GH VRU Model Solutions
Spring 2024

1. Learning Objectives:

1. The candidate will understand and apply valuation principles for insurance contracts.

Learning Outcomes:

(1c) Calculate appropriate claim reserves given data.

(1e) Evaluate data resources and appropriateness for calculating reserves.

(1g) Apply applicable standards of practice related to reserving.

Sources:

GHVR-103-16

Individual Health Insurance, Chapter 6

Group Health Insurance, Chapter 39

Commentary on Question:

This question aimed to test candidates on Incurred But Not Reported reserving, including applying two specific methods. Generally, candidates were able to score partial marks throughout, however, in order to get full marks while being mindful of time, there are ways of organizing the provided data to facilitate calculation.

Solution:

(a)

(i) Describe four ways you could set a monthly Incurred But Not Reported (IBNR) reserve estimate for small group hospital claims, including the data needed to use each approach.

(ii) Propose a ranking of the four methodologies listed in part (a) (i), with #1 being the best and #4 being the worst in terms of methodologies to use when setting the small group IBNR reserve for hospital claims. Justify your answer.

1. Continued

Commentary on Question:
Majority of candidates were able to name four ways to set up Incurred But Not Reported (IBNR) reserves and ranking them, however, candidates whom identified reserving techniques suitable for IBNR and also specifically highlighted data requirements were able to get full marks. Model solution incorporates acceptable methods, however, other methods were also acceptable given that they were described, including the data needed, and ranked with justification. Candidates were required to include subtraction of paid claims to date in order to receive full marks.

i)

- Set the IBNR estimate using the expected loss ratio.
    - Under this approach, the IBNR = Expected Loss Ratio * Revenue - Paid Claims
    - Data required: Need expected loss ratio through 6/30/202X as the paid claims to date are already provided
- Set the IBNR estimate using the budgeted claims.
    - Under this approach, the IBNR = Budgeted claims * enrollment – paid claims
    - May need to adjust for population differences from the budget.
    - Data required: Need budgeted claims through 6/30/202X as the paid claims to date are already provided
- Set the IBNR estimate using the traditional completion factor approach with small group hospital paid claims data.
    - Under this approach, completion factors are developed based on the hospital lag triangle and an incurred claim estimate by month is developed as Paid Claims / Completion Factor. IBNR = Estimated Incurred Claims - Paid Claims
    - Data required: Hospital paid data with incurred and paid dates to construct a lag triangle. However, with only 6 months of data it may be difficult to develop appropriate completion factors. Paid claims to date are already provided.
- Set the IBNR estimate using the traditional completion factor approach with proxy completion factors from the large group business.
    - Under this approach, completion factors would not be specific to small group hospital claims; rather based on patterns for hospital claims from another block of business different source of data could be used.
    - The incurred claim estimate by month is developed as Paid Claims / Completion Factor. IBNR = Estimated Incurred Claims - Paid Claims
    - Claim patterns may not be appropriate given differences in seasonality (benefit richness differences between the segments) or delays caused by implementation of claims system.

1. Continued

- Data required: Hospital paid data with incurred and paid dates to construct a lag triangle from the large group business are needed. Paid claims to date are already provided.

- Set the IBNR estimate using pre-authorizations (or admissions).
  - IBNR = Number of Admissions x Assumed Cost per Admit - Paid Claims
  - Not all pre-authorizations become claims and some claims (e.g. OON) are not subject to pre-authorizations
  - Data required: Need average cost per admission. The other data needed includes number of admits per month, and paid claims by month, which are already provided.

ii)

1. Set the IBNR using Authorization Data – all the data needed has been provided, so it would be the quickest methodology to use
2. Set the IBNR using the Expected Loss Ratio – all the data to use this method has been provided except for the expected loss ratio. The expected loss ratio is something that the company should have internally and reflects emerging experience in terms of the revenue sold (presumably reflects risk of business is sold)
3. Use large group completion factors. This makes sense if claim patterns are similar for both products and if the system was set up on time for the new block (no delays); if slower set up, may need to add larger higher margin since large group block would be operating at normal speeds
4. Use budget claims. This data is available but it does not reflect any of the emerging data so least useful approach.

(b)

(i) Critique the intern's IBNR reserve estimate.

(ii) Recommend the hospital IBNR reserve that you would record at 6/30/20X2. Justify your answer and show your work.

Commentary on Question:
Majority of candidates were able to identify that the intern's estimate incorrectly used average member months instead of number of admits, that paid claims incorrectly included physician claims, and that the source of the cost per admit assumption was unclear. In order to get full marks, candidates were required to identify that the current estimate is overstated (as a result of any of the identified errors above, or by a reasonableness check), derive an appropriate average hospital claim cost per admit, and include an appropriate explicit load to take into account that the paid claims data used to derive cost per admit may not yet be complete. Candidates who used the same cost per admit as the intern but explicitly questioned where it came from were awarded partial credit.

