

ASSET LIABILITY MANAGEMENT

ASSIGNMENT SEMESTER 2 2022 –
FEEDBACK FOR STUDENTS



Feedback materials

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Assignment purpose

The main purpose of the assignment from your perspective is to help you develop skills required to pass examinations at Actuary level. These skills are also required by employers. The specific skills that are being developed and assessed in the assignment are the:

- acquisition of subject knowledge;
- application of subject material in an unfamiliar context; and
- communication of relevant points in language appropriate to the audience, in a logical and coherent manner.

Assignment overview

Part A covered content from modules 2 through to 7, all these modules had been discussed in a tutorial before the assignment date. All questions are simple application of the course knowledge.

Part B required students to consider listed corporate bonds in particular, in order explain the sources of return and risk; describe risk quantification measures; and justify three characteristics, which would be most important to the student, to evaluate before investing in the corporate bond. **Describe** and **explain** are simple application tasks, while **justify** requires reasoning (higher order).



Results summary

A percentage mark of 60% or greater was needed in order to pass the assignment. This is consistent with the assignment pass mark for other subjects (Actuary and Fellowship). Note that the mark required to pass overall subject may be different.

Overall, students performed well on the assignment with a pass rate of 97% and an average score of 16.5/20.0 or 83% (significantly above pass). A summary of the results, including previous four semesters for comparison, is presented in the table below.

Grade	Number	%	S1 2022	S2 2021	S1 2021	S2 2020
Significantly above pass level	83	64%	78%	36%	55%	33%
Above pass level	35	27%	18%	34%	30%	44%
Pass level	7	6%	3%	19%	12%	18%
Below pass level	4	3%	1%	11%	3%	4%
Grand Total	129	100%				

Overall feedback

We expect students to pass the assignment and for a high proportion to perform well because of the guidance provided, short questions and open book environment. Notably this semester:

- the average mark was at or above pass level on each question of the assignment except for Part B Question 1(c);
- the weakest element was question 1(c) requiring students to describe measures that quantify risk for corporate bonds with only eleven students able to name and correctly describe all three measures;
- students performed very well on Part A, the multiple choice questions, with an average mark of 9.1. This was higher than previous semesters; and
- the weakest three multiple choice questions were in relation to:
 - investment governance;
 - consequences of inflation; and



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- o the distinction between fiscal and monetary policy.

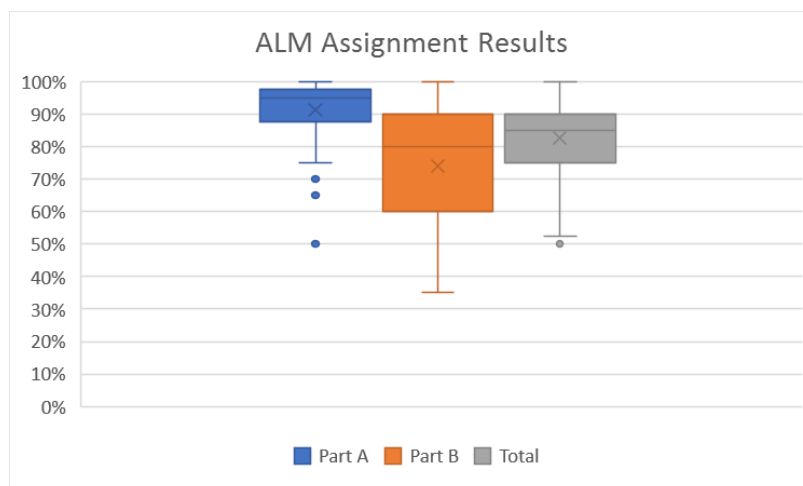
To maximise your performance in the exam:

- make sure you answer all parts of the questions. It is important to go back to the questions after you have started writing to ensure you are answering the question asked;
- apply the information provided in the questions as part of your answer, generic answers rarely gain full marks;
- after you have drafted your answer, re-read the question and confirm that you have answered all parts of it; and
- keep your answers succinct and use dot points where appropriate.

Results by question

The experience by question is shown in the table and chart below.

	A	B1(a)	B1(b)	B1(c)	B2	B All	Total
Weighting	50%	10%	10%	15%	15%	50%	100%
Average	9.1	1.7	1.7	1.5	2.6	7.4	16.5
Min	5.0	0	0	1.5	1.0	3.5	100
Max	10.0	2.0	3.0	3.0	3.0	10.0	20.0





Generally students performed very well on the multiple choice, however some were quite weak on the short answers, leading to a greater range of outcomes for Part B than overall.

Areas for improvement

Students are encouraged to:

- read all module materials and prepare their own notes, to understand, remember and be able to recall the key terms and concepts, rather than relying on searching for answers during an assessment;
- be mindful of the command verbs and in particular remember that 'describe' requires more information than 'list';
- realise that listed corporate bonds have the added feature of being able to be traded on a market prior to maturity, which was relevant to Part B answers;
- practice writing skills in order to be able to summarise information, be concise and to the point when under time pressure; and
- consider the context given with the question and ensure the answer incorporates what is relevant, as generic answers will not get full marks.

