
SOCIETY OF ACTUARIES
Strategic Decision Making Exam

Exam CFESDM

MORNING SESSION

Date: Thursday, May 5, 2016

Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 100 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 40 points).
 - a) The morning session consists of 6 questions numbered 1 through 6.
 - b) The afternoon session consists of 3 questions numbered 7 through 9.

The points for each question are indicated at the beginning of the question. Questions 2, 4– 6, 8, and 9 pertain to the Case Study, which is enclosed inside the front cover of this exam booklet.

2. Failure to stop writing after time is called will result in the disqualification of your answers or further disciplinary action.
3. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.

Written-Answer Instructions

1. Write your candidate number at the top of each sheet. Your name must not appear.
2. Write on only one side of a sheet. Start each question on a fresh sheet. On each sheet, write the number of the question that you are answering. Do not answer more than one question on a single sheet.
3. The answer should be confined to the question as set.
4. When you are asked to calculate, show all your work including any applicable formulas.
5. When you finish, insert all your written-answer sheets into the Essay Answer Envelope. Be sure to hand in all your answer sheets because they cannot be accepted later. Seal the envelope and write your candidate number in the space provided on the outside of the envelope. Check the appropriate box to indicate morning or afternoon session for Exam CFESDM.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

Tournez le cahier d'examen pour la version française.

CASE STUDY INSTRUCTIONS

The case study will be used as a basis for some examination questions. Be sure to answer the question asked by referring to the case study. For example, when asked for advantages of a particular plan design to a company referenced in the case study, your response should be limited to that company. Other advantages should not be listed, as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.

****BEGINNING OF EXAMINATION****
Morning Session

- 1.** (7 points) Bank Alpha uses over the counter (OTC) derivatives to hedge counterparty risk. It uses all contracts' notional amounts as the basis to measure its counterparty risk.

Bank Alpha proposes using the sum of all OTC derivative receivables after netting as a measure of exposure to counterparty risk.

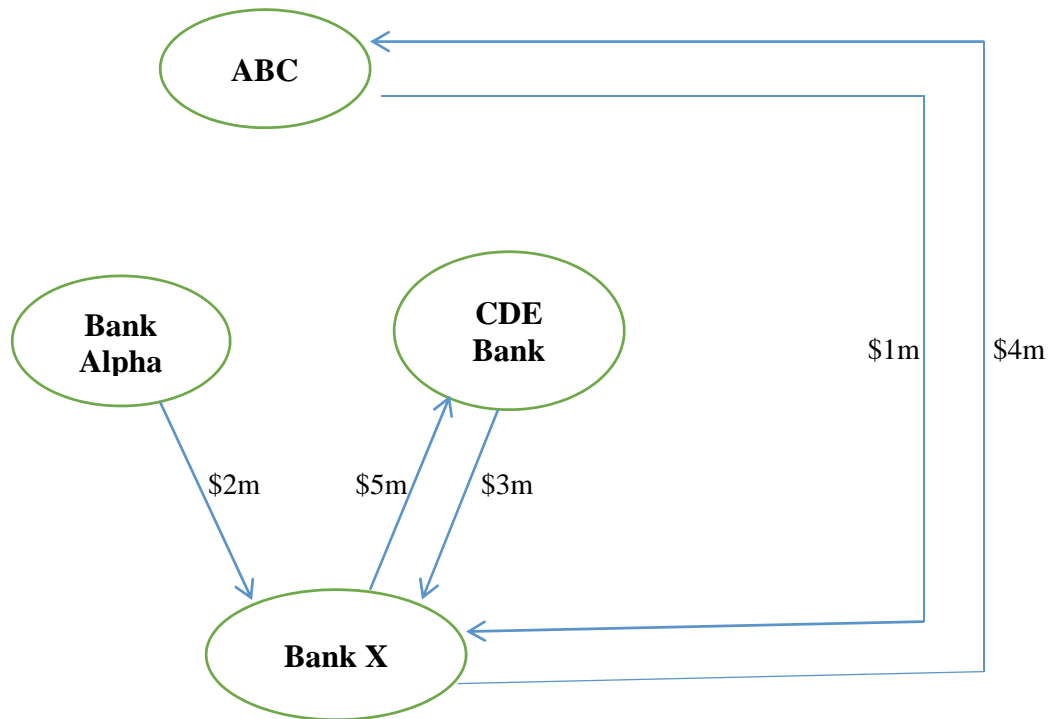
- (a) (2 points) Explain how the payment and closeout netting processes affect Bank Alpha's counterparty exposure.