1. Continued

i)

- The INTERN is drastically overstating the IBNR estimate, with an IBNR estimate of over $29M when compared to revenue and/or claims paid.
- Average hospital claim cost per admit can be calculated by reviewing hospital paid claims data and pre-authorized admission, with the earlier months (more complete) of January and February averaging about $32,500
- When calculating IBNR based on admits, the intern should have multiplied by the number of pre-authorized admits, not average member months
- Paid claims being subtracted should only be hospital paid claims; it should not include physician paid claims
- The INTERN should consider including explicit conservatism in their estimate. Apply an additional percentage load to the IBNR to account for the additional uncertainty due to normal claims volatility as well as the fact that the calculation of average hospital claims per admit data may not yet be complete. An additional load between 5% and 20% could be reasonable.

ii)

IBNR = [Cost per Admit] x [# admits] – [Total Paid Hospital Claims]

Although Jan and Feb are not 100% complete, the cost per admission is around $32,500, so using $33,000 would be a reasonable assumed cost per admit.
(A cost per admit between $32,500 and $40,000 would be reasonable)

IBNR = [33,000] x [29] – [$913,104]
IBNR = $957,000 - $913,104
IBNR = $43,896

Due to potential claims volatility of the new business, an explicit load of 10%, or $4,390
(Additional load between 5% and 20% could be reasonable, depending on the candidate's assumed cost per admit. For example, if they are assuming a cost per admit of $40,000 including 20% explicit conservatism would be too conservative).

1. Continued

(c) Calculate the unpaid claim liabilities as of 8/1/20X2 using a development method that addresses the enrollment decline for the following completion ratios. Show your work.

(i) 3-month average completion ratios

(ii) 6-month average completion ratios

(iii) 9-month average completion ratios

Commentary on Question:
Candidates generally were able to do well in this question, however, there are certain ways to organize the data to facilitate the calculations faster. This revolves around the idea of being able to drag formulae as opposed to having to change formulae manually. Candidates were also asked to address the enrollment decline. Candidates were able to use either a PMPM approach prior to deriving completion ratios or a weighted average approach to calculating the average completion ratios. While the PMPM approach doesn't impact the final result (due to each successive incurral month's completion ratio derivation from cumulative claims being based on the same headcount), candidates were required to at least address the enrollment in some way.

Leveraging the provided claims triangle and enrollment, PMPM claims triangle is calculated.

(d) Recommend which completion ratios to use in your final estimate. Justify your answer.

Commentary on Question:
Candidates were generally awarded points if they were able to justify their answer appropriately. In order to get full marks, candidates generally had to present multiple reasons for their recommendation.

Many responses are acceptable, which may include some of the below:

The 6-month average because the claims are completing more quickly in recent months. 9-month average estimates are higher because there is less ability to react to recent changes. 3-month may be too reactive.

The 6-month average because it strikes a good balance between a stable and credible answer while still incorporating some of the speed up in claims for recent months.

1. Continued

The 3-month average has the advantage of using more current data that reflets current trends in payment patterns unlike longer periods which would smooth those out (bury the current trends).

The 6-month or 9-month average because I don't want to give too much credit to the recent speed up, it may be a false sign.

The 9-month average smooths things which is consistent with a desire to recognize change slowly and not over-react to changes.

The 9-month average is typically smoother, but may bury recognition of more current trends in payment patterns.

2. Learning Objectives:

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

(2a) Prepare financial statement entries in accordance with generally accepted accounting principles.

(2b) Interpret the results of both statutory and GAAP statements from the viewpoint of various stakeholders, including regulators, senior management, investors.

(2c) Project financial outcomes and recommend a strategy.

Sources:

Group Insurance, Skwire, 8th Edition, 2021, Ch. 43: Analysis of Financial and Operational Performance

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a)

(i) Describe the Gordon Constant Growth Model (GCGM).

(ii) Describe why the GCGM assumes the price-to-earnings (P/E) ratio of companies with high growth rates will be expected to drop in a context of rising interest rates.

Commentary on Question:

This question was not answered well in general.

- *For part (i), most candidates got 1 point for stating the GCGM formula, but failed to describe it as a simplified discounted future cash flow model that assumes that dividends grow in perpetuity at a constant rate.*
- *For part (ii), what the question intended to test is why P/E drops faster for high G (the growth rate of dividends) company when k (the required rate of return) increases in comparison to a company with a lower G, and candidates that demonstrated this generally received credit. While the question was not straightforward, simply explaining why increase in interest rate would decrease P/E ratio was insufficient to receive credit.*

2. Continued

i.Describe the Gordon Constant Growth Model (GCGM). ii.Describe why the GCGM assumes stock prices of companies with high growth rates will be expected to drop more in a context of rising interest rates."
- The Gordon Constant Growth Model is a simplified discount future cash model that assumes dividends grow in perpetuity at a constant rate.
- The P/E ratio of a stock is equal to 1/(k-G) where k is the required rate of return for equity investor and G is the growth rate in dividends
- The P/E ratio is therefore higher for companies with higher expected growth rates, but that advantage diminishes when interest rates grow higher. - For example, if we consider a 15% discount rate, enterprise A with 5% growth has a P/E ratio of 10 while enterprise B with a 10% growth rate has a P/E of 20. - If the required rate of return were to rise to 25% with the same expectations for both companies, enterprise A's P/E ratio would reduce to 5 (two times lower) while enterprise B's would reduce to 6.67 (three times lower).

(b) Describe why stock prices are imperfect metrics for the financial analysis of health plans.

