

# CFE SDM Model Solutions

## Spring 2018

### 1. Learning Objectives:

2. The candidate will be able to identify and assess second-order risk factors, e.g. credit risk, liquidity risk, contagion risks and parameter risks that can have a major impact if not properly measured, monitored or managed.

### Learning Outcomes:

- (2a) Explain the various types of risks that can arise from specific business activities but are not directly specific to the business itself.
- (2c) Critique the applicability and relevance of measurement and management techniques for these second-order risks.

### Sources:

The xVA Challenge: Counterparty Credit Risk, Funding, Collateral and Capital, Gregory, Jon, 3rd Edition, Sections: Chapter 17.1.1-17.4.7 pages 377-382, Chapter 6 pages 67-70

SDM-165-16 CVA the wrong way 252-256

SDM-106-13 Chapters 5-6 of Credit Risk Measurement In and Out of the Financial Crisis, 3rd Edition 89-102

Case Study

### Commentary on Question:

*The intent of this question was to test the candidate's understanding of credit counterparty risk, and how poor mitigation of this risk could introduce different risk considerations.*

### Solution:

- (a) Calculate at time zero:
  - (i) the market value of the risk-free five-year zero-coupon bond.
  - (ii) the market implied credit spread for Darwin corporate debt.
  - (iii) the market implied dollar value of the credit risk for the Darwin corporate debt held by Murphy.

Show your work.

## 1. Continued

### **Commentary on Question:**

*Most candidates successfully completed part a) of the question. In part a) iii), some candidates provided the dollar value per \$100 face amount, partial marks were given in this case.*

- (i) Risk-free five year zero-coupon bond =  $100/(1.03)^5 = \$86.26$
  - (ii) Market implied credit spread =  $[(100/82)^{(1/5)} - 1] = 1.049\%$
  - (iii) Market implied dollar value of credit risk for Darwin corporate debt held by Murphy =  $(86.26 - 82) * (30,000,000) / 100 = \$1.278$  million
- (b) Explain how entering this CDS agreement changes Murphy's risk profile. Justify your answer.

### **Commentary on Question:**

*Most candidates mentioned the transfer of credit counterparty risk from one entity to another. Some candidates also mentioned the added operational risk as a result of the CDS arrangement.*

By entering this CDS with another counterparty, Murphy would replace the credit counterparty risk exposure to Darwin Life with another party's counterparty risk resulting from the CDS contract. This would somewhat diversify Murphy's counterparty exposure but would also increase operational risk due to the added settlement complexity introduced by the CDS arrangement.

Murphy should make sure that this CDS counterparty is unrelated to Darwin, otherwise the diversification effort may be ineffective and the addition of the second counterparty could introduce wrong way risk due to the underlying affiliation between the two.

- (c) Describe two reasons why the CDS agreement would have a different impact on Murphy's risk profile if the counterparty were Big Ben Bank.

### **Commentary on Question:**

*It was essential to understand the unwanted affiliation between Darwin and Big Ben Bank for this section of the question. Most candidates recognized the affiliation between Darwin and Big Ben, pointing out the resulting wrong way risk. Candidates who did not recognize this affiliation were not awarded any points.*

Big Ben Bank and Darwin Life are both owned by RPPC Dynasty Corporation. RPPC acquired Darwin Life following Big Ben's revised business strategy, which is to offer more holistic wealth management and financial planning services.

## 1. Continued

Through this initiative there may be material overlap of clients between Darwin Life and Big Ben Bank, which could create a situation where the experience of one company is heavily correlated with the experience of the other.

For instance, an increase in disintermediation at Darwin could create a liquidity crisis and potentially deteriorate Darwin's credit quality. In addition, this same trend could create an increase in loss of existing clientele for Big Ben, which could adversely impact its ability to deliver on its side of the CDS agreement.

Therefore, the strong business affiliation between Darwin and Big Ben Bank creates this potential for wrong way risk if the CDS counterparty is Big Ben. As the exposure of the CDS agreement increases in favor of Murphy, so does the risk of Big Ben defaulting on the agreement.

- (d) Recommend a risk mitigating feature that can be added to the CDS agreement to further improve Murphy's risk profile. Justify your recommendation.

**Commentary on Question:**

*Most candidates recommended collateral as a risk mitigating feature. Other recommendations received marks as well if justification was also provided.*

A risk mitigating feature to the CDS is to require collateral posting (either require an initial margin or a variation margin) for the CDS arrangement. The collateral amount should depend on the credit rating of the counterparty and whether there is any affiliation between the counterparty and Darwin.

Murphy should ensure that wrong way risk is minimized so that it can achieve the intended diversification by reducing the exposure limit to a single entity.

## 2. Learning Objectives:

1. The candidate will understand measures of corporate value and their uses in risk management.
3. The candidate will understand best practices for ERM processes and Capital Management and their use in setting a risk-return strategy in any industry.

### Learning Outcomes:

- (1b) Explain how economic capital and related concepts can be used as the building block of value measure in any industry.
- (1c) Evaluate various financial reporting metrics for use in corporate decision-making.
- (3b) Explain ERM principles and frameworks.
  - Evaluate a company's ERM processes in its ability to adapt to emerging issues and identify risk opportunities.
  - Critique the direction of new regulation and industry standards in risk governance.
  - Describe the components of a risk appetite statement. Design and develop a risk appetite statement and risk return strategy.

### Sources:

SDM-129-14 The Impact of Capital Structure on Economic Capital and Risk Adjusted Performance

Strategic Management- Corporate Governance

SDM-171-17 Five leadership Lessons from BP Oil Spill[HBR]

Risk appetite: Linkage with Strategic Planning

### Commentary on Question:

*Candidates were able to answer the question surrounding the incentives for executive. However, most candidates struggled with explaining risk capital for a non-financial company and how it can be used. Candidates that solely focused on safety as BJA's strategic objective did not receive full marks. Many candidates also failed to recommend a performance metric and how it ties to the CEO action items.*

### Solution:

- (a) Describe one goal and one corresponding challenge of implementing an incentive compensation plan for top-level managers.

### Commentary on Question:

*Most candidates did well on this part.*

## 2. Continued

One goal: Reward top-level managers for increasing the value of a firm in line with shareholder expectations.

One challenge: Mitigate exposure to short-run managerial manipulation.

- (b) Critique using earnings per share (EPS) as the sole basis for executive compensation.

**Commentary on Question:**

*Most candidates answered the question well. In order to get full marks, candidates need to recognize the short-term and volatile nature of EPS and justify why it may not be effective as the sole executive compensation basis.*

Earnings per share is maximized when expenses are minimized, thus reducing spending on necessary maintenance and dis-incentivizing long-term investment. Disasters may only impact EPS in one year.

In conclusion, because of the volatile and short term nature of EPS, setting it as the basis for sole executive compensation may cause executives to make decisions that maximize short term earnings such as not performing proper maintenance but significantly increasing long term risk exposures such as reputational loss.

- (c)
- (i) Describe risk capital for a non-financial company.
  - (ii) Describe how risk capital can be used by a non-financial company.

**Commentary on Question:**

*This part was answered poorly. In order to get full marks, candidates need to relate risk exposure to capital at risk in the context of non-financial companies and how it can be used. Most candidates struggled to explain how it can be used for decision making.*

- (i) Risk Capital is similar to the concept of Economic capital, in that it measures the financial capital that business owners are risking in pursuit of their business objectives. They must ensure its opportunity cost is priced into their service/product fee to ensure that the business is sustainable. It is simply an assessment of the excess between a normal or base or best estimate world and that of an extreme assumption set with plausible shocks inferred from historical data included.