Questions

- Part A Multiple Choice Questions
 - Students performed well at Part A, as can be seen in the chart above;
 - This is to be expected given the answers could be obtained from a close reading of modules 2 to 7.
- Part B 1(a)
 - most students did well on this question and scored full marks, by describing coupon, return of principal and the option to sell the bond before maturity as listed;
 - weakest responses did not incorporate the scenario given (that the bond was listed) and did not note that the bond could be sold prior to maturity, and such a sale may lead to capital gain (or loss depending on pricing at that time of sale); and



- some responses neglected to mention the return of principal at maturity and/or did not describe each item.
- Part B 1(b)
 - almost all students scored 1 mark for explaining credit risk correctly;
 - most students also mentioned inflation or interest rate risk but some couldn't clearly explain the relationship between bond price and interest rate;
 - note that where credit risk may have been referred to as default risk or issuer/security risk, these were paid as long as the explanation was correct.
- Part B 1(c)
 - twenty nine students did not present any of the measures that quantify risk (being duration, convexity and credit spread);
 - only eleven prepared clear descriptions of all three measures;
 - the rest either could not identify all three, or could not clearly describe them;
 - a 'credit rating' was not paid as a risk quantification measure as the credit rating agency would be using these quantitative measures to inform its rating, along with a qualitative assessments i.e. the 'credit rating' summarises a risk assessment but is itself not a quantification measure; and
 - this aspect was clearly covered in Module 5 page 37 and 42;
- Part B 2
 - most students did well on this question by focusing on three characteristics that warranted the most attention and giving appropriate reasons for their selection;
 - a very wide range of relevant characteristics were proposed, and these have been included in the marking guide;
 - weaker answers included relatively minor or jurisdictional issues like tax, which was not rewarded with a mark;
 - others did not supply a logical reason for selecting each characteristic named.



Will we get feedback on our assessment?

Our approach to feedback is for students to receive their grade, general feedback, a sample assignment marked as 'significantly above pass level' and the marking guide.

You should review the feedback that is supplied here as well as the sample assignments and marking guide. Use the general feedback and marking guide to grade the sample assignments and your submission. This will help you to compare the assignments and identify areas where your submission could have been improved. You should use the general feedback to identify areas where you could improve your future exam performance.

Our belief is that this active approach to studying will provide you with a deeper understanding of where you need to improve. This is the best way for you to learn about your areas of strength and weakness in your understanding. We do not provide students with individual feedback on their assessments.

At the **end** of the semester, you will receive:

- a letter to indicate whether you have passed or failed the subject;
- if you have failed the subject, a breakdown of your grade for each assessment;
- general feedback to all students about assignment and exam performance;
- a sample assignment that was graded as 'significantly above pass level'; and
- the exam marking guide.

Example assignment

For Part B, two model answers "significantly above pass" will be posted to LMS.

Part A questions and answers are not released but all answers can be obtained from a close reading of modules 2 to 7.



Marking guide

Summary of learning objectives assessed

#	Learning Objective	Module	Question
1.1	Explain, in general, actuarial models as part of actuarial advice, their inputs and outputs, and how they are affected by professionalism and the external environment	2	MCQ
1.2	Recognise the qualitative aspects of providing actuarial advice	2	MCQ
1.3	Outline the elements of effective investment governance	2	MCQ
1.4	Understand and apply the complexity of competing investment theories through describing Kuhn's philosophy, the roles of exemplars, distinguishing between causation and correlation, and the Duhem-Quine thesis	2	MCQ
2.1	Discuss the role of government monetary and fiscal policy	3	MCQ
2.4	List and describe the main characteristics of the main capital markets (M4)	4	MCQ
2.5	Explain the principal economic influences on investment markets (M4)	4	MCQ
2.9	Distinguish between primary and secondary markets	4	MCQ
3.1	Describe the characteristics of the three principal asset classes	5, 6, 7	MCQ Part B Q1 and Q2
3.2	Discuss the components and drivers of the three principal asset classes' risk and return	5, 6, 7	MCQ Part B Q1
3.3	Apply and critique valuation methods including discussing assumptions and evaluating limitations	5, 6, 7	MCQ

Question level

Question	Learning Objective	Module	Simple Application	Application	Higher order	Total
1	3.1, 3.2	5.5.2, 5.5.4	5	2		7
2	3.1	5.2.2, 5.5.2, 5.5.4			3	3
Total			5	2	3	10



Command Verbs used for Part B questions

Verb		Meaning
<i>Describe</i>	Simple Application	Provide information about specific items, showing that you understand what those items mean. A description is not a list; each item needs supporting information.
<i>Explain</i>	Application	Give an account of something with the goal of clarifying it to someone or making something easier to understand. Calls for even more information than describe, showing that you can convey 'why' or 'how' or 'so what'. A connection is expected between the item(s) and something else.
<i>Justify</i>	Higher Order	Present a reasoned case for actions or decisions made.

Part B Marking Guide

For each question a sample answer and further guidance is provided. The sample answer is not the only possible answer.