Commentary on Question:
This question was not answered well in general.
Many candidates pointed out that stock prices sometimes reflect short-term phenomena, but very few candidates mentioned the other points which were mentioned on page 778 in Skwire Chapter 43.

Describe why stock prices are imperfect metrics for financial analysis of health plans
• Health plans that are not publicly traded will not have stock prices
• Stock prices sometimes reflect short-term phenomena
• Investment analysts may not understand operational realities of the insurance plan
• May be impossible to clearly communicate detailed or trade secret aspects of strategies to investment analysts

2. Continued

(c) Calculate the following performance metrics for Portwater and Carabelle separately. Show your work.

(i) Total Asset Turnover

(ii) Return on Assets

(iii) Total Leverage Ratio

(iv) Return on Equity

Commentary on Question:
This question was answered very well. Candidates that lost points often made small mistakes like using the Total Current Assets rather than the Total Assets in their calculations.

The model solution for this part is in the Excel spreadsheet.

(d) Calculate the two annual profit margin ratios most commonly used by financial analysts for Carabelle and Portwater separately. Show your work.

Commentary on Question:
*The question asks to calculate the **most commonly used** two annual **profit margin** ratios by financial analysts. These were identified in Skwire Chapter 43 on page 764.*
- *Many candidates recognized they are Net Profit Margin and Operating Profit Margin, but very few calculated Operating Profit Margin correctly.*
- *Some candidates calculated other ratios, such as expense ratio, loss ratio, etc.*

The model solution for this part is in the Excel spreadsheet.

(e) Your intern made the following statements:

- GAAP profit margins for insured businesses are overstated relative to statutory profit margins.
- "Same-size" analyses are done on a per capita basis to reflect the impact of size on operating measures.

Critique the accuracy of the intern's statements. Justify your answer.

2. Continued

Commentary on Question:
The question asks to critique the intern's statements and then justify. Many candidates who correctly restates the intern's statements failed to explicitly state if the intern's statements were true or false.

Critique the accuracy of the intern's statements. Justify your answer.
Statement on insured business is FALSE.
The profit margins for insured businesses are in a sense **overstated**, since **they imply a level of cash flow available to owners that excludes the impact of generally more conservative statutory reserve requirements**. (this is enough to get full credit for why) People might write other things like the following which also get credit In other words, a non-GAAP accounting presentation more reflective of health insurers' free cash flows would increase expenses by the increase in required reserves in the measurement period. While capital investments necessary for growth are also not included, such investment is captured indirectly through the inclusion of depreciation and amortization in the expenses.
Statement on same-size analysis is FALSE
"Same-size" income statement express all relevant income statement items as a percentage of revenue and not on a per capita basis. In this way, profit margins can be divided into component parts, all of which are expressed independently of the size of the enterprise.

3. **Learning Objectives:**

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

(2b) Interpret the results of both statutory and GAAP statements from the viewpoint of various stakeholders, including regulators, senior management, investors.

Sources:

Group Insurance, Skwire, 8th Edition, 2021

Ch. 43: Analysis of Financial and Operational Performance, p. 776-777

Commentary on Question:

This was a recall question. Surprisingly, candidates performed relatively poorly on the question. In part (a)(i), candidates generally got some credit but most candidates did not list both the concept of comparison to understand current performance and well as setting targets for future performance. In part (a)(ii), candidates frequently listed some items but few candidates provided the majority of the list. In part (b)(i), most candidates identified NAIC blanks as a source of data. Fewer candidates listed SEC filings as a data source and even fewer candidates listed commercial sources. In part (b)(ii), many candidates confused "evaluating data sources" with evaluating data and erroneously referenced provisions from ASOP 23 in their answers.

Solution:

(a)

(i) State reasons why Company X would want to compare its financial ratios to its competitors.

(ii) List characteristics that, when similar, improve comparisons of financial ratios between Company X and competitors.

Commentary on Question:

Candidates generally got some credit on part (i) but most candidates did not list both the concept of comparison to understand current performance and well as setting targets for future performance.

In part (ii), candidates frequently listed some items but few candidates provided the majority of the list.

(i) Comparisons allow health plans to identify whether it operates at best practices. Comparisons also allow health plans to set best practice goals for future performance.

3. Continued

(ii) Similar:
   a. Products or lines of business
   b. Business models (e.g. staff model vs. ffs)
   c. Operational philosophies
   d. Geographic focus
   e. Capital cost conditions
   f. Size

(b)

(i) Identify sources of data you could use to prepare your comparison.

(ii) Describe factors you should consider when evaluating the data sources identified in part (b)(i).

Commentary on Question:
In part (i), most candidates identified NAIC blanks as a source of data. Fewer candidates listed SEC filings as a data source and even fewer candidates listed commercial sources. Some candidates broadly listed something such as "financial statements" which is not really identifying a data source. In part (ii), many candidates confused "evaluating data sources" with evaluating data and erroneously referenced provisions from ASOP 23 in their answers.

(i) Data sources can include:
   a. SEC filings since Megacorp is a public company
   b. NAIC blanks
   c. Commercial sources (may yield more precise cost information or precise segmentation)

(ii) Factors to consider include:
   a. RegionalCare's income statement may include intersegment charges rather than actual costs
   b. Publicly available data may not have sufficient detail in cost segmentation by product
   c. Cost definitions may vary from carrier to carrier
   d. Commercial survey data may be de-identified or provided only in groupings such as quartiles.