## 2. Continued

- (ii) It can be used as a measure of an explicit risk margin that the product/service should take into consideration in their pricing structure. Since every business has contagion and parameter risks that often seem to arise at the wrong time, the business managers should hold Risk Capital for these occasions even though risk capital is not required for idiosyncratic risk.
- (d) Identify two of BJA's strategic initiatives that can reduce its risk capital. Justify your answer.

**Commentary on Question:**

*Most candidates were able to answer this question correctly. Any plausible strategy with justification that will improve the future cash flows were given credit. However, reinsurance is not a proper strategy since BJA is not an insurance company.*

As risk capital recognizes all potential future cashflow, all safety measures undertaken by BJA should be recognized. For example:

1. Spending on maintenance and pilot training reduce the chance of disasters such as plane crash, and in turn reduces capital requirement.
  2. Governance program with respect to maintenance activities (e.g., checklist to be signed off by manager, periodic onsite audits, etc.) can improve overall maintenance quality and reduce future repair costs and/or failures.
  3. Spending more durable planes with good safety features will reduce the chance of disasters and also extend the life of the planes and potentially lower future repair costs. This, in turn, will lower risk capital requirement.
- (e) Evaluate each of the actions (I to III) with respect to BJA's strategies, risk appetite including safety, and financial performance. Justify your answer.

**Commentary on Question:**

*Most candidates were able to evaluate each action against BJA's strategic plan. In order to receive full marks, candidates also need to justify the action items on how it fits the strategic strategies of BJA.*

- i. Improvement to safety by limiting exposure, but contravenes strategies of expansion and/or code-sharing. There is no impact on the profit margin, but it will require less capital, which means the return on capital should be higher.

## 2. Continued

- ii. There is only a 1-time cost to this measure with a modest reduction in capital. There are no obvious negative impacts on other strategies of BJA while having a positive impact on two key strategic items: image and safety.
  - iii. While there are obvious financial incentives, this does not truly align with BJA's other strategies (no changes to safety, little to no focus on services to the business community). This strategy could also divert the focus on business community.
- (f) Recommend one change to Volkswagen's executive compensation structure that might have prevented the scandal. Justify your answer.

**Commentary on Question:**

*Most candidates were not given full marks; they need to recognize that the key goal of Volkswagen was always sales. One change to the compensation structure should include criteria to take action against employee improper behaviors, such as manipulating results.*

Volkswagen had a goal of high sales volume. Executives were focused on making cars that had the appearance of appealing to what buyers wanted rather than actually making them to those specifications. Executives were also regularly accused of being ignorant of bad behavior within the company, ultimately resulting in a "rogue engineer" creating the device defeating software.

Executive compensation should have included as a criteria either: 1) metrics on reporting on and taking action against improper behavior within the company; or 2) a focus on meeting environmental standards, subject to third party results.

- (g)
- (i) Rank the three actions (I to III) in order of priority based on the evaluation in part (e). Justify your answer.
  - (ii) Recommend a single performance metric to be used in BJA's CEO compensation structure that best aligns with the highest priority action identified in part (i). Justify your answer.

**Commentary on Question:**

*Part (i) was answered well. Most candidates were able to justify their rankings based on question part (e). However, most candidates were unable to recommend performance metrics that incorporate safety, earnings and business volume, which were the key initiatives of BJA. Unreasonable safety metrics, such as the number of plane crashes, were not given credit.*

## 2. Continued

- (i) Based on the evaluation above, Action II best aligns with the all elements of BJA's strategic vision. Option I has a better impact on capital, but would compromise BJA's ability to expand routes and potentially service the business community. Option III simply grows the business: it does not truly align with improving service or safety.
  
- (ii) Incentive structure must set target levels for each of the following three items, without allocating any one heavier than the other.
  - a. Safety portion of risk capital per flight (needs to be normalized somehow as an absolute amount does not account for growth in business)
  - b. Earnings per share
  - c. Number of business travelers per flight (again, normalized)

### 3. Learning Objectives:

5. The candidate will explore how to evaluate new risk areas, innovations, new product designs and market disruptions in a sustainable and risk-aware manner.

#### Learning Outcomes:

- (5a) Critique financial models, assumptions and decisions including the impact of human behavior in decision-making, problem solving and innovation.
- (5c) Evaluate innovation and market disruption opportunities.

#### Sources:

Improving Decisions about Health, Wealth and Happiness - Ch 1

Improving Decisions about Health, Wealth and Happiness - Ch 3

Improving Decisions about Health, Wealth and Happiness - Ch 5

Case Study

#### Commentary on Question:

*Overall candidates performed poorly on this question. There was a general lack of understanding of the spotlight effect and demand risk. Candidates also had a difficult time identifying which choice architecture principles relate to which marketing tactics and would often times discuss app design and layout rather than actual marketing efforts.*

#### Solution:

- (a)
- (i) Identify a bias caused by the above approach to quantify expected sales. Justify your answer.
- (ii) Recommend a way to reduce the bias identified in part (i).

#### Commentary on Question:

*Most candidates were able to identify a reasonable bias. Some candidates lost points for their recommendation as their answers were too general and did not offer a concrete solution in reducing the bias.*

Anchoring:

Frenz's marketing team starts with some anchor that they already know in order to forecast future sales for a new smartphone app, that is, the actual sales figures over the last five years on Franz's own coffee brands.

Way to reduce bias:

Use a weighted average of Frenz's own sales figures and the industry data.

### 3. Continued

- (b)
- (i) Explain the spotlight effect.
  - (ii) Identify which one of the four groups above is most likely to be influenced by the spotlight effect. Justify your answer.

**Commentary on Question:**

*There were two main types of errors observed among candidates. One type of candidate did not understand the spotlight effect and failed to explain it and another type that explained it but did not apply it properly. Points were awarded for identifying other groups when candidates clearly defined their assumptions and provided a reasonable justification. It would be more ideal if candidates take information contained in the exam rather than make their own assumptions since this requires significant justification to receive points.*

A reason why people expend so much effort conforming to social norms and fashions is that they think that others are closely paying attention to what they are doing. That is the spotlight effect.

Group C is most likely to be influenced by the spotlight effect.

People in group C are not trying a new brand or a new technology on their own initiatives. Since they try it based on others' recommendations or a new perceived trend, group C tends to think that people who give them recommendations would closely pay attention to what they are doing.

- (c) Describe two features to include in the smartphone app design to exploit the spotlight effect. Justify your answer.

**Commentary on Question:**

*Candidates who understood the spotlight effect were able to identify app features to exploit it.*

App features that can exploit the spotlight effect are based on two of choice architecture principles: give feedback and incentives

Give Feedback

Well-designed systems tell people when they are doing well and when they are making mistakes, that is, when they are making a decision based on others' recommendations or a new trend.

### 3. Continued

After customers make their decisions on what brands they purchase, if a new smartphone app can show others' recommendations or the customer's purchase patterns, the customer feels more engaged and may purchase more as a result.

Incentives

The new app can offer a free coffee for every tenth coffee purchased. This is a financial incentive but exploits the spotlight effect in that the discount feels exclusive and tailored to each customer. .

- (d)
- (i) Assess whether or not the cross-selling feature will appeal to each of the four identified groups. Justify your answer.
  - (ii) Describe how each demand risk, as described in Section 4 Exhibit 2 of the Case Study, is impacted for each customer group.

