appropriately reflect differences in anticipated experience factors. Policy classes can be grouped at various levels, such as within a product, at the product level, or across multiple products.

- What pricing documentation is available?

  Company Response: ABC's UL products were first sold in the late 1980s and early 1990s. It was quite an effort to find the original pricing documentation that had been stored in binders in a storage room. Even after all the paper files were reviewed, some assumptions were missing for a few of the products, and in a few cases, documentation wasn't available at all for some products. Per ASOP guidance, missing information should be reconstructed, so in the cases where part or all of the assumptions are missing, our analysis uses the assumptions for similar products sold in a similar time period instead.

- How have anticipated experience factors changed since the products were priced?

  Company Response: The experiences studies team was able to provide the latest mortality study, which showed that mortality experience is emerging differently than what was originally expected at the time of product pricing. Although mortality is improving overall, the rate at which it is improving is different than what was anticipated. The investment department provided the latest projections of earned rates, which are continuing to decrease over the next several years. The expenses team noted that expenses have continued to rise each year and are significantly higher than what was expected at the time of pricing.

- Does ABC have experience studies to support the changes in anticipated experience factors? What about other policyholder behavior characteristics?

  Company Response: Yes, each of the experience factors has new experience studies to support the changes in future expectations. Additionally, a new premium study provides more detail on premium patterns that the company can expect to see as policyholder account values change over time. This will be important to include in the product modeling since payment patterns and funding level can have a significant impact on product performance.

- How close are the current NGEs to the guaranteed levels?

  Company Response: Current crediting rates are already set to their guaranteed levels. Current expense charges and current cost of insurance charges are lower than their guaranteed levels. Interest bonuses could be removed since these are not guaranteed (but the actuary should consider how interest bonuses were represented in the marketing materials for the product).

- What costs would the company have if they decided to implement changes?

  Company Response: There will be significant implementation costs. Many of these older products are on old administration systems that are difficult to update. New illustrations will need to be provided for each policyholder. Litigation may arise. For smaller products, the costs may be too high to be worth making a change.

- How much of an impact would revising various NGE scales have on future profitability?

  Company Response: This required extensive modeling to evaluate how changes to NGE scales would impact profit levels for each class. Below is a summary of our findings:

  - Because credited interest rates are already at their guaranteed levels, no further decreases can be made to that nonguaranteed element.

- Increasing expense charges to the guaranteed levels increased profitability slightly, but not by a significant amount.
- Increasing cost of insurance charges had a much bigger impact. On average, an increase of about 50% was enough to restore prospective profitability levels to what was expected when pricing these products. For some classes, the increase will be higher, and for some classes, the increase will be lower.
- Finally, for products with a nonguaranteed interest bonus, removing the bonus was enough to restore profitability expectations, without needing to make changes to other elements.

Some combination of these types of revisions could be appropriate for each product or class.

7.1 Conclusion

There are a range of acceptable decisions that can be made after evaluating NGEs. Different actuaries may make different recommendations, and different insurers may make different decisions on how to manage profitability levels. Any revisions to NGE scales should ultimately be decided by (and coordinated with) other key stakeholders within the insurance company. ASOP 2 does not require insurers to revise NGE scales, but it does require periodic review and documentation of the associated analysis and results, whether a revision is recommended or not.