4. Learning Objectives:

1. The candidate will understand and apply valuation principles for insurance contracts.

Learning Outcomes:

(1a) Describe the types of claim reserves (e.g., due and unpaid, ICOS, IBNR, LAE, PVANYD).

(1d) Reflect environmental factors in reserve calculations (trend, seasonality, claims processing changes, etc.).

(1f) Describe, calculate and evaluate non-claim reserves and explain when each is required.

(1g) Apply applicable standards of practice related to reserving.

Sources:

Individual Health Insurance, Bluhm, William and Leida, Hans, 2nd Edition, 2015. Ch. 6: Reserves and Liabilities

GHVR-103-16: Health Reserves

AAA Premium Deficiency Reserves Discussion Reports

ASOP 42, Health and disability Actuarial assets and Liabilities other than liabilities for incurred claims

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) State the formula for the premium deficiency reserve (PDR) calculation.

Commentary on Question:

Many candidates got full credit for the PV of the claims, expenses and premium portions of this credit. A blank statement of change in reserve did not receive full credit, we were looking for specifying the 3 different reserves. Some candidates forgot to include the present value.

PDR = PV of (Claims + expenses) – PV of (Premiums) – current Contract reserve – current Claim Reserve – current Premium Reserve

4. Continued

(b) Describe potential impacts from higher inflation to

(i) The contract reserve

(ii) The PDR

Commentary on Question:
All candidates struggled with answering part (i) of this question in the manner that was intended. Alternate solutions were accepted for part (i) as long as candidates provided potential impacts of the higher inflation along with justification. Points were also rewarded for demonstrating they understand a contract reserve.

The answers for part (ii) were much more normally distributed. Many candidates discussed the increased claims costs and expenses. Top candidates identified the impact from changes in other reserves and impact from potential future rate increases

(i) Contract Reserve Impact:

a. A contract reserve is set up for policies in which level premiums are applied against claims that are anticipated to increase in later durations. So HGA likely set up a contract reserve for their LTC and LTD products; these products' benefits could be impacted by inflation (e.g., COLA). If the inflation is higher than originally assumed when setting the premiums and contract reserve, the reserve would be deficient

(ii) Premium Deficiency Reserve Impact: HGA should perform a PDR calculation to determine if one needs to be set up (or increased) due to higher inflation. The following should be incorporated when performing this calculation:

a. **Claims Trend**: Anticipated increases in costs due to reasonably expected claims cost inflation should be included in the calculation
b. **Expenses:** The PDR should include fixed and indirect expenses along with incremental adjustments. Due to expenses increasing this has the potential of increasing the PDR
c. **Impact from other Reserves**: Per the PDR formula the PV of claims and contract reserves at the end of the deficiency period would need to be re-evaluated with adjusted assumptions.
d. **Rate Increases** Assumptions for future premium rate increases should be incorporated into PDR calculations. These increases should be reasonable relative to assumed claims trend, market competition, regulatory constraint, contractual limitations and company philosophies.

4. Continued

(c) Calculate:

(i) Current total claim and contract reserve as of 12/31/20X3.

(ii) Gain/Loss for the 12/31/20X3 income statement after adjusting for reserves.

Show your work.

Commentary on Question:
Few candidates were able to obtain full credit on this portion. Some were able to group the lines of business using the HRGM grouping method. Some candidates included ASO in the calculations and/or Hospital Indemnity in the Comprehensive Major Medical grouping which was incorrect. Partial credit was given for correct groupings or calculations. For part (i) some candidates included 2023 data which was incorrect and they lost points for that.

See the Excel sheet for the answer.

(d) List eight items that should be disclosed in an actuarial communication for the reserves established in (c).

Commentary on Question:
Candidates generally performed pretty well on this part of the question. Full credit was awarded if they mentioned 7 of the bullets below.

- Dates used in the analysis
- Significant limitations, if any, which constrained the actuary's asset or liability estimate analysis
- Specific significant risks/uncertainties, if any, with respect to whether actual results may vary from the asset or liability estimate
- Risk that provider insolvency may have a material effect on the risk-bearing entity's ultimate asset or liability
- Any follow-up studies actuary may have used in the development of the estimate of assets or liabilities
- any explicit provision for adverse deviation
- When updating a previous estimate, changes in assumptions, procedures, methods, or models that have a material impact on health benefit plan actuarial asset or liability estimate (and reasons for change)
- Any reliance on experts
- If any material assumption or method was prescribed by applicable law
- Reliance on other sources and thereby disclaims responsibility for any material assumption or method selected by a party other than the actuary

4. Continued

- If the actuary has otherwise deviated materially from the guidance of ASOP 42
- Disclosures consistent with ASOP 23 for reliance on data provided by others

5. Learning Objectives:

1. The candidate will understand and apply valuation principles for insurance contracts.

Learning Outcomes:

(1f) Describe, calculate and evaluate non-claim reserves and explain when each is required.

Sources:

GHVR-103-16: Health Reserves , Page 48

Individual Health Insurance, Bluhm, William and Leida, Hans, 2nd Edition, 2015

- Ch. 6: Reserves and Liabilities

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Explain how each of the new products will affect the overall size of contract reserves held by the company. Justify your answer.