**Commentary on Question:**

*Candidates performed extremely poor on this question. Most candidates failed to address the Group A customers who were not loyal to Frenz. Demand risk was both poorly understood and applied resulting in most candidates receiving low scores.*

Group A: If customers are loyal to Frenz's brands, cross-selling feature appeals to them because they already like Frenz's brands, they are more likely to buy coffee-related products with Frenz's brands.

Group A: If customers are not loyal to Frenz's brands, cross-selling feature will not appeal to them because they don't like Frenz's brands, they will not buy Frenz's coffee-related products.

Group B: Cross-selling feature will appeal to them because they try a new way or a new product quickly.

Group C: Cross-selling feature will appeal to them if cross-selling products can get good recommendations or become a new trend.

Group D: Cross-selling feature will appeal to them if cross-selling products can be picked up at a convenient location or delivered quickly otherwise, cross-selling feature would not be attractive.

### 3. Continued

Demand Risk:

Competition

For Group A, there would not be much impact because of the loyalty to Frenz or to others.

For Group B, there would not be much impact because competitors don't have a smartphone app.

For Group C, there would not be much impact because competitors don't have a smartphone app.

For Group D, there would not be much impact because customers consume based on convenience.

Customer Loyalty

For Group A, if they are loyal to Frenz, this would increase demand resulting in more sales and therefore increase earnings. If they are not loyal to Frenz, this would reduce demand, resulting in excess inventory and therefore reduce earnings.

For Group B, there would not be much impact because they will try a new brand or a new way.

For Group C, there would not be much impact because they try a new brand or a new technology based on others' recommendations or a new trend.

For Group D, there would not be much impact because customers consume based on convenience.

Adverse Economic Condition

For all the groups, this would reduce demand, resulting in excess inventory and therefore reduce earnings.

Negative Publicity

For all the groups with the exception of Group A if they are not loyal to Frenz, there would be much impact because of customer disappointment. Customers not loyal to Frenz would be unaffected.

### 3. Continued

- (e) Recommend three marketing tactics that could be used to announce this new app feature. Justify your answer using choice architecture principles.

**Commentary on Question:**

*Candidates were often able to identify two marketing tactics but had difficulty with the third. A common incorrect response was to make the app default in a certain way. This was incorrect because the question asked for marketing tactics and not app design.*

Highlight instances of all the things other people bought on the app. This exploits herd mentality; people will give into peer pressure or just accept the popular choice.

Offer a discount on first purchase on the cross-selling platform. This is using an incentive to elicit the desired action.

Market the ease of use (e.g., one touch payment, integration with apple pay, etc.). This has elements of default options in that it overcomes inertia by simplifying the traditional purchasing process.

#### 4. Learning Objectives:

3. The candidate will understand best practices for ERM processes and Capital Management and their use in setting a risk-return strategy in any industry.

#### Learning Outcomes:

- (3b) Explain ERM principles and frameworks.
  - Evaluate a company's ERM processes in its ability to adapt to emerging issues and identify risk opportunities.
  - Critique the direction of new regulation and industry standards in risk governance.
  - Describe the components of a risk appetite statement. Design and develop a risk appetite statement and risk return strategy.

#### Sources:

The Failure of Risk Management, Why It's Broken and How to fix it, 2009, Hubbard, D, 2009 Chapter 6-12, pages 122-130, 168-171, 201-213, 218, 250-254

SDM-151-16 Risk Appetite Framework - How to spot the genuine article, pages 2-14

#### Commentary on Question:

*Commentary listed underneath question component.*

#### Solution:

- (a)
  - (i) Critique BJA's reliance on its subject matter expert-based scoring method for risk assessment.
  - (ii) Determine which mechanic's estimations (A or B) require more calibration based on their Brier score. Show your work.

#### Commentary on Question:

*For the most part, candidates did very well on this portion of the question with many candidates receiving full marks.*

- (i) Some issues with relying on subject matter expert-based scoring methods include:
  - Scoring methods do not consider the issue about bias perception of risks and uncertainties/subjective judgment of uncertainties. Experts systematically apply too high a probability of being correct.
  - Qualitative descriptions of likelihood are understood and used very differently by different people (even when steps are taken to standardize meanings)
  - Scoring schemes themselves add their own sources of error as a consequence of their structure.
  - False negatives result in large issues in customer satisfaction, while false positives will result in increased costs.

## 4. Continued

- (ii) Item Brier score for each result =  $(P(T)-T)^2$ , where  $T=1$  if true, 0 if false

Plane	Probability for A	Probability for B	Occurrence	Brier Score A	Brier Score B
1	0.5	0.8	Yes	0.25	0.04
2	0.7	0.8	Yes	0.09	0.04
3	0.1	0.6	No	0.01	0.36
4	0.9	0.7	Yes	0.01	0.09
Average				<b>0.09</b>	<b>0.1325</b>

Mechanic B has a higher average Brier score and needs more calibration for estimates.

- (b)
- (i) Describe one pro and one con of using Monte Carlo simulations for risk modeling.
- (ii) Determine the cost of repair based on information provided above. Show your work.

### Commentary on Question:

*Part (b) was also very well answered by the majority of candidates. Some candidates were not sure how to calculate results of a Monte Carlo scenario and as a result lost points.*

- (i) **Pros**
- Can better calculate percentiles and tail risks
  - Can reduce unconscious bias
- Cons**
- In the real world, there are lots of subjective estimates, but little to no calibration of probabilities
  - Very few models compare actual results to original forecasts and revise the model
  - Most models use historic data as is, without additional measurements being taken to reduce model uncertainty
  - Increase in computing cost

## 4. Continued

- (ii) For a medium severity issue, uniform distribution cumulative distribution functions are used to determine the total time and cost.

**Repair time**

$$F(0.975) = 30 + 0.975*(150-30) \\ = 147 \text{ (or 2.45 hours)}$$

**Cost per hour**

$$F(0.34) = 20 + 0.34*(100-20) \\ = 47.2$$

$$\text{Total Cost} = (\text{Repair time (minutes)} / 60) * \text{Cost per hour} \\ = \underline{115.64}$$

- (c)
- (i) Compare and contrast structural models versus parametric models.
- (ii) Identify three specific characteristics of BJA that should be considered in the structural model. Justify your answer.
- (iii) Recommend a method to validate the structural model. Justify your answer.

**Commentary on Question:**

*Many candidates lost points on this part of the question by listing general considerations for a structural model instead of using BJA-specific characteristics.*

- (i) **Similarities** - both model types predict a response and provide insights based on available data, incorporating any or all components desired.  
**Differences** - Structural models are more flexible where each component can have its own function and correlation (where parametric models use a defining overarching function to model the components)
- (ii) **• Union status of workforce** - Unionized workforce will affect the cost and effectiveness of repairs.  
**• Company expense allocations/cuts to training programs** - More training, while increasing the overhead cost, may reduce time and cost of repairs.  
**• Age of planes** - Older planes may be costlier to repair. Because of the current expertise with existing planes, it may take less time for repairs in the near future when compared with a refurbished fleet.  
**• Plane Type** - majority are X730 model - Certain plane types may be more costly/complicated and time consuming than other plane types.  
**• Number of different plane types in the fleet** - larger variety of planes results in slower repairs. With a fleet with only one model, less varied expertise is needed and all parts can more readily be available.

