CFE SDM Model Solutions
Spring 2016

1. Learning Objectives:

2. The candidate will be able to identify the presence of liquidity & counterparty credit risk, and critique approaches to measure and manage these risks

Learning Outcomes:

(2a) Identify counterparty credit and liquidity risks concepts that arise from specific business activities.

Sources:

Counterparty Credit Risk, Impact on Collateral Flows, and Role for Central Counterparties

Counterparty Credit Risk by Gregory, Ch. 4 (p. 46 & p.48)

Counterparty Credit Risk by Gregory, Ch. 5 (p. 60 & p.74)

Counterparty Credit Risk by Gregory, Ch. 7 (p. 101)

Commentary on Question:

Most candidates struggled to obtain more than a handful of marks on this question. Candidates needed to be more familiar with counterparty credit risks and the associated readings.

Solution:

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

Commentary on Question:

Most candidates were able to describe payment netting. However, the candidates had trouble explaining how closeout netting affects counterparty exposure.

Payment netting:

- Covers the situation where an institution will have to make and receive more than one payment during a given day.
- Allows an institution to combine same-day cash flows into a single net payment. For example, if a \$305 million floating swap payment is to be made and a \$300 million fixed payment received (on the same day), the institution would simply make a net payment of \$5 million with the \$300 million payment having no associated risk.

1. Continued

- Payment netting would appear to be a simple process, which gives the maximum reduction of any risk arising from payments made on the same day, but it leaves operational risk.

Closeout netting:
- Allows a timely termination and settlement of the net value of all trades with the counterparty in the event of the default of a counterparty.
- Permits the immediate termination of all contracts between an institution and a defaulted counterparty and to offset the amount it owes a counterparty against the amount it is owed to arrive at a net payment.
- Allows the surviving institution to immediately realize gains on transactions against losses on other transactions and effectively jump the bankruptcy queue for all but its net exposure.
- Without the ability to closeout their positions at the time a counterparty becomes insolvent, market participants would be locked into contracts that fluctuate in value and are impossible to hedge (due to the uncertainty of future recovery).

(b) Describe four reasons supporting management's recommendation.

Commentary on Question:
Several candidates were confused and went on to explain the benefits of cash as a collateral rather than discussing the benefit of collateral management.

Four reasons for collateral management:

1. To reduce credit exposure so as to be able to do more business. To maintain exposures within credit lines and not have to cease trading with certain counterparties.
2. To enable one to trade with a particular counterparty. For example, ratings restrictions may not allow uncollateralized credit lines to certain counterparties.
3. To reduce capital requirements. For example, Basel regulatory capital rules give capital relief for collateralized exposure.
4. To give more competitive pricing of counterparty credit risk.

(c) Identify two risks to which cash collateral exposes Bank Alpha. Justify your answer.

Commentary on Question:
Most candidates were able to identify 2 risks, but many had difficulty justifying and explaining the reasons why.

1. Continued

Market risk and the margin period of risk:
a. Collateral can never completely eradicate counterparty risk, and we must consider the residual risk that remains under the collateral agreement.
b. This is due to contractual parameters such as thresholds and minimum transfer amounts that effectively delay the collateral process, in addition to the normal delay.
c. This can be considered a market risk as it is related to the extent of market movements after the counterparty last posted collateral. While the residual risk may be only a fraction of the uncollateralized risk, it may be more difficult to quantify and hedge.
d. The margin period of risk is the effective time assumed between a collateral call and receiving the appropriate collateral. Under Basel II regulations, this should be a minimum of 10 days for OTC derivatives.

Operational risk:
a. Examples - missed collateral calls, failed deliveries, computer error, human error, and fraud.
b. Legal agreements must be accurate and enforceable.
c. Timely accurate valuation of all products is key.
d. Information on independent amounts, minimum transfer amounts, rounding, collateral types, and currencies must be maintained accurately for each counterparty.

Accepted other solutions such as liquidity and funding liquidity risks if the justification was sound.

(d) 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.

Commentary on Question:
Many candidates had trouble answering this part of the question. Most struggled with the potential losses of various arrangements with and without buying Bank Alpha. Common mistakes included not including the subsidiary in the calculation of potential losses and confusion in applying bilateral and multilateral netting.

	Buying Alpha ($M)	Not buying Alpha ($M)
No netting	-9	-9
Bilateral	-3	-5
Multilateral	-3	-3

1. Continued

No Netting:
Bank Alpha has no exposure, so buying Bank Alpha would not affect ABC’s exposure.

Bilateral Netting:
ABC’s net exposure would decrease if Bank Alpha was purchased due to the $2M owed to Bank X.

Multilateral Netting:
It does not matter if they purchase Bank Alpha or not. Either way, Bank Alpha’s exposure lowers ABC’s exposure.