Commentary on Question:

Most candidates were able to identify correctly which products required a contract reserves, but many candidates struggled to justify their responses. In particular, very few candidates were able to justify why Group LTD does not require a contract reserve.

The following will increase the contract reserves:

- Issue age individual Medicare Supplement business
- Individual long term care (LTC)
- Individual long term disability (LTD)

The following will not change the contract reserves:

- Attained age individual Medicare Supplement business
- Group LTD
- Individual Medicare Advantage plans

Contract reserves are held for long term policies where prefunding of claims occurs. This is most common in individual policies that are issue-age rated and / or are underwritten (Issue Age Med Supp, Ind LTC, and Ind LTD) since these products typically have level premiums, while claims are expected to increase over the duration of the contract. This is driven both by a general increase in claims with age as well as underwriting wearoff.

5. Continued

Contract reserves are not required for individual policies that are attained-age rated and not underwritten (AA med sup, Medicare advantage). These policies are short term in nature and do not prefund claims as long as premiums are adjusted to align with expected claims.

Group LTD has limited underwriting and insurers typically adjust rates for the group's age mix each year. As a result, group LTD does not have structural prefunding of claims, and so contract reserves are not needed.

(b) Calculate the net level premium for the block. Show your work.

Commentary on Question:
Most candidates were able to calculate the discount and claims correctly, but many candidates missed the persistency being 100% for the first year and then changing to 85% for the remaining years. Other candidates used formulas that assume claims and premiums are spread evenly throughout the year.

See Excel File for Solution

6. Learning Objectives:

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

(2d) Apply applicable standards of practice.

Sources:

ASOP 28 – Statements of Actuarial Opinion Regarding Health Insurance Liabilities and Assets

GHRV-818-18: Revised Actuarial Statement of Opinion Instructions for the NAIC Health Annual Statement

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a)

(i) Describe the types of actuarial opinions you may issue for health insurance liabilities and assets.

(ii) Explain when an actuary may issue each type of actuarial opinion.

Commentary on Question:

To receive full credit, candidates had to describe each type of opinion, including when it may be issued. Points were not granted for only listing the types of opinion. Most candidates received partial credit for describing each type of opinion, with the most points awarded for providing additional details.

- Unqualified
  - Reserve amounts make good and sufficient provision for all unpaid and other liabilities over the considered time period.
  - Aggregate assets and liabilities are reasonable for the intended purpose, including under moderately adverse conditions.
- Adverse
  - Reserve amounts are inadequate.
  - Liabilities are outside the reasonable range for the specified purpose
  - May have significant regulatory repercussions, so actuary should communicate findings to the company and its board before issuing.

6. Continued

- Qualified
  - Reserve amounts are good and sufficient except for certain items that are likely to be material but can't be reasonably estimated.
  - Limitations should be clearly documented.
  - Not necessary to issue a qualified opinion if the amounts in quests are believed to be immaterial.
- Inconclusive
  - Actuary can't reach a conclusion due to limitations in the data, analysis or assumptions.
  - Reasons for the inconclusive opinion should be described in the statement.

(b) Explain whether each situation may exempt an actuary from the actuarial opinion requirements.

Commentary on Question:
To receive full credit, candidates had to specifically state whether the actuary is exempt in each situation and provide a valid justification. No credit was given for only saying exempt/not exempt without justification. Most candidates received partial credit for correctly responding to 2-3 of the situations. Some candidates misunderstood that they needed to respond to each situation separately and received minimal points.

For the 1st situation, the actuary is exempt due to the small company exemption for companies with less than $1M total premium and less than $1M combined expense reserves.

For the 2nd situation, the actuary is not exempt. The financial hardship exemption applies if the cost of the actuarial opinion is greater than 3% of the direct plus assumed written premiums.

For the 3rd situation, the actuary is not exempt. While this is outside the scope of ASOP 28, ASOP 6 still applies.

For the 4th situation, the actuary is not exempt. The actuary may rely on information provided by other actuaries and should document the extent of their reliance in the statement.

7. Learning Objectives:

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

(2a) Prepare financial statement entries in accordance with generally accepted accounting principles.

(2d) Apply applicable standards of practice.

Sources:

GHVR-109-19 Health Insurance Accounting Basics for Actuaries (excluding Ch. 1 & section 2.2)

ASOP 21 Responding to or Assisting Auditors or Examiners in Connection with Financial Audits, Financial Reviews, and Financial Examinations

Commentary on Question:

Candidates received full credits if they understood the accounting entries of assets vs liabilities from a balance sheet and accounting entries of revenues vs expenses from an income statement given part (a) and part (d) questions were relatively straightforward

Solution:

(a) Describe the four core activities of health insurance operations.

Commentary on Question:

Most of candidates were able to describe these four core activities and received full credits.

Premium cycle

The insurer collects premiums from customers in exchange for providing insurance coverage.

Investments cycle

The insurer invests excess funds, generating income from those investments.

Benefits cycle

Policyholders receive benefits, directly or indirectly, from the insurer under the insurance coverage provided to them.

Expense cycle

The insurer makes various other types of expenditures other than the payment of insurance benefits.