## 4. Continued

- **Known incidence of defects of engine parts** - BJA uses planes from Xolar and Skylite Aircraft - any known engine defects from these companies would impact repair costs, e.g. if a certain engine has higher incidence rate of failing.
- **Historic repairs for each plane and for similar planes** - There should be a strong correlation between similar planes; this can lead to better initial predictions for the cost and repair type/time.
- **Potential Inflation of parts due to limited number of suppliers** - Xolar or Skylite only - BJA uses only two suppliers predominately and so the parts may not be widely available and cost of replacements may not be easily contained but depend on the suppliers' pricing. The more limited the source of suppliers, the likelihood of higher replacement costs increases.

(iii) A structural model easier to validate where each component can be modeled individually and each forecast can be validated against reality. Correlations appear as functions of how the modeler describes the way the components interact.  
In order to validate each forecast, it is important to calibrate against real data and back-test using historic data.

(d)

- (i) Describe characteristics of an appropriate risk appetite statement BJA could use concerning delays.
- (ii) Draft an appropriate risk appetite statement concerning delays.
- (iii) Recommend an appropriate risk appetite upper trigger for the statement provided in part (ii). Justify your answer.

### **Commentary on Question:**

*Very few candidates were able to score full marks for this question, where many were unable to determine realistic levels for BJA's risk statements or justify their choices. All reasonable statements received marks.*

- (i) Blue Jay Air's strategic vision is to be the most customer-oriented airline company in the world, with one of the three important values being punctuality, so the risk tolerance statement should influence BJA's decisions to focus effort on reducing delays.  
Since planes can often make up small delays while in the air, customers can tolerate shorter delays. An appropriate statement could accept a small tolerance for departure time and focus explicitly on those delays that are within BJA's control.

## 4. Continued

- (ii) Limit risk of greater than 10% of fleet to have 30-minute or longer delay due to mechanical issues to 0.5%.
- (iii) With regards to punctuality, Air Canada has the worst record, with 60.68% of flights being on time, and Japan Airlines has the best record at 90%. When developing an upper risk trigger, the company would have to balance reducing the specified risk, while not causing undue strain on shareholder value.  
In this case, an appropriate risk upper trigger would not increase expenses to unrealistic levels.  
Example Upper Trigger statement: Limit risk of greater than 10% of fleet to have 30 minute or longer delay due to mechanical issues to 2.5%
- (e) Compare and contrast senior management's strategies.

With regards to Strategy A,

Replacing or refurbishing the fleet would introduce a large cost, increasing liquidity risk due to the increased capital required. The strategy would be a benefit to customer satisfaction, but would potentially have a negative short-term impact on shareholder earnings.

In the long term, this would fulfill BJA's goal of addressing customer satisfaction and the announcement of this initiative could create goodwill for the company.

With regards to Strategy B,

Retiring routes that are a greater cause of delay would not introduce as much liquidity risk as Strategy A and would most likely have a much lower cost.

This may, however, negatively affect customer satisfaction, as these retired routes may be those that the existing client base has come to rely on

In addition, they may be higher-volume routes; if Blue Jay Air stopped flying these routes, future profit could take a significant hit.

In the end, costs would be reduced and delays would be reduced, but this strategy would not address the goal of increasing customer satisfaction.

Strategy B would have a negative impact lasting longer than Strategy A and the impact result in permanent damage to the company's client base.

If BJA can afford to take on the additional the liquidity risk, Strategy A is a better alternative than Strategy B in addressing BJA's goals.

## 5. Learning Objectives:

4. The candidate will understand the impacts of organization cultures, competition, trends, customer experience, communication and business strategies on corporate finance and ERM decision making.

### Learning Outcomes:

- (4a) Apply human behavior factors to evaluate and recommend corporate finance and ERM decisions.

### Sources:

Organizational Behavior: A Strategic Approach, Hitt, Michael, Miller, C. Chet, and Colella, Adrienne, John Wiley & Sons, 4th Edition, 2015 Ch. 12, Conflict, Negotiation, Power and Politics, pages 376-405

SDM -176-18 Hoaxwagen

### Commentary on Question:

*This question tests the candidates on conflict identification & management, uses of individual bases of powers, and negotiation tactics. Candidates generally performed moderately well on this question.*

### Solution:

- (a)
  - (i) Define each type of conflict (C1-C3).
  - (ii) Determine whether each type of conflict (C1-C3) is Functional or Dysfunctional. Justify your response.
  - (iii) Identify which type of conflict (C1-C3) corresponds to each of the curves (X, Y, and Z) given in the graph below. Justify your response.

### Commentary on Question:

*Candidates performed very well on this initial question, and many received full points.*

(i)  
C1 Personal conflict – Conflict that arises out of personal differences between people, such as differing values, personal goals, and personalities.

C2 Substantive conflict – Conflict that involves differing opinions over work content, tasks, and task goals.

C3 Procedural conflict – Conflict that arises over how work should be completed.

## 5. Continued

(ii)

C1 Personal Conflict - **Dysfunctional** because the conflict interferes with performance as this form of conflict creates mistrust, misunderstanding, suspicion and reduces goodwill.

C2 Substantive conflict – **Functional** because the conflict could have beneficial results for both the organization and the individual if managed correctly. Moderate level can actually increase performance. Even higher levels might lead to creative, positive outcomes if collaborative problem solving is emphasized.

C3 Procedural conflict – **Dysfunctional** because this conflict, if unresolved, has been found to negatively affect performance. If individual cannot decide who should be responsible for completing a task or how it should be done, there is little chance that they will accomplish their goals or even complete the project.

(iii)

C1 Personal Conflict – Y

C2 Substantive Conflict – X

C3 Procedural Conflict – Z

Both personal and procedural conflicts tend to be dysfunctional which would lower task performance; as conflict escalates, performance is negatively affected.

If managed correctly, moderate levels of substantive conflict can be functional and actually increase performance which can result in collaborative problem solving.

(b)

(i) Evaluate whether each type of conflict (C1-C3) is demonstrated within Volkswagen's culture.

(ii) Identify two bases of individual power (I-V) demonstrated by Volkswagen's leadership.

### **Commentary on Question:**

*Many candidates performed moderately well on this question. Some candidates struggled to connect the reading with the type of conflicts identified in the previous question for part (i). To receive full credits on evaluating the conflicts, candidates needed to make reference to circumstances described in the reading to properly evaluate the conflicts. Quotations to the reading were not required to score full points.*

## 5. Continued

(i)

Personal conflict was exhibited under VW's leadership during the numerous infighting in the early years, resulting in overspending:

*"Piëch became an engineer and joined Porsche in 1963. He squabbled constantly with his cousins, not least when he risked the company's future by overspending to complete the 917 (which became Porsche's most successful race car). Years of infighting drove the family to remove its members from company management."* - quoted in the article.

Substantive conflict was exhibited under VW's leadership when the work content fell short of expectations:

*"VW is driven by a ruthless, overweening culture. Under Ferdinand Piëch and his successors the company was run like an empire, with overwhelming control vested in a few hands, marked by a high-octane mix of ambition and arrogance - and micromanagement - all set against a volatile backdrop of epic family power plays, liaisons, and blood feuds. It's a culture that mandated success at all costs."* - quoted in the article.

Procedural conflict was exhibited under VW's leadership, specifically under Winterkorn, during the micromanagement inspections:

*"Winterkorn the perfectionist master of detail... [Winterkorn] publicly dressed down his juniors at an auto salon for failing to build a steering column that could be adjusted as smoothly as a Hyundai's. He was known for carrying a micrometer to check the minutest measurements of cars."* - quoted in the article.

