

1. (3 points)

a. (1 point)

Describe two ways in which price optimization and actuarial judgment might differ.

b. (1 point)

Briefly describe four disclosures a regulator might require in rate filings to address concerns regarding price optimization.

c. (0.5 point)

Explain why price optimization may be permissible based on Actuarial Standards of Practice and the CAS Statement of Principles Regarding Property and Casualty Insurance Ratemaking.

d. (0.5 point)

Explain why price optimization may not be permissible based on Actuarial Standards of Practice and the CAS Statement of Principles Regarding Property and Casualty Insurance Ratemaking.

SAMPLE ANSWERS AND EXAMINER'S REPORT

FALL 2018 EXAM 6US, QUESTION 1	
TOTAL POINT VALUE: 3	LEARNING OBJECTIVE: A1
SAMPLE ANSWERS	
Part a: 1 point	
<p>Bolded sample answers indicate unique subject responses, any two of which were required. Italicized sample answers are common variations on the unique response.</p> <p>ANY TWO THE FOLLOWING:</p> <ul style="list-style-type: none"> • Actuarial judgment is subjective while price optimization is data driven <ul style="list-style-type: none"> ▪ <i>Price Optimization is objective, based on model results, where actuarial judgment is subjective</i> ▪ <i>Price Optimization results from an objective model like GLM. Actuarial Judgment is subjective</i> ▪ <i>Price Optimization is a systematic approach while actuarial judgment usually pertains to broader considerations</i> ▪ <i>Price optimization is a modeled deviation from the indication where actuarial judgement can simple be experienced intuition</i> • Actuarial judgment is subjective / qualitative while price optimization is quantified <ul style="list-style-type: none"> ▪ <i>Price Optimization based on quantitative and qualitative factors; Actuarial Judgment based on Qualitative factors</i> ▪ <i>Price Optimization is systematic while Actuarial Judgement is qualitative</i> • Actuarial judgment is on a broad level while price optimization is on an individual level <ul style="list-style-type: none"> ▪ <i>Price Optimization can be at the individual policy level; actuarial judgment done on aggregate level</i> ▪ <i>Price Optimization can vary for each risk based on individual attributes...actuarial judgment used in ratemaking is done for a class</i> ▪ <i>By policy (Price Optimization) rather than aggregate (Actuarial Judgment)</i> • Actuarial Judgment applied to the selection of rating factors while price optimization can be applied to the rate/premium of an individual policy • Actuarial judgment uses internal data while price optimization may use external, non-ins data • For two risks with identical risk profiles, Actuarial Judgment will charge these risks the same rate but Price optimization can charge these risks 2 different rates. • Price Optimization is not necessarily considered acceptable in setting premiums, where actuarial judgment is relatively accepted. <ul style="list-style-type: none"> ▪ <i>Price Optimization in pricing insurance may be prohibited while actuarial judgment is permitted</i> 	
Part b: 1 point	
<p>Bolded sample answers indicate unique subject responses, any four of which were required. Italicized sample answers are common variations on the unique response.</p> <ul style="list-style-type: none"> • Disclosure of differences in proposed prices for insurer's existing and new customers with the same risk profile 	