In order to get a more precise measure of counterparty risk, management recommends reducing the netted amount by the assigned cash collateral.

- (b) (1 point) Describe four reasons supporting management's recommendation.
- (c) (2 points) Identify two risks to which cash collateral exposes Bank Alpha. Justify your answer.

1. Continued

ABC Corporation (ABC) is considering buying Bank Alpha. ABC, Bank Alpha, and ABC's subsidiary, CDE Bank, have positions open with Bank X. The exposures are summarized in the diagram below:



Note: $A \rightarrow B$ means that A owes money to B.

Three possible netting schemes are:

- I. No Netting
 - II. Bilateral Netting between Bank X and Consolidated ABC
 - III. Multilateral Netting
- (d) (2 points) Assess how buying Bank Alpha affects ABC's exposure under each of the three netting schemes including potential losses for ABC should Bank X declare bankruptcy. Justify your answer.

***Question 2 pertains to the Case Study.
Each question should be answered independently.***

2. (10 points) Information on Frenz can be found in Section 4 of the Case Study.

David Gillet, CEO of Frenz, wishes to discuss the Digital Strategy Group's 2016 goals regarding potential uses of customer data collected through the Frenz smartphone app.

- (a) (2 points) Construct a SWOT analysis of Frenz's Digital Strategy, including one strength, one weakness, one opportunity, and one threat.
- (b) (3 points)
 - (i) Identify two major risks in Frenz's Risk Profiles affected by customer analytics. Justify your answer.
 - (ii) Describe how customer analytics can both mitigate and amplify the risks identified in part (i).

Consider the following potential 2016 goals, one of which will be implemented.

- I. Optimize loyalty program structure
 - II. Facilitate targeted advertising/sales unique to each customer
 - III. Identify cross-selling opportunities across RPPC
- (c) (2 points) Describe one potential upside and one potential downside to Frenz's customers for each potential 2016 goal (I to III).
 - (d) (3 points) Recommend which 2016 goal Frenz should pursue. Justify your recommendation.

THIS PAGE INTENTIONALLY LEFT BLANK

3. (8 points)

(a) (2 points)

- (i) Describe the value of float according to Berkshire Hathaway's annual report.

The following is a list of risks that could be faced by an insurance company:

- I. Regulatory risk
- II. Interest rate risk
- III. Underwriting risk
- IV. Modeling risk
- V. Policyholder behavior risk
- VI. Credit risk

- (ii) Identify the two most significant risks from the list (I to VI) that a holding company should consider when relying on the float of an insurance subsidiary. Justify your answer.

The following two questions are based on Berkshire Hathaway's annual report.

(b) (1 point) Contrast the value of float under the following two situations:

- Operating at an underwriting profit
- Operating at an underwriting loss

(c) (2 points) Assess both situations in part (b) above under the following three environments:

- Low interest rate environment
- High interest rate environment
- High competitive pressure

3. Continued

The following statement is from Berkshire Hathaway's annual report,

“Indeed, we are far more conservative in avoiding risk than most large insurers.

...

In fact, I know of only eight P/C policies in history that had a single premium exceeding \$1 billion. And, yes, all eight were written by Berkshire. Certain of these contracts will require us to make substantial payments 50 years or more from now. When major insurers have needed an unquestionable promise that payments of this type will be made, Berkshire has been the party – the only party – to call.”

- (d) (1 point) Explain the impact on float of writing a single premium policy.
- (e) (2 points) Evaluate the effect of writing a single premium policy on:
- Underwriting Risk
 - Interest Rate Risk
 - Policyholder Behavior Risk

*Question 4 pertains to the Case Study.
Each question should be answered independently.*

4. (15 points)

Information on RPPC Dynasty (RPPC) and Blue Jay Air (BJA) can be found in Sections 1 and 2 of the Case Study.

One month has transpired since Robert Sigurdson's initial conversation with RPPC's executive team regarding Myhotel's loyalty program. Myhotel provided the RPPC team access to its data room and a preliminary market analysis was performed. The initial analysis showed a below-average return if RPPC acquires the Myhotel loyalty program and an average return under a joint-venture structure. Gilroy is hesitant to diversify beyond the airline loyalty program at this time. He feels that in the current environment there is too much cost uncertainty, and the assumptions used are overly aggressive. Furthermore, he feels that BJA's loyalty program team lacks the experience to tackle the challenges faced by integrating another loyalty program when it hasn't established its own yet.