(ii)

Two bases of power that could be exhibited under VW leadership include: **legitimate power** and **coercive power**.

CEO Ferdinand Piëch & Winterkorn held **legitimate power**, or formal authority given:

*"[Piëch] infused VW with an ambition and drive that made most of its political heft, presiding over a culture, that was, if not above the law, then not above stretching it, by many accounts... VW owns its scale and its culture to Piëch - who was more or less born into Volkswagen."* - quoted in the article

Winterkorn became CEO of VW which holds formal authority - *"... Winterkorn was known for vetoing a particular selection if he detected the slightest imperfection."* - quoted in the article

## 5. Continued

Both Piëch & Winterkorn held **coercive power** in their ability to punish people

*"In November 2006, CEO Pischetsrieder was forced out by Chairman Piëch, under pressure from the Betriebsrat in November 2006. (The CEO had tried to lengthen the work week without full compensation and lost the ensuing battle.)"* - quoted in the article

*"... Winterkorn might have been a notch less imperious than the chairman, but he still displayed an almost theatrical officiousness: He publicly dressed down his juniors at an auto salon for failing to build a steering column that could be adjusted as smoothly as a Hyundai's."* - quoted in the article

- (c) Identify which point (A-E) on the graph above would best represent Volkswagen's culture. Justify your answer based on the "*Hoaxwagen*" reading.

### **Commentary on Question:**

*In general, candidates performed relatively poorly on this question.*

*Many candidates incorrectly identified either procedural or personal conflict curves as the representative conflict existing in VW's culture. However, the mandate of the company was more focused on succeeding in the auto industry where senior leadership held a differing of opinions on how to achieve this.*

*Consideration of what type of conflict was most prevalent, degree of conflict, and level of task performance was core to this question. In order to receive full points for this question, candidates needed to provide justification to support their conclusions. Quotations to the reading were not required to score full points.*

First, determine the type of conflict inherent. – **Substantive Curve**

As described in the reading, the management under VW was aimed more so at the work content and task goals rather than on the personal values or procedural methods. An example of this is when Winterkorn held a differing of opinions on how to increase sales of cars with the former VW chief in the United States.

Next determine the relative degree of conflict – **Low Degree of Conflict**

Winterkorn & Piëche were both perceived to hold legitimate/authoritative and coercive powers in their management styles. The workers including the executives held a certain degree of fear to present poor results to Winterkorn. As a result, a crisis occurred in which US emissions test results were determined to be the subject of fraudulent behavior.

## 5. Continued

*“Instead of telling management that they couldn’t meet the parameters, the decision was taken to manipulate. No one had the courage to admit failure.”*

This led to Winterkorn resigning and VW requiring a change in the corporate culture - problems shouldn't be hidden and should be openly communicated.

*“The board also promised to establish “a new mind-set” at the company, with “more capacity for criticism”—seemingly conceding there was something poisonous about the culture Winterkorn presided over.”*

As employees were afraid of management, conflict was largely avoided - implying that the conflict was at a lower degree.

Lastly, task performance can be referred to VW's company growth & success or VW's fall from the scandal revelation.

Depending on the candidate's view, two justifications could be provided.

In the case that task performance were to be viewed as the VW's fall from the scandal revelation (i.e. **Low Task Performance**):

**Point D** would best describe the conflict relationship within the VW culture as the scandal would lead to fines from litigation (theoretically up to \$45 billion), a possible buy-back required of all affected cars that cannot be "fixed", and horrific reputational damages thereafter.

In the case that task performance were to be viewed as VW's company success/branding:

**Point B** would best describes the conflict relationship within the VW culture. Despite the challenging auto industry environment, VW was able to rapidly grow (i.e. **High Task Performance**):

*“VW grew rapidly during [Winterkorn's] tenure, surpassing Ford as No. 3 in global sales in 2008 and leapfrogging General Motors into second place in 2014. In the first half of last year, VW briefly edged Toyota for the top spot. Between 2007 and 2014, Winterkorn more than doubled the group’s operating profits and dividends. Revenues hit 200 billion euros for the first time in 2014.”*

## 5. Continued

- (d) Identify which base of individual power (I-V) Jack Tavares exhibits in relation to the Production Expansion Committee. Justify your response.

**Commentary on Question:**

*Many candidates performed well on this question and received full points. Some candidates lost points when they provided a base of power that Jack held not in relation to the Production Expansion Committee.*

In relation to the Production Expansion Committee, Jack Tavares exhibits **referent power**.

Jack Tavares is the Chief Risk Officer/an executive of BJT and has successfully & smoothly facilitated the purchases of the two in-scope manufacturing plants: *"The other team members have shown no real resistance to [Jack], because they have felt great and sincere respect for him, and they credit him with making the two early plant purchases successful."*

- (e) For each of the four possible conflict outcomes (O1 to O4):
- (i) Describe an approach that Jack Tavares could take that would likely result in the respective conflict outcome. Justify your response.
  - (ii) Identify the base of individual power (I -V) demonstrated by Jack Tavares under each approach described in part (i).

**Commentary on Question:**

*In general, candidates performed moderately well on this question. Candidates primarily lost points when a clear approach was not provided to achieve the conflict outcome.*

O1: Lose – Lose

Jack Tavares could exert **coercive power** to threaten/fire workers if they are unable to meet production targets.

Workers would either be forced to join unions to protect their rights or leave the company. Production goals would not be met, and workers would not be satisfied.

O2: Win – Lose

Jack Tavares could exert **coercive power** to threaten/punish workers by reducing breaks or increasing work hours if production targets fall short.

Production goals could be met, but at the expense of the workers' satisfaction.

## 5. Continued

### O3: Compromise

Jack Tavares could exert **legitimate power**, or formal authority to direct specifics and optimize or lessen key production targets and milestone in order to balance the expectations of Senior Management and the satisfaction of workers (i.e. appropriately paid)

Production goals may be met or lessened, while the compromise can help alleviate overcapacity or workload of workers.

### O4: Win – Win

Jack Tavares could exert **reward power** to incentivize workers for meeting production milestones.

These rewards could be in the form of cash-bonuses or non-monetary benefits such as flex time or vacation hours. In turn, the increased output for meeting the production milestones would generate more profit for BJT.

Therefore, a collaborative approach can be taken to meet both production goal and increase worker satisfaction/compensation.

- (f) Recommend a strategy using integrative bargaining tactics that senior management can use to maximize the likelihood of a Win-Win conflict outcome. Justify your response.

### **Commentary on Question:**

*Candidates generally performed poorly on this question and were unable to fully demonstrate their understanding of integrative bargaining tactics. Points were awarded to candidates who provided clear explanations and examples of integrative bargaining tactics in their recommended strategy.*

An integrative bargaining strategy that Senior Management can use could draw from reward-power:

Senior management can implement a collaborative rewards program that will incentivize workers for meeting production milestones by clearly outlining incentives that can be provided to improve the workers satisfaction/pay level, and the working conditions. (1)

Due to budgetary concerns, incentives could be limited to future benefits perhaps in the form of flex time or vacation hours. However, increases in productivity could also be accompanied by one-time cash bonuses, thus increasing 'pay level' or worker satisfaction. (2)

## **5. Continued**

Management would win because productivity (and consequently profit/return) would be expected to increase, which would in turn, cover the higher benefits/compensation provided to the workers. (3)

Tactics included for a win-win situation:

- 1) Show the workers that their concerns are important to Senior Management.
- 2) Show the workers that the target outcomes of both sides are too important to compromise.
- 3) Show the workers that a win-win outcome is a possibility.

## 6. Learning Objectives:

4. The candidate will understand the impacts of organization cultures, competition, trends, customer experience, communication and business strategies on corporate finance and ERM decision making.

### Learning Outcomes:

- (4b) Apply business school management concepts to evaluate and recommend corporate finance and ERM decisions.
- (4c) Evaluate how consideration of Intangible Factors improves on the Actuarial Approach used in Business Management (and vice versa).

### Sources:

SDM-177-18 Five Forces framework by Porter

Case Study

### Commentary on Question:

*The goal of this question is for the candidate to demonstrate their understanding of how the target market shapes the strategy and competitive dynamics of a firm. The candidate should be able to articulate the fact that BJA and ACE have two very distinct target markets: business travelers and budget travelers, respectively. These two groups seek very different services from an airline, and as such hold different levels of bargaining power against the airlines.*

*Overall, nearly all candidates are able to identify business travelers as the target market of BJA. Most are able to identify what business travelers look for in terms of travel service (e.g. punctuality, safety, luxury). However, not many candidates demonstrate that they understand high differentiation leads to low customer bargaining power. Furthermore, only a handful of candidates demonstrated understanding of barriers to entry into the budget travel market and how those barriers differ between BJA and ACE.*

### Solution:

- (a) Assess whether or not BJA's target customer group would be well-served by Ace. Justify your response.

### Commentary on Question:

*Most candidates answer this part well*

"Business travelers" is BJA's target customer group. The case suggests 55% of BJA's customers travel for business reasons and the balanced Scorecard shows the target at 85%. Time is essential to business travelers. Ace would unlikely serve BJA's target group well because of the inconvenience of its operating airport locations and the higher chance of delays for flights.

## 6. Continued

- (b) Contrast the bargaining power of customers between Ace and BJA for each of the three factors (A-C) identified above. Justify your response.

**Commentary on Question:**

*This question was done relatively well overall. Marks were typically lost when candidates:*

- 1. Reversed the meaning of “strong” vs “weak” customer bargaining power.*
- 2. Did not understand that low switching costs, low differentiation, and high price sensitivity all lead to strong customer bargaining power*

**Price sensitivity:** Ace and BJA customers are different: for Ace, customers are very price sensitive which is why Ace has to minimize its base cost and charge certain features on a fee-for-service basis. For BJA, their target business traveler group fly on corporate expense and thus, generally less price sensitive. In fact, BJA is planning to purchase larger planes with updated features and expanded business class, enhance its booking systems, renovate business lounges and implement extra services under its loyalty card program. These extra enhancements are to maintain and grow its current client base, but will increase prices. Thus, we can conclude that BJA's customers are less price sensitive.

**Product differentiation:** Ace does not offer a differentiated service. It doesn't seem to emphasize safety as it hires less experienced, non-unionized flight crews, and maximizes the number of travelers by minimizing leg room. On the other hand, BJA wants to rebrand itself through product differentiation. It emphasizes and wants to become the most customer-oriented airline company in the world with comfort, punctuality and safety as the company's virtues. Thus it has upgraded its planes, renovate its business lounges and improves safety by hiring top-rated pilots.

Ace competes on costs rather than services and so there are lower barriers for customers to switch to new provider. For BJA, customers have higher switching costs due to its loyalty program and better branding and reliability.

- (c) Assess whether BJA could adopt each of the five cost reduction actions (I-V) used by Ace, without compromising BJA's existing strategy. Justify your response.

**Commentary on Question:**

*Most candidates did well on this question. Most understood that BJA's target business travelers value safety, comfort, and punctuality, and thus use this fact as guidance on determining the value of these tactics. However, many lost partial marks for not understanding that tighter scheduling and less standby planes mean higher risk of delays.*

## 6. Continued

Action I can be implemented because it lowers cost without risking customer loyalty.

Action II should not be implemented because tighter scheduling creates domino effect once a flight is delayed. For business travelers, punctuality is key.

Action III should not be implemented because having standby planes alleviate the risk of delays. Again, business travelers value punctuality.

Action IV should not be implemented because business travelers would opt for more comfortable options when they can expense their tickets.

Action V should not be implemented because having less experienced flight crew increases safety risks. Business travelers value a brand with excellent safety record and are willing to pay more for it.

- (d) Explain why BJA may be less impacted by barriers to entry into the ultra-low-cost segment than a new start-up airline.

### **Commentary on Question:**

*A large number of candidates lost marks for not interpreting the question correctly. Otherwise, the ones who did interpret the question correctly mostly demonstrate they understand that BJA has advantages (e.g. existing equipment, expertise, etc.) over new startup airlines in entering the budget travelling market.*

A new startup airline has to build its brand and clientele from ground up. Competing on cost basis would mean low margin. In addition, the airline industry requires significant high level of investment and expertise and so harder for new organizations to break into and challenge the existing "established" providers. Airlines also have significant overhead and regulatory hurdles to overcome. On the other hand, BJA already has a core business infrastructure and has a certain well-defined market segment which is less price sensitive, thus higher margin. Therefore, BJA can initially use the existing segment to cross-subsidize the entry into another market segment. In addition, there could be some economy of scale that can be achieved with broadening its target market base. Thus in conclusion, BJA is better positioned to enter a new segment than startup.

## 7. Learning Objectives:

1. The candidate will understand measures of corporate value and their uses in risk management.

### Learning Outcomes:

- (1a) Assess accounting concepts used in the production of financial statements and recommend the appropriate measure to evaluate corporate value.
- (1c) Evaluate various financial reporting metrics for use in corporate decision-making.

### Sources:

SDM-100-13 Managerial Accounting for CERAs and FSAs, 2013 pages 6-11, 45-46

### Commentary on Question:

*This question tested the candidates' understanding of fundamental financial accounting concepts (revenues and expenses), as well as tools other than the common financial statements (balance sheet and income statement) which a manager can use to make important operational decisions. Overall, candidates who commanded strong understanding of these financial accounting concepts as well as provided structured responses tailored to BJA's operational objectives and hurdles performed well on this question. Candidates who gave generalized responses did not receive the maximum number of points for this question.*

### Solution:

- (a) List two purposes of a cash flow statement.

#### Commentary on Question:

*Candidates generally received only half credit on this question. No credit was awarded for low effort responses such as tracking cash inflows and outflows.*

Any two of the following would be awarded full credit.

- Provide information on a company's liquidity and solvency and its ability to change cash flows in future circumstances.
  - Provide additional information for evaluating changes in assets, liabilities and equity.
  - Improve the comparability of different companies' operating performance by eliminating the effects of different accounting methods.
  - Indicate the amount, timing and probability of future cash flows.
- (b) Identify one key income statement difference between an airline company and a manufacturing company.

#### Commentary on Question:

*Many candidates received full credit for this question.*

## 7. Continued

An airline company is a service company which accounts for the costs of service differently from the costs of goods sold (COGS) by a manufacturing company. An airline company does not have inventory costs.

- (c)
- (i) Calculate the impact on Income (loss) before income taxes of the new aircraft for each year assuming the purchase is entirely financed with debt. Show your work.
  - (ii) Calculate the Return on Equity in 2015 assuming BJA had purchased the aircraft entirely with debt financing. Show your work.
  - (iii) Describe two reasons why the results in part (ii) may mislead the decision to proceed with the purchase above.