SAMPLE ANSWERS AND EXAMINER'S REPORT

- *List of new and renewal policyholders with the same risk that are charged different prices*
- **Disclosure of whether price optimization, including any customer demand considerations, is used**
- **Filing of a report showing the distribution of expected loss ratios under the current and proposed prices**
 - *The insurer should provide a disruption report that shows the distribution of proposed policyholder premium changes (percentage change) when the existing book of business is renewed under the proposed rating plan.*
 - *The current loss ratio & Loss ratio after price optimization*
 - *Disclose the impact and loss ratio by group to check for unreasonable rates*
 - *Summary exhibit of loss ratios before and after price optimization (current vs proposed)*
 - *Provide a dislocation analysis of premiums before and after price optimization*
- **Disclosure of all data sources used by an insurer to calculate a premium**
- **Disclosure of all models used by an insurer to calculate a premium**
 - *Insurer should disclose all data, sources and models used in ratemaking*
 - *Details of Statistical Model*
 - *Model or Methods used to develop the price optimized rating plan*
 - *Rating Algorithm*
- **Disclosure of all risk classifications used by an insurer to calculate a premium**
- **Disclosure of which rating factor(s) are affected by price optimization**
 - *Specific variables are used in price optimization*
- **Disclose the size of the impact by rating factor, or cumulative impact of price optimization across all rating factors**
 - *Impact of Price Optimization on policy holders*
- **Consider requiring disclosure of any adjustments to rates that are not based on expected cost**
- **Require specific explanation or reasoning to support any proposed or selected rate that deviates from the actuarially indicated rate.**
- **Requires all rating factors be filed and all adjustments to indicated rates be disclosed.**
- **Insurer should disclose the current, risk-based (actuarial) indicated and the selected rating factor, rate or premium adjustments.**
- **Insurer should disclose and adequately explain any capping rule and the plan to transition toward the indicated charge over time.**
- **Disclose and justify, in detail, any differences between new business and existing business pricing.**
- **Filing of a certification by an actuary that all non-cost considerations affecting the proposed rates and rating factors are documented in the filing**
- **Attestation that proposed rates are within a reasonable range of cost-based indications.**
- **Attestation that actuarial indications are cost-based, which would inform regulators that any deviations from actuarial indications should be evaluated according to the law.**

Part c: 0.5 point

Bolded sample answers indicate unique subject responses, any one of which was required. Italicized sample answers are common variations on the unique response.

SAMPLE ANSWERS AND EXAMINER'S REPORT

- **Adjustments to actuarially indicated rates is not a new concept; it has often been described as “judgment”**
 - *Price Optimization just puts numbers and mathematics behind what actuaries have been doing for years: Making judgmental calls on actions to take /achieve certain objectives. This is just more quantitative than in the past*
 - *Deviations from indicated rates are usually allowed in pricing. Actuarial judgement has been used in ratemaking to reflect the deviation from indicated rate to make sure more actuarially sound rates are charges. Ratebook Price Optimization, other than individual Price Optimization, is used in existing structure. Such method aligns with fundamental principles of insurance.*
- **Insurers often consider how close they could get to the indicated need for premium without negatively affecting policyholder retention and how a given rate would affect the insurer's premium volume and expense ratio.**
 - *If Price Optimization if performed on the ratebook basis and it does not use any factors which could be proxy for race or ethnical background. Price Optimization would not be unfairly discriminate against any group. Price Optimization would be permissible.*
- **Price Optimization changes the process from a subjective to a data driven one**
 - *It may be a more objective way to quantify business considerations/metrics than actuarial judgement*
 - *It produces actuarially sound rates that can be justified by model outputs whereas actuarial judgement when evaluating a risk may be difficult to fully understand reason for rate change*
 - *As long the rate provides only for expected future costs of individual risk transfer, it should be construed as conforming to ASOPs on ratemaking. The Price Optimization may just be an automated methods of selecting the appropriate rate to cover costs while also optimizing business objectives.*
- **If Price Optimization can be proven to be nondiscriminatory, it could have differentiation which would provide more accurate rates reflecting true cost of risk transfer.**

Part d: 0.5 point

Bolded sample answers indicate unique subject responses, any one of which was required. Italicized sample answers are common variations on the unique response.