- (a) (2 points) Identify one value-creating and one value-neutral diversification benefit if RPPC acquires Myhotel's loyalty program. Justify your answer.
- (b) (3 points) Analyze the operational relatedness and corporate relatedness of the diversification strategy. Justify your answer.

Geri MacGyver is currently in charge of BJA's loyalty program business proposal and may be in charge of the combined loyalty programs. She has been heavily involved in developing the BJA loyalty program and has spent the last month analyzing the acquisition's merits. She is a strong supporter of pursuing an acquisition strategy despite the fact that the preliminary analysis shows that the internal rate of return is lower than the cost of capital.

- (c) (1 point) Describe the managerial motive that drives Geri's support of the loyalty program acquisition.

Below are three cognitive biases that affect individual decision making:

- Confirmation Bias
- Ease of Recall Bias
- Sunk-cost Bias

4. Continued

- (d) (3 points) Assess the relative degree to which each of these biases apply to Geri and Robert Sigurdson. Justify your answer.

RPPC determines that the loyalty program should align with BJA's business strategy and core competencies. It decides not to pursue the Myhotel acquisition. Now, RPPC turns its attention to evaluate a proposal from Titan Corporation.

Titan is a large marketing company which ended up purchasing Myhotel's loyalty program and now controls 80% of the loyalty program market. Gilroy is wondering whether BJA should continue to manage its own loyalty program or outsource it to Titan.

- (e) (6 points)
- (i) Assess the merits for each of managing and outsourcing BJA's loyalty program. Justify your answer.
 - (ii) Recommend one of the two options. Justify your recommendation.

**Question 5 pertains to the Case Study.
Each question should be answered independently.**

5. (8 points)

- (a) (1 point) Describe three problems with typical risk assessment scoring methods.

Information on RPPC Dynasty (RPPC) and Blue Jay Tire (BJT) can be found in Sections 1 and 3 of the Case Study.

- (b) (2 points) Identify three flaws in BJT's management of Manufacturing Risk as described in the 2014 BJT Annual Report excerpt. Justify your answer.

Julia Reich, CRO of RPPC, has directed Pierre Beaudry, CEO of BJT, to implement Fast Actuarial Simulation Technology (FAST) to improve BJT's risk management framework. Reich believes FAST will prevent future recall incidences.

- (c) (3 points) Evaluate whether FAST can address the flaws in BJT's Manufacturing Risk management.

Assume that BJT implements the FAST system in its Manufacturing Risk management process.

- (d) (2 points) Recommend two further improvements to the Manufacturing Risk management process at BJT. Justify your recommendations.

THIS PAGE LEFT INTENTIONALLY BLANK

*Question 6 pertains to the Case Study.
Each question should be answered independently.*

6. (12 Points)

Information on RPPC Dynasty (RPPC) can be found in Section 1 of the Case Study.

RPPC is considering a proposal to either enter into a joint venture or purchase Myhotel's loyalty program.

- (a) (1 point) Describe how the liquidity risk embedded within this loyalty program is similar to a bank's liquidity risk.

- (b) (3 points)
 - (i) Identify two liquidity risk insulation devices that a bank uses to mitigate its liquidity risk.

 - (ii) Assess whether RPPC could adapt these two devices identified in part (i) to manage the liquidity risks embedded within the loyalty program. Justify your answer.

- (c) (3 points)
 - (i) Describe the purpose of each of the two compulsory tools outlined by Basel III in managing liquidity risks.

 - (ii) Identify one benefit and one cost to Myhotel of applying these tools identified in part (i) to its loyalty program. Justify your answer.

RPPC has obtained the following initial financial data from Myhotel:

Expected Loyalty Program Monthly Fee Income	Expected Loyalty Program Monthly Redemptions	Total Cash Value of Outstanding Program Points
\$700,000	\$400,000	\$10,000,000

6. Continued

Assuming Basel III was applicable to this loyalty program and the Basel III expected rate of cash outflow is 10%:

- (d) (3 points)
 - (i) Calculate the amount of high quality liquid assets required to obtain an acceptable Liquidity Coverage Ratio, assuming the cash value of outstanding program points is given the same treatment as less stable unsecured bank retail deposits.
 - (ii) Recommend three asset classes to obtain an acceptable Liquidity Coverage Ratio. Justify your answer.
- (e) (2 points) Assess whether such an adapted Basel III approach should be used to manage the loyalty program's liquidity risks. Justify your answer.

****END OF EXAMINATION****
Morning Session

USE THIS PAGE FOR YOUR SCRATCH WORK