Q1 You are considering an investment in the corporate bonds issued by a company whose equity securities and corporate bonds are listed on the stock exchange (7 marks)

a) Describe the sources of return to investors from the corporate bonds (2 marks)

Sample answer is

The contracted cash flows are the primary source of return, being:

- o the coupon payments which are paid at regular intervals such as quarterly or half-yearly; and **(0.5 mark)**
- o the principal amount repayable at the agreed maturity date. **(0.5 mark)**

The bonds may also be sold prior to the maturity date **(0.5 mark)**. The amount received will normally differ from the agreed principal. **(0.5 mark)**

Marking Guide

0.5 mark for each of the points made to describe the sources of return. See 5.5.2.

For **full** marks require (a) coupon (b) principal at maturity (c) Sale on market prior to maturity (d) any additional relevant point elaborating on these.



- b) Explain the two main sources of risks to the returns when investing in corporate bonds (2 marks)

Sample answer is

There are two main sources of risk to the returns: interest rate risk and credit risk.

Interest rate risk arises where the value of a bond is less than the price paid for it due to an increase in the bond yield for the relevant term to maturity, as a result of shifts in the level and shape of the yield curve due to economic and other market related factors. **(1 mark)**

Credit risk is the risk of the issuer of the bonds not meeting the contractual commitment to make the agreed payments of the coupons or the principal amount at maturity and failing to make payments. This is called a default.

Credit risk can reduce returns either through a default or an increase in the credit spread of a corporate bond. **(1 mark) (also pay if called default risk)**

Marking Guide

1 mark for each of the explanations of these two **main** sources of risk to the returns.

Only mark first 2 sources named by student (3rd/4th etc were not requested and should be ignored)

Other source of risk that are 'minor' pay 0.5 mark only

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- c) Describe measures that can be used to quantify the risks (3 marks)

Sample answer is

There are two measures that are often used to quantify interest rate risk: the duration and the convexity of a bond.

Duration measures the weighted average time to receipt of cash flows, the weights being the present value of cash flows. Shows sensitivity to interest rate. A closely related concept is modified duration, which is the proportional first derivative of price with respect to yield. **(1)**



Convexity is the proportional second derivative of price with respect to yield.

Combining convexity with duration gives a much more accurate approximation of the price–yield relationship than duration alone, particularly for large-yield changes. Convexity is a measure of the curvature, or the degree of the curve, in the relationship between bond prices and bond yields. Convexity demonstrates how the duration of a bond changes as the interest rate changes. **(1)**

The **credit risk** is usually quantified by the credit spread of the bond which is the difference between the yield on the corporate bond and that of a risk free (government) security of the same of similar term to maturity. An increase in market expectations of the risk of a default will usually lead to an increase in the credit spread. An increase in credit spread increases the yield to maturity and reduces the price of a corporate bond. **(1)**

Marking Guide

1 mark for each of the three measures described. Expecting 2 linked descriptive statements for each measure. 0.5 mark if only 1 statement.

Page 37 and 42 of the course materials cover these three items.

A 'credit rating' is not paid as a risk quantification measure as the credit rating agency would be using these other quantitative measures to inform its rating, along with a qualitative assessment i.e. the 'credit rating' summarises a risk assessment but is itself not a quantification measure

Q2 Justify which 3 characteristics that you would pay most attention to when evaluating an investment in a corporate bond. (3 marks)

Sample answer is

As an investor I am most concerned with risk and whether the return is sufficient for the given level of risk accepted so I am most interested in:

- the default risk (.5) where default means that agreed payments of interest or capital are not made, indicating my risk of not receiving the expected return (.5);
- the margin of the yield over government securities of the same term (.5) so I can understand my compensation for increased risk of default (called the credit spread) (0.5) which may vary over time;
- the term expressed in remaining years to maturity (.5) which is a measure of how long I am subject to default risk (.5);



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- the term to maturity (.5) to determine if it aligns with my timing requirements for return of capital (0.5)
- the frequency of coupons (.5) to determine if aligns/matches with my liability cashflows (.5)
- the duration (.5) of the security which is the weighted average time to receipt of cash flows and acts as a guide to the interest rate risk accepted (0.5)
- the real or nominal yield (.5) in absolute compared with my required yield (.5) **or** return or relative to other assets that I could hold such as government bonds or cash (.5);
- the liquidity or marketability of the bond (.5) to understand if I must hold to maturity or can be on-sold prior to maturity (.5) (i.e. comments on tradeable on an exchange or market, liquidity related to volume traded, or non-tradeable, or illiquid).

Marking Guide

It is expected that candidates will provide three of the items from this list and justify (give reasons) about why they have selected each as requiring the **most** attention when evaluating a corporate bond.

0.5 for describing the characteristic and 0.5 for the reason. Max 3 marks only if they select three distinct characteristics and justify (give a reason) why the item is one of the three that they would pay most attention to. They may summarise their reasoning as a preamble to listing the three characteristics.

Credit risk and default risk are not distinct; credit risk and credit rating are not distinct.

Security over assets – only pay once – might mention explicit link to a business asset or seniority of debt

Credit rating would be accepted if explain which underlying characteristic it is providing information about (eg credit risk)

"Price" would only be accepted if yield is discussed