2. Learning Objectives:

4. The candidate will understand organizational behavioral concepts and apply strategic management frameworks to corporate financial and ERM business problems.

5. The candidate will understand the decision making process and the lessons learned from the risk taking activities and experiences of other organizations. In particular, the candidate will be able to apply the learning objectives of all the prior sections of the syllabus to the risk management principles embodied within the case studies explored in this section.

Learning Outcomes:

(4b) Evaluate and apply the concepts of strategic management, recognizing the factors that affect the development and implementation of strategies.
- Demonstrate the importance of analyzing the firm's external environment and the internal organization.
- Define types of business-level strategies and recommend an appropriate business-level strategy for a given situation.
- Explain the impact of competitive dynamics on strategic management.

(4c) Use organizational behavior and strategic management concepts to evaluate and recommend corporate financial and ERM decisions.

(5b) Evaluate the robustness and flexibility of the risk management framework and recommend approaches for continual improvement in the framework and processes.

Sources:

Strategic Management Ch. 2

Plugging Data Security Breaches

Commentary on Question:

The question asks candidates to apply Strengths, Weaknesses, Opportunities, and Threats (SWOT) in the context of the digital strategy for the Frenz organization. The candidates are expected to understand Frenz's capabilities and risk appetite in order to make an informed decision about three hypothetical applications of the digital strategy.

Solution:

(a) Construct a SWOT analysis of Frenz's Digital Strategy, including one strength, one weakness, one opportunity, and one threat.

2. Continued

Commentary on Question:
Most candidates were able to obtain a majority of points for part a. Points were lost when the understanding that (1) strengths and weaknesses are internal and (2) opportunities and threats come from external sources were not demonstrated.

- Strength – Frenz has employed Bill Arima, an acclaimed data scientist whose team has successfully prototyped potential analytics applications.
- Weakness – This strategy is a costly undertaking and will be diverting capital away from its core business.
- Opportunity – The aptitude of the Frenz smartphone app under development is greater than apps offered by any of Frenz's competitors, creating a possible first mover opportunity.
- Threat – Personal customer information is at risk to cyber theft. Such an occurrence would be costly due to litigation and a damaged reputation.

(b)

(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).

Commentary on Question:
Most candidates were able to obtain points on most parts of part (ii). Points were lost on part (i) when weak or no justification was given, and when the risks discussed were about the Digital Strategy in general and not about customer analytics specifically. Points were lost in part (ii) when candidates named ways to amplify or mitigate risks from (i), not how customer analytics themselves would do so.

(i) Demand Risk – Demand risk is related to customer preference, loyalty, and competition. Customer analytics can help identify customers that are underserved in the traditional model and provide them with tailored ads and discounts to generate demand or identify early signals in changing preferences. Potentially poor reaction to the use of analytics may cause attrition.

Reputational Risk – Reputation risk is related to customer perceptions. The use of customer analytics may strengthen a company's innovator status, but potential data breach or perceived misuse of customer info can cause reputational damage.

2. Continued

(ii) Demand Risk –

Mitigate: An analysis of current and trending customer data and habits will indicate changing customer makeup, tastes, and desires. Frenz can adjust their product offerings, emphasize what is currently available, or create specialized advertising campaigns in order to maintain or enhance demand.

Amplify: Poor execution of using the data may lead a company to incorrect conclusions. One's customer base may also be decidedly against the use of personal information for marketing, resulting in decreased demand.

Reputation Risk –

Mitigate: Providing a more personalized service, based on the information collected, will help strengthen a customer's connection with a particular brand or company.

Amplify: A data breach or a perceived misuse of personal information can severely damage a company's reputation.

(c) Describe one potential upside and one potential downside to Frenz's customers for each potential 2016 goal (I to III).

Commentary on Question:
Many candidates were able to obtain most of the points for part c. A number of candidates, however, lost points by describing the upsides and downsides of Frenz instead of their customers.

I. Upside: Provide the reward points scheme the customer values most, and enhance the utility the customer receives from the Frenz experience.

Downside: Changing the rewards scheme or a perception of varying and unpredictable rewards may cause confusion and/or attrition.

II. Upside: Inform the customer of the Frenz products they have a high probability of buying and provide discounts that they personally would value.

Downside: Customers must be willing to share personal information in order to participate in the process.

2. **Continued**

III. Upside: Inform the customer of other products in RPPC that they have a high probability of buying and providing information that the customer may not be proactively sought.

Downside: Customers must be willing to share personal information with multiple businesses in order to participate in the process. The risks of a data breach are now exacerbated.

(d) Recommend which 2016 goal Frenz should pursue. Justify your recommendation.