7. Continued

(b) State the necessary accounting entries by completing the following table:

Date of Entry	Necessary Accounting Entries
12/31/20X1	
1/31/20X2	
2/28/20X2	

Commentary on Question:
Most candidates were not able to state the right accounting entries for 12/31/20X1 mentioning the advance premium not Due and Unpaid Premium for 12/31/20X1, but not many correctly calculated unearned premium and earned premium for each date of 1/31/20X2 and 2/28/20X2. And a few of candidates misunderstood the accounting entries of Debit vs Credit.

12/31/20X1
Dr Due & Unpaid Premium $3,000
Cr Unearned Premium $3,000
Dr Cash $3,000
Cr Due and Unpaid Premium $3,000
1/31/20X2
Dr Unearned Premium $250
Cr Earned Premium $250
2/28/20X2
Dr Unearned Premium $500
Cr Earned Premium $500

(c) State the necessary accounting entries by completing the following table:

Date of Entry	Necessary Accounting Entries
7/31/20X2	
8/31/20X2	

Commentary on Question:
Most candidates provided correct answers for Due and Unpaid premium part, but only a few were able to state the correct accounting entries for unearned premium of $2,750,

7. Continued

7/31/2023
Dr Due & Unpaid Premium $3,000
Cr Unearned Premium $2,750
Cr Earned Premium $250
8/31/2023
Dr Unearned Premium $2,750
Dr Earned Premium $250
Cr Due & Unpaid Premium $3,000

(d) Compare and contrast the relationship and responsibilities of a Responding Actuary and a Reviewing Actuary.

Commentary on Question:
Most candidates were able to explain roles and responsibilities of a responding actuary vs. a reviewing actuary but not many get full credit.

Responsibilities common to both
handle confidential information in accordance with Code of Professional Conduct.
may produce independent documentation appropriate for their respective teams or principals

Responding actuary
cooperate with Reviewing Actuary
be responsive to requests from auditor/examiner
should help with compilation of information
work with auditor/examiner if timelines cannot be met
be prepared to discuss data, assumptions, methods, models, and controls used with reviewing actuary and auditor/examiner
document information provided to the auditor/examiner

Reviewing actuary
cooperate with Responding Actuary
communicate in writing with entity what is requested, including time frames and whether information requested in scope with audit/review/examination
discuss disagreements with responding actuary with auditor/examiner of the entity
document findings from the actuarial procedures

8. Learning Objectives:

4. The candidate will understand how to evaluate retiree group and life benefits in the United States.

Learning Outcomes:

(4a) Describe why employers offer retiree group and life benefits.

(4b) Recommend appropriate baseline assumptions for benefits and population.

Sources:

Group Insurance, Skwire, Daniel D., 8th Edition, 2021, Ch. 8: Retiree Group Benefits

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) List the reasons why an employer would offer a retiree medical group benefits program.

Commentary on Question:

All candidates did well on this section. Most had the list memorized.

1. Provides a tax effective way of providing financial security for retirees
2. Cash costs are nominal compared to overall spending on benefits.
3. Often top of the list of union demands.
4. It is the social responsibility of the employer to provide retirees with continued health coverage.
5. Creates a more competitive overall compensation package.
6. Helps with workforce planning and provides growth opportunities for employees.
7. It is a useful benefit for those retired or who are soon to retire.

(b) Calculate the annual expected out-of-pocket costs for each of the two retirees under each of the three plan options. Show your work.

Commentary on Question:

There was a lot of confusion over what a Medigap policy covers and what Medicare Advantage covers. The deductible was applied incorrectly in many cases. There were some candidates that did understand and got full credit. On average candidates received about half the points available.

Please see the Excel workbook for the correct solution.

8. Continued

(c) Recommend a plan option for each retiree based on the results of part (b).

Commentary on Question:
This was a tricky question. If the candidate managed to calculate the correct out of pocket expenses in Part B, it would reveal that Medigap Plan F had the lowest out of pocket expenses of zero because Plan F covers everything. However, due to the MACRA changes in 2020, Plan F is not available to newly eligible Medicare participants. If the candidate did not read or remember this and recommended Plan F for either member, they lost all points for that recommendation. Partial credit was given to candidates who made a correct recommendation using an incorrect calculation in Part B.

For Retiree A, I'd recommend Medigap Plan G because it has rich benefits, and Retiree A is less healthy and will likely be needing those benefits. Although Plan F is even richer, the MACRA legislation makes it so Plan F can no longer be sold to people newly eligible for Medicare.

For Retiree B, I'd recommend the Medicare Advantage plan because its benefits are leaner, so its premium would be lower. Retiree B is healthy and can take advantage of those lower premiums while also having sufficient health care for their situation.

(d) Calculate the monthly subsidy amount such that the total out-of-pocket cost (including premiums) to XYZ's retirees will be the same as under the current traditional plan. Show your work.

Commentary on Question:
Candidates struggled with this question. Partial credit was awarded for correctly calculating total out of pocket expenses, recognizing the current cost, mentioning the minimum subsidy amount and other factors. On average, only about 25% of the available points were awarded.

Please see the Excel workbook for the correct solution.

9. Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on companies and plan sponsors in the US.

Learning Outcomes:

(3b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

Group Insurance: Chapter 17, pages 266-270

Commentary on Question:

Part a through c are memorization and retrieval questions. Majority of candidates were not familiar with the source material and struggled on these sections. Part d is a calculation question, where candidates generally score more points.