- **Critics argue price optimization has been developed to increase insurers' profits by raising premiums on individuals who are less likely to shop around for a better price which results in different premiums being charged to individuals with the same risk profile**
 - *If price optimization increases rates for individuals with a lower propensity to shop around, rates are no longer based solely on the expected future costs of risk transfer and are not acceptable.*
 - *Two policies with the same risk profile could be charged different rates because they may have different propensity for insurance. This would be unfairly discriminatory*

SAMPLE ANSWERS AND EXAMINER'S REPORT

- **For individual price optimization, prices are determined at the individual policy level based on cost and demand.**
 - *Price Optimization can be unfair when 2 individuals with the same risk have different prices when elasticity of demand, retention, and propensity to shop are factored in. Rates may also be seen as excessive since they attempt to charge the maximum price an insured will pay without leaving the company*
- **Prices shouldn't be unfairly discriminatory and price optimization can use factors that don't reflect actual cost or risk to them**
 - *Price optimization also considers other factors (price sensitivity & propensity to shop around) in the pricing, so for the same risk profile it may charge different rates based on different price sensitivity, which is unfairly discriminatory – since the risk is the same cost.*

Candidates were expected to understand the components of Price Optimization, how that interacts with regulators, and how they could be perceived within the Standards of Practice and CAS Principles on Ratemaking.

Part a

Candidates were expected to understand the basic principles behind price optimization and actuarial judgement and compare them.

Common errors include:

- Describing price optimization or actuarial judgment without comparing the two
- Attributing a characteristic of price optimization to actuarial judgement or vice versa. For example, saying that actuarial judgment is modeled and price optimization is not

Part b

Candidates were expected to understand components of price optimization and relate that back to what regulators would need to see in rate filings.

Common errors include:

- Commenting on general ratemaking disclosures and not relating to price optimization

Part c

Candidates were expected to understand components of price optimization and the relationship to ASOPs or CAS Principles on Ratemaking.

Common errors include:

- Stating Principle but not justifying the rationale to the components of price optimization
- Generic rationale but not relating it back to the Standards of Practice or CAS Principles on Ratemaking.

Part d

Candidates were expected to understand components of price optimization and the relationship to ASOPs or CAS Principles on Ratemaking.

Common errors include:

- Stating Principle but not justifying the rationale to the components of price optimization

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Generic rationale but not relating it back to the Standards of Practice or CAS Principles on Ratemaking.

FALL 2018 EXAM 6US, QUESTION 2

TOTAL POINT VALUE: 2.5

LEARNING OBJECTIVE: A2

SAMPLE ANSWERS

Part a: 0.5 point

Any two of the following:

- To detect as early as possible those in financial trouble or in danger of going insolvent.
- To determine if the insurer is engaged in unlawful or improper activities, or to determine if the insurer is complying with rules and regulations. Specific examples would be to make sure the insurer's rates are not unfairly discriminatory, to make sure the insurer is not making excessive levels of profit, or to ensure sound investment decisions.
- To make sure the insurer's reserves are adequate.
- To develop information as a basis for regulatory action or to take action to mitigate issues with the insurer.
- To determine the effectiveness of the board of directors or management.
- To evaluate risk management practices and processes to mitigate risk.
- To determine the reliability of financial reports.
- To evaluate management information systems, IT process, and controls in place.
- To maintain NAIC accreditation.
- To compare companies across the industry and develop industry benchmarks.
- To prioritize which companies to focus on with more scrutiny.
- To ensure that insurers maintain sufficient liquidity and flexibility to meet their present obligations.

Part b: 1 point

Sample Responses for part i

- More hazardous lines need more capital because of potentially adverse loss exposure.
- More volatile lines need more capital because they are harder to estimate.
- Longer tailed lines need more capital because they are more volatile.
- Longer tailed lines need more capital because they have longer term investments and therefore more asset risk.
- CAT exposed lines need more capital because of the potential for adverse loss exposure.
- If several lines of business are written by the insurer, they can hold less capital than monoline insurers because of the diversification benefit.

Sample Responses for part ii

- Stock companies can hold less capital than reciprocal insurers because they have the ability to raise capital by selling stock.
- Subsidiaries require less capital because they can rely on a capital infusion from a strong parent company.