Commentary on Question:
Most candidates were able to obtain some points for part d, but very few were given full credit. Points were lost due to a lack of robustness given for a 3 point question. Moreover, candidates were unsuccessful in tying together the information they provided in parts a, b, and c in order to develop a more solid response. It should also be noted that the question mentioned only one goal would be implemented and a recommendation of which one goal should be implemented was sought.

I recommend Frenz optimize the loyalty program structure (I).

The digital strategy is a costly undertaking. Frenz should first pursue I since the loyalty program currently exists, and it should be less costly to implement compared to II & III. Moreover, II and III would require additional resources toward data architecture and information security (currently "under development") as well as hiring a Chief Data Officer.

The implementation of I does not require customer data immediately, unlike II and III. There may not be enough relevant data available to effectively implement II and III. Furthermore, the implementation of I can eventually provide customer data toward the future implementation of II and III.

The implementation of I provides an immediate use for the newly developed app.

The implementation of I best solidifies customer loyalty and demand with less risk regarding Frenz's reputation and perceived use of customer data. In addition, I creates an opportunity to solidify Frenz's digital savviness and an incremental approach to gaining their customer's trust and willingness to share data.

Finally, II and III have much higher risks regarding cyber security, particularly with regard to the current state of Frenz's data architecture, information security, and CDO.

3. Learning Objectives:

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

Learning Outcomes:

(1a) Critique accounting concepts used in the production of financial statements.

(1c) Evaluate various financial reporting metrics for use in corporate decision-making.

Sources:

SDM-100-13 (p. 45-50)

SDM-152-16

SDM-153-16 (p. 7-11)

Commentary on Question:

This question aims to test candidates' understanding on float, such as the key risks for insurance companies which operate as a float and the factors that impact the quality of float. In order to do well on this question, candidates were expected to have a good understanding of the impact on business decisions with respect to an insurance company which operates as a float.

Solution:

(a)

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

(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.

Commentary on Question:

Candidates performed reasonably well on this question as many of them were able to explain the value of float and what the main risks were.

(i) Float refers to the funds that are available for investment by the company, but not belonging to the institution. Insurance companies receive premium from its policyholders and payout the claims and benefits at a later period. As a result, the insurance company is able to earn investment income on those funds. Although float is shown as the book liability on balance sheets, the actual value of float could be larger than its book value as long as the return on float is exceeding its costs.

3. Continued

(ii) 1) Underwriting risk
When the insurance business doesn't have cost advantage and prices at a loss, there is an underwriting loss. This underwriting loss increases the cost of the float and offsets the return on the premiums.

2) Interest risk
The return on float is heavily influenced by the interest rate environment. In a low interest rate environment, if the float is not cost free, the investment return may not cover its cost.

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

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

Commentary on Question:
Candidates performed reasonably well on this question. Some candidates did struggle to understand the value of float under the different scenarios since they failed to recognize that the underwriting profit/loss impacted the value of the floated.

Operating at underwriting profit: The cost of float is free. Earnings from investment returns will not be offset by any losses from underwriting. The company that operates at an underwriting profit could make its price less competitive.

Operating at underwriting loss: The underwriting loss increases the cost of float, which puts a higher requirement on the return on float (the return on float has to be larger than the underwriting loss). The investment return on float will be needed to offset the underwriting loss.

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

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

Commentary on Question:
Most candidates were able to obtain some points for part c, though fewer candidates performed well than on parts a and b. Very few points were given if candidates only explained what would happen to investment returns or only explained the directional impact on float.

3. **Continued**

Low Interest Rate Environment – In a low interest rate environment, the investment return from float will be lower, and operating at an underwriting profit is preferred. With an underwriting profit, there is no cost of holding the float, and a company can withstand the lower investment return. An underwriting loss would be the cost of holding float, and it would be risky to assume the lower returns would cover the costs.

High Interest Rate Environment – In a high interest rate environment, the investment return from float would be greater, and the company's ability to operate at either an underwriting loss or underwriting profit is strengthened. With an underwriting profit, the float as well as the profit earns more return. If the company faces competitive pressures as well, higher earnings will allow it to reduce the underwriting profit. An underwriting loss could also be accepted (or maintained) since the investment return will more likely cover the loss.

High Competitive Pressure – Operating at an underwriting profit means that premiums will be relatively high. Due to the high competitive pressure, companies will likely reduce this profit substantially or move into an underwriting loss situation. Therefore, downward pressure will exist on the size and total value of float. An underwriting loss can be accepted as long as the net return of float can be maximized.

(d) Explain the impact on float of writing a single premium policy.

Commentary on Question:
Most candidates were able to explain the impact of a single premium policy on float and were able to earn points on the question.

Writing a single premium policy results in a large sum of funds that become available at policy issue on day 1. This lump sum received upfront maximizes the return potential of float as it increase the amount of money available for investment, and that investment can be used for a long period of time.