Solution:

(a)

(i) State the functions a fiduciary typically performs for an ERISA-governed employee benefit plan.

(ii) Describe the requirements ERISA imposes upon you as named fiduciary.

Commentary on Question:

Candidates performed poorly on this part. Most of candidates attempted this question but were only able to list one fiduciary function or requirement.

(i)

- Exercises any discretionary authority or control respecting management of plan;
- Exercises any discretionary authority or control respecting disposition of assets;
- Renders investment advice for a fee or other direct or indirect compensation with respect to any moneys or other property of the plan;
- Has any authority or responsibility to render investment advice with respect to plan money or property;
- Has any discretionary authority or responsibility in administration of the plan.

(ii)

- Acts in the sole interest of the plan and for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable administration expenses
- Act with prudence and care in carrying out their duties
- Diversify their investments of the plan to minimize risk and loss, unless circumstances show that it is not prudent
- Adhere to the plan documents in discharging their duties

9. Continued

(b) Compare and contrast the key plan documents required for plan members under ERISA and the ACA.

Commentary on Question:
Candidates were able to score slightly more points in this section than part a. Some candidates struggled to identify the difference under ERISA and ACA.

- ERISA requires SPD (Summary Plan Description)
- ACA requires SBC (Summary of Benefits and Coverage)

Similarities:
- SPD and SBC must both be provided to plan participants
- SPD and SBC must both disclose benefits under the plan
- SPD and SBC must both generally be written in plain language and understandable to average plan participant

Differences:
- SPD must disclose party responsible for plan administration; SBC must include contact information for beneficiary
- SPD must include the appeals process when a claim for plan benefits is denied
- SBC must include uniform definitions of insurance terms (e.g. deductible, coinsurance, copay, out-of-pocket max)
- SBC must include examples of common benefit scenarios
- SBC must include exceptions and limitations of coverage

(c)

(i) Explain ERISA claim appeal requirements.

(ii) Describe the additional claim appeal procedures required by the ACA.

Commentary on Question:
Candidates performed poorly on this part. Some candidates were able to recall one or two bullet points.

(i)

- ERISA requires a reasonable procedure for plan participants to appeal a decision to deny in whole or in part a claim for plan benefits.
- Claim procedure is deemed reasonable if it meets minimum standards for review set forth in regulations promulgated by DOL.
- In 2000, the DOL published final regulations to establish timeframes for claim and appeal determinations, and set standards for content of denial letters

9. Continued

(ii) The ACA added a number of additional requirements:

- An external review process must be implemented to allow claimants to have their claim denial reviewed by an independent claim review organization following final level of internal appeal.
- Appeal notices must be provided in a culturally and linguistically appropriate manner in certain situations.
- Diagnosis and treatment codes must be provided upon request.
- The definition of adverse benefit determination now includes recissions of coverage.

(d) Calculate the annual COBRA cost for each member for 20X1, 20X2, and 20X3. State your assumptions. Show your work.

Commentary on Question:
Most candidates realized to combine the ER and EE rate, and applied annual increase, but most did not apply the 2% COBRA admin fee. To receive full credits, candidates need to know COBRA coverage covers up to 18 months, and recognize member D and E are not eligible for the coverage. Source material listed several scenarios where COBRA coverage could be available for up to 36 months for dependent. However, none of them applied to this question and no credit was given for using 36 months of coverage for Member B.

The model solution for this part is in the Excel spreadsheet.

10. Learning Objectives:

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

(2a) Prepare financial statement entries in accordance with generally accepted accounting principles.

Sources:

GHVR-109-19 Health Insurance Accounting Basics for Actuaries (excluding Ch. 1 & section 2.2)

Commentary on Question:

Most candidates received partial credit on this question. Many candidates were able to provide some information for Part A and Part C. Candidates who performed well provided succinct and accurate answers. This question was only 5 points, but some candidates spent time writing lengthy descriptions that did not correctly answer the question.

Solution:

(a) Describe three accounting sub-entries related to group medical premiums using the table below:

Commentary on Question:

This chart was not directly shown in the source material; it required candidates to interpret and comprehend the accounting sub-entries to be able to produce this condensed chart.

Essential to this accounting question was recognizing that the Assets and Liabilities cancel out across entries, in order to leave the 'Cash' Asset and 'Earned Premium' Liability. Candidates who recognized this performed well.

Very few candidates completed the entire chart correctly and received full credit. Most candidates received partial credit for correctly listing some of the Assets and Liabilities.

10. Continued

Purpose of the sub-entry	Description of the asset/debit item	Description of the liability/credit item	Timing of the sub-entry
Insurer's obligation to provide insurance coverage for the month commences	Due & Unpaid Premium	Unearned Premium	Beginning of the month
Customer pays monthly premium	Cash or 'Paid in Advance'	Due & Unpaid Premium	When insurer physically receives premium from customer
Insurer's provision of insurance coverage to the customer	Unearned Premium	Earned Premium	Continuously throughout the month

(b) Explain why Company X might record a UCL rather than separate estimates of ICOS and IBNR liabilities.

Commentary on Question:
Many candidates noted it was difficult, which was insufficient for credit. Candidates who explained WHY it was difficult received credit. The 'Explain' verb requires showing that you can convey "why" or "how."
Many candidates defined ICOS and IBNR, which did not receive credit.

For medical claims, precise estimation is difficult because there can be a high degree of variation from one ICOS claim to the next. Variations include:

- Likelihood any payment will be made (e.g., claims before customer deductible, same claim submitted multiple times by the provider, adjudication is slow and difficult)
- Relationship between the ultimate amount paid by Company X and the amount billed by the provider (e.g., need to consider contractual provider discounts, factor in customer cost-sharing)

(c) Compare and contrast liabilities applicable to group medical and group LTD coverages.

Commentary on Question:
Candidates performed well on Part C. Many were able to list the liabilities for group medical and group LTD. Credit was assigned for listing or describing the reserves. Partial credit was assigned for each correct similarity and difference. Full credit required candidates to list multiple similarities as well as multiple differences.

10. Continued

Similarities:

- Neither typically has policy reserves, since neither involves pre-funding.
- Both estimate liabilities for claims that have been incurred but not yet reported (IBNR).

Differences:

- Group LTD is longer term and group medical is shorter term.
- Group medical includes IBNR in UCL; group LTD typically has separate estimates for IBNR and general unpaid claims.
- Group LTD's DLR is calculated on a seriatim basis (separate calculation for each claimant), while the equivalent for group medical, ICOS, is combined with IBNR in UCL and calculated for the block of business.
- Group medical typically has only one type of claim-related liability (UCL) while LTD has several claim-related liabilities:
  - IBNR – claims related to disabling events that have not yet been reported to the insurer
  - Accrued Claim Liability – liability for the partial month's payment that the claimant has earned as of month-end by having remained disabled since the last time a monthly payment was made
  - Disabled Life Reserve (DLR) – liability for future (beyond the valuation date) claim payments to be made to claimants who are currently receiving payments. Also called Unaccrued Claim Reserve.
  - Pending Reserve – liability related to disabling events that have been reported to the insurer, but for which the insurer has not yet initiated payment to the insured

11. Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on companies and plan sponsors in the US.

Learning Outcomes:

(3a) Describe the regulatory and policy making process in the US.

(3b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

GHVR-830-21

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Identify the benchmark plans for ages 30 and 40 in this market. Justify your response.

Commentary on Question:

Candidates were able to obtain full credit if they identified the plans (by price and/or issuer/metal level) and explain that it was the second lowest cost silver plan. Candidates were extremely successful on part a.

Benchmark Plan, Age 30: $360 Best Price Silver
Benchmark Plan, Age 40: $400 ValueNow Silver

Identified as the second lowest silver plan in the market.

(b) For each individual, Chris and James:

(i) Calculate the premium subsidy for each available plan.

(ii) Calculate the net monthly premium for each available plan.

Show your work.

Commentary on Question:

Candidates were able to use the identified benchmark to calculate the subsidy for each plan and the net monthly premium. The most common errors on this question were Excel related – not locking the reference to the benchmark plan or calculated subsidy. Partial credit was awarded where appropriate. Many candidates were able to achieve full credit on part b.

The model solution for this part is in Excel

11. Continued

(c) Calculate the new net monthly premium for each plan for both Chris and James. Show your work.

Commentary on Question:
Some candidates struggled to find the new premium for Chris and James. The question wanted the 'non-benefit load percentage' to be the same before and after the calculation. Some candidates used the PMPM differential rather than the ratio of claims to premium. Some candidates did not use the updated premium to calculate the new net premium for Best Price Silver.

The model solution for this part is in Excel

(d) Calculate the net monthly premium for each plan for both Chris and James in this expanded market. Show your work.

Commentary on Question:
Like parts b and c above, candidates were successful at calculating the net premium for each of the plans. The most common errors were Excel related, not locking references to the benchmark plan or calculated subsidy.

The model solution for this part is in Excel

(e)

(i) Describe how increased competition in the ACA exchange marketplace can impact consumers.

(ii) Explain how the ACA risk adjustment program has affected how insurers view potential enrollees.

(iii) Describe the impact of cancelling cost sharing subsidies on the ACA exchange marketplace.

Commentary on Question:
Candidates were largely successful in understanding the impact competition had on the subsidized members. Most candidates were able to talk generally about the risk adjustment program, but struggled to talk specifically about the ACA risk adjustment methodology and discuss that imbalance that has been observed in the program. On part iii, many candidates talked about 'Silver Loading' but did not connect the canceling of the cost share subsidies with the premium subsidies that the question focused on in parts (a) through (d)

11. Continued

(i) Since premium subsidy is based on the second lowest plan, and not on an average or median plan, increased insurer participation depresses the premium subsidy. As more insurers enter the market, the subsidy is naturally based on a lower cost plan.

(ii) ACA risk adjustment understates risk for low cost enrollees and overstates for high cost enrollees. This results in the transfer formula penalizing plans that enroll low cost enrollees.

(iii) When CSR subsidies were canceled, insurers responded by increasing silver premiums (sometimes known as 'Silver Loading'). This led to premium subsidies increasing and net premiums decreasing for those who qualified. For those without premium subsidies, this made some plans too expensive. This let some consumers buy coverage other than the benchmark plan at a lower net premium cost, increased enrollment, and made the market more attractive to consumers and insurers.