### Commentary on Question:

*Many candidates who did not have a strong understanding of fundamental financial accounting concepts performed poorly on this question. Candidates were required to identify which costs were considered expenses and which were not. Interest and depreciation are considered expenses, while the loan repayment and the residual value of the aircraft are not.*

*Furthermore, almost all candidates either could not recall the correct formula for Return on Equity, or skipped the calculation entirely since the 2015 net income is zero. Lastly, candidates were awarded grading points for part (iii) if their conclusions made sense given their answer for part (ii), even if that answer was incorrect. However, many candidates provided answers to part (iii) which were not specific to BJA and did not receive full credit.*

- (i)  
Interest expense of  $200 \times 5\% = \$10\text{m}$  per year for 10 years.  
Amortization expense of  $(200 - 80) / 8 = \$15\text{m}$  per year for 8 years.

Year	15	16	17	18	19	20	21	22	23	24
Rev.	30	30	35	40	40	40	40	40	40	40
Exp.	5	5	5	7	8	8	10	10	10	12
Interest	10	10	10	10	10	10	10	10	10	10
Amort.	15	15	15	15	15	15	15	15		
<b>Total</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>8</b>	<b>7</b>	<b>7</b>	<b>5</b>	<b>5</b>	<b>20</b>	<b>18</b>

- (ii)  
Return on Equity = Net Operating Income / Average Common Equity

## 7. Continued

From the case study, 2015 NOI before aircraft investment = \$150m  
NOI after aircraft investment =  $150 + 30 - 5 - 15$  (amortization) = \$160m.  
*Note that interest expense is not included as operating income.*

Average equity from the case study = Average (-\$238m, -\$153m) = -\$196m

ROE =  $\$160\text{m} / -\$196\text{m} = -82\%$

(iii)

Any two of the following would be rewarded full credit.

- Since the ROE is negative, the metric is inherently misleading and should not be used as an accurate value measure. It makes any movements directionally inconsistent.
- The ROE does not factor in the additional long-term debt required, which runs counter to BJA's current course of retiring long-term debt.
- The ROE does not factor in additional interest expenses to support this purchase, which runs counter to BJA's cost-cutting goal.
- It does not account for BJA's current debt-equity ratio, which is negative and suggests that BJA should not acquire more debt.

- (d) Explain how BJA should use the above three measures to evaluate the aircraft purchase.

### **Commentary on Question:**

*Candidates generally performed poorly on the question. Many responses were too generalized and did not refer to BJA's objectives or the case study at all. These responses could only be rewarded with half the grading points.*

Impact on cash flow statement:

There have been high proceeds from borrowings for the past three years. BJA must consider whether or not an additional \$200m will fit its debt appetite and debt profile. Furthermore, it has to determine whether BJA has the cash flow to support increased interest payments, or enough liquidity to repay the \$200m at the end of 10 years.

Payback period:

The payback period focuses on short-term profitability, and may not be the best metric when evaluating airplane purchases. BJA also has to make sure that payback period is less than 10 years, which is one of RPPC's KPIs.

## 7. Continued

Actuarial approach:

Instead of using the best estimate revenue/expense projection, BJA can use probability-weighted cashflows to evaluate the purchase. Different CF projections for different scenarios should be forecast, such as: loyalty program stronger than expected, higher fuel costs, greater competition etc. Risk management can then assign a probability to each scenario.

## 8. Learning Objectives:

2. The candidate will be able to identify and assess second-order risk factors, e.g. credit risk, liquidity risk, contagion risks and parameter risks that can have a major impact if not properly measured, monitored or managed.

### Learning Outcomes:

- (2a) Explain the various types of risks that can arise from specific business activities but are not directly specific to the business itself.
- (2c) Critique the applicability and relevance of measurement and management techniques for these second-order risks.

### Sources:

SDM-149-16 BIS Note on Liquidity Risk Measurement, standards and monitoring, pages 3,5-11,19

SDM-175-18 Home and Heartache

### Commentary on Question:

*In general the candidates did quite well on this question.*

### Solution:

- (a) Describe two main differences between Liquidity Coverage Ratio and Net Stable Funding Ratio.

#### Commentary on Question:

*For part (a) the majority of the candidates got part marks for mentioning some of the features of Liquidity Coverage Ratio (30 day focus, HQLA, unencumbered assets etc.) and Net Stable Funding Ratio (>1 year, includes liabilities, etc.)*

#### Liquidity Coverage Ratio

- Assets should be high quality, capable of being converted to cash under and acute liquidity stress
- Metric is Stock of high quality liquid asset/net cash outflows over a 30 day period  $\geq 100\%$

#### Net Stable Funding Ratio

- Focus is on medium to long term funding over 1 year horizon.
- Incorporates liabilities; available/Required funding  $\geq 100\%$

## 8. Continued

- (b) Assess whether these assets would be considered High Quality Liquid Assets for each of the categories of assets (with the exception of “other assets”). Justify your answer.

**Commentary on Question:**

*Similar to (a) although a few candidates made assertions without defending these appropriately.*

Cash and balances at central banks qualify as being capable of conversion to cash  
Loans – many would probably not meet the criteria because of certainty of valuation criterion and/or questionable quality and liquidity.

Derivatives – most would probably not meet the criteria as may not be able to be converted to cash at short notice.

Financial assets & Investment securities – qualification is based on a developed market, credit risk, credit risk.

- (c) Explain whether Big Ben meets the BIS Liquidity Coverage Ratio as of YE2015 based on the information provided below. Justify your answer.

Net Cash Outflows over	\$
1 day	1,270M
30 days	3,810M
60 days	7,000M
120 days	10,000M
364 days	14,000M

**Commentary on Question:**

*Almost all candidates got most of the points in (c) although a minority didn't get the right denominator (3810).*

$$\text{LCR} = 4736 (\text{Cash at central banks}) / 3810 (\text{30-day Net Cash Outflows}) > 1$$

Therefore, yes, Big Ben meets the required LCR.

- (d)
- (i) Describe the cause of the liquidity crisis faced by Home Capital Group (HCG).
  - (ii) Identify the action taken by HCG to meet its liquidity needs.
  - (iii) Describe one benefit and one cost of HCG's action.

## 8. Continued

### **Commentary on Question:**

*In (d) the majority of the points were in the iii and disappointingly most candidates didn't point out the obvious fact that the bailout allowed the company to survive (benefit) but at a high price (cost).*

- (i) The liquidity risk of Home Capital Group (HCG) arose from both the liability-side and the asset-side. On the liability side, the depositors of HCG demanded cash by withdrawing deposits. As a result, HCG's high interest saving deposit balance had dropped to 500 million from 2 billion. HCG needed to borrow additional funds to meet the withdrawal. On the asset side, HCG is providing mortgage to customers which needs it to fund the loan on the balance sheet immediately.
  - (ii) HCG used purchased liquidity management and pulled a \$2 billion line of credit.
  - (iii) Benefit: Meet liquidity needs and keep the HCG business running.  
Cost: High cost. 2-billion line of credit from HOOPP didn't come cheap as HCG.
- (e) Assess whether the lessons learnt from HCG are relevant to Big Ben. Justify your answer.

### **Commentary on Question:**

*/Results here were quite scattered. Some candidates spent too much time identifying the problems with HCG without linking them to Big Ben. More credit was given for shorter answers where there was a clear link between the problems at HCG and lessons for Big Ben to draw.*

The key problem for the firm was poor governance leading to reputation concern including improper documentation and inaptitude of senior management. Big Ben has better governance, without a single dominant personality.

HCG was focused on mortgage lending in Canada, Big Ben is more diversified with multiple asset classes.

Big Ben has a strong parent company that may avoid needing to purchase liquidity.

## 9. Learning Objectives:

4. The candidate will understand the impacts of organization cultures, competition, trends, customer experience, communication and business strategies on corporate finance and ERM decision making.
5. The candidate will explore how to evaluate new risk areas, innovations, new product designs and market disruptions in a sustainable and risk-aware manner.

### Learning Outcomes:

- (4a) Apply human behavior factors to evaluate and recommend corporate finance and ERM decisions.
- (4b) Apply business school management concepts to evaluate and recommend corporate finance and ERM decisions.
- (5b) Assess the risk of the status quo to a business enterprise.

### Sources:

The Failure of Risk Management, Why It's Broken and How to fix it, 2009, Hubbard, D, 2009 Chapter 6-12

Risk Appetite Framework: How to spot the genuine article, Deloitte

Risk Appetite: Linkage with Strategic Planning

Case Study

### Commentary on Question:

*The intent of this question is to evaluate the candidates understanding of what is needed to create an adequate risk management framework and risk appetite statement. The candidate will demonstrate this via knowledge of the syllabus material and application to the case study. A high quality answer should demonstrate understanding of the risk management, it's relation to a company's risk appetite and provide analysis specific to the case study in support of the answer.*

### Solution:

- (a) Describe four main obstacles which must be overcome to improve risk management according to Hubbard's "The Failure of Risk Management".
  1. The over-riding belief that quantitative risk management is impossible.
    - a. The belief that because some type of risk management method was used but didn't predict all events, those methods therefore don't work.
    - b. Anecdotal evidence is sufficient to prove that because an unlikely event happened doesn't mean the probabilities were wrong.
    - c. Extremely unlikely events must be exactly predicted for a model to be valid.

## 9. Continued

- d. False Choice: just because there are limitations with a given model doesn't mean another model is better."
  2. "Black Swans" (very rare events in history) are unforeseeable.
    - a. This belief assumes some method was used when the event happened but because it was not predicted therefore it's unpredictable.
    - b. Single events prove probabilistic models don't work.
    - c. If risk management really worked then these events would have been predicted.
    - d. When a model has a flaw, "common sense" must be used.
  3. Frequentist bias -> Frequentists believe an event must be strictly repeatable, (including all the same conditions), for it to be a true random process. And only true random processes can have probabilities applied to them. So because no real world event is strictly repeatable probabilities can't be applied.
  4. "We're Special" syndrome -> The belief that our own environment is so unique that no risk model would apply.
- (b) Describe four characteristics of a genuine risk appetite framework.
1. Does the risk framework cover all material risks? Or, does it just cover those easy to measure?
  2. Does the risk framework integrate top-down direction and bottom-up insight?
  3. Do staff use risk appetite concepts in their daily jobs? Do they understand how risk appetite relates to them/their job?
  4. Are the CEO, CRO, and CFO (senior leaders/executives) active champions of risk management/risk appetite?
  5. Can the Board and Company Executives demonstrate how risk appetite factors into key business decisions?
  6. Is Risk Appetite factored into compensation and rewards strategy for the company?
- (c) Evaluate RPPC's risk appetite statements and risk management framework using the four characteristics described in part (b). Justify your answer.
1. Characteristic #1
    - a. Per Risk Appetite: Look at low probability tail events and ensure protection of the RPPC brand
    - b. Risk Champion facilitates risk review and approval process.
      - i. Process will consider all aspects of a new product. Including pricing, sales, tax implications, marketing, and distribution.
    - c. It appears to have all risks covered, though it doesn't specifically list all of the areas.

## 9. Continued

2. Characteristic #2
  - a. 9 various sub-bullets to list the Risk Appetite, including not taking on new risks which are opaque, they must be well understood. And companies must maintain strong capital and liquidity.
  - b. Yes it has been integrated throughout.
3. Characteristic #3
  - a. There are two HR policies to improve risk Management:
    - i. Two-way rotation policy between risk roles and business management roles
    - ii. Continued professional development to require EEs to attending training on risk management at least once every other year.
  - b. Now a Risk Champion which facilitates the process which considers:
    - i. Feasibility -> high level business rationale and risk assessment
    - ii. Product Assessment -> Including pricing, sales, tax implications, marketing, and distribution.
    - iii. Risk Assessment -> how controls would be implemented and what is required to manage the new product
    - iv. Signoff by: 1) CRO, 2) pricing committee, & 3) Operation head of business unit
    - v. Documentation -> all must be documented
  - c. Yes Risk Appetite concepts are integrated and used on a daily basis.""
4. Characteristic #4
  - a. There's a 3 lines of defense approach:
    - i. 1st line -> Business Operating group which includes the CEO
    - ii. 2nd line -> risk officers (EROs, SMEs, ERM and Portfolio management)
    - iii. 3rd line -> Corporate Audit Division
  - b. So the CEO & CRO are active champions of the risk appetite.
5. Characteristic #5
  - a. Nothing is listed specifically in the case study but based on the value-based enterprise risk framework and all three pillars of the framework have direct line access to the Board, the risk appetite requirement would have to be met in all major business decisions. RPPC is considering the purchase of the Myhotel loyalty program and they follow their risk appetite statement in trying to understand all aspects of the risks involved including competition.
6. Characteristic #6
  - c. All officers of the company have their comp dependent upon:
    - i. Return on the economic capital must be greater than the capital required to fund the project.
    - ii. Payback period must not exceed 10 years
    - iii. Must be able to withstand two 1 in 100 year events (Redundant Capital)

## 9. Continued

- iv. The KPI and RPI are recommended by the business leaders and then approved by the Risk Appetite Committee which includes the business executives, CRO, and various Subject Matter Experts
- (d) Critique Gilroy's statement based on RPPC's risk appetite statements.

### **Relevant Facts:**

- Risk appetite means a high-level view of the risks that the insurer is willing to accept in pursuit of value.
- RPPC's risk appetite statement states that the organization should not take risks that are opaque, not well understood or that cannot be well managed. In fact, RPPC wants to limit exposure to low probability tail event risks that could jeopardize RPPC's credit rating, capital position to reputation. Also, the risk appetite requires RPPC to identify and quantify low probability tail events.

### **Critique/Answers:**

- Gilroy jumps into conclusion without really identify and quantify the low probability tail events that Myhotel loyalty program faces as he is totally rely on the fact that the margin is high today even with competitors. The reasons of entering the business seem too crude without basing on detailed analysis on whether Myhotel loyal program faces equivalent risks as the BJA loyalty program.
- As RPPC does not own any hotel business, its risk exposure is more similar to AIMCO than to BJA which owns the airline company. The reason is that RPPC will be more exposed to the burn-to-earn ratio by not owning the hotel business as it cannot manage the timing of the redemption as effectively as owning its own hotel business. Having a separate company owning the loyalty program from its primary provider could mean that the Myhotel chain can make strategic decisions at the expense of the loyalty program provider. The win-lose situation can occur more frequently than a combined ownership circumstance which will more focus on a win-win situation.
- The low barrier of entry due to the absence of regulations would also increase competition, which, in turn would lead to lowering of fee margins as AIMCO is facing. In fact, the hotel loyalty competition could be more intense than the airline industry due to the number of hotels in the area compared to the number of airlines with loyalty program that competes in the north American market. This will mean the risk that MYhotel loyalty program would very likely face the same risks as AIMCO once the competition starts heating up.
- In conclusion, Gilroy's statement violates its RRPC's risk appetite statement.