(e) Evaluate the effect of writing a single premium policy on:

- Underwriting Risk
- Interest Rate Risk
- Policyholder Behavior Risk

3. Continued

Commentary on Question:
Most candidates were able to obtain some points for part e, though some candidates performed poorly. There was some confusion on whether part e was still focusing on "float." Part e intentionally did not mention "float," nor did it mention the type of insurance company that was involved in writing a single premium policy. Although responding to the question only with regard to float or only with regard to a Property and Casualty company did not necessarily lose points, doing so made receiving most available points more difficult.

Underwriting Risk – The impact of writing a single premium policy on underwriting risk is much higher for a long duration insurance product versus a short duration product due to the non-adjustability of the premium scale to reflect future experience. Pricing assumptions (and expected profit/loss) are "locked in" for the entire duration of the policy.

Interest Rate Risk – The primary concern with interest rate risk is the mismatch between assets and liabilities. A single premium policy could have significant impact if the liability durations are long, but the long duration assets are not available at the time when the premium was paid. Like underwriting risk, the more significant exposure comes from longer duration insurance products. Another concern would be with long duration products with certain product features (e.g. credited interest and its spread over earned interest) associated with the current and future state of interest rates.

Policyholder Behavior Risk – The degree of risk, again, depends on the type of policy that is being written. Life insurance products would exhibit less anti-selection. Applicants who would like to anti-select will likely choose a product with the lowest premium outlay, rather than those with high premiums, such as a single premium policy. Conversely, annuity products would likely exhibit more anti-selection since the exposure is to longevity risks. A shorter premium paying period would be more prone to anti-selection. Finally, property and casualty products are commonly shorter term, and the impact would be insignificant. P/C policies as outlined in the Berkshire Hathaway annual report ($1B+ premiums) would exhibit nearly zero anti-selection.

4. **Learning Objectives:**

4. The candidate will understand organizational behavioral concepts and apply strategic management frameworks to corporate financial and ERM business problems.

Learning Outcomes:

(4a) Apply organization behavior concepts.

- Describe the communication process and explain the strategic importance of communication to organizations.
- Describe the fundamentals of decision making and explain decision-making styles and influences.
- Describe common types and causes of organizational conflict and apply the elements of a basic negotiation process.
- Assess how the behavior of individuals and groups in organizations drives organizational decisions and performance.

(4b) Evaluate and apply the concepts of strategic management, recognizing the factors that affect the development and implementation of strategies.

- Demonstrate the importance of analyzing the firm's external environment and the internal organization.

- Define types of business-level strategies and recommend an appropriate business-level strategy for a given situation.
- Explain the impact of competitive dynamics on strategic management.

(4c) Use organizational behavior and strategic management concepts to evaluate and recommend corporate financial and ERM decisions.

Sources:

Organizational Behavior - Ch 10 Decision making by individuals and groups (p.319-320)

Strategic Management - Ch 6 Corporate-level Strategy (p.171-173, 184)

When and When Not to Vertically Integrate (p.78-83)

Commentary on Question:

Candidates needed to be familiar with the case study concerning Blue Jay Airlines (BJA) and their current situation. Many candidates incorrectly assumed that BJA had already established a loyalty program in answering the question. This resulted in marks being lost in some parts of the question. Overall, the question was answered decently.

Solution:

(a) Identify one value-creating and one value-neutral diversification benefit if RPPC acquires Myhotel's loyalty program. Justify your answer.

4. **Continued**

Commentary on Question:
Candidates who understood the current situation of BJA were able to successfully answer this part. There was confusion in the use of economies of scale versus economies of scope where some candidates described economies of scope (sharing of activities) but called it economies of scale.

Value-Creating:

Sharing Activities
BJA wants to start their own loyalty program to complement their airline business.
MyHotel would share the primary activities of an airline loyalty program.

Value-Neutral (one of the following)
Risk reduction for firm:
BJA is planning to start their own loyalty program, so purchasing a hotel loyalty program could spread their risk.

Tangible resources:
Acquiring MyHotel could bring tangible resources to help establish BJA's program.

Intangible resources:
Acquiring MyHotel could bring intangible resources to help establish BJA's program.

Accepted other solutions only if a reasonable justification was given.

(b) Analyze the operational relatedness and corporate relatedness of the diversification strategy. Justify your answer.

Commentary on Question:
Overall, candidates had trouble communicating the diversification strategy of RPPC. Candidates generally understood operational relatedness but struggled with corporate relatedness. On corporate relatedness, many candidates explained that MyHotel would bring its core competencies to BJA rather than taking the opposite view of why RPPC would purchase MyHotel. Candidates had to understand where the value of the diversification strategy would benefit RPPC and not the opposite way.

Operational relatedness is the extent by which BJA can share business functions such as IT, administrative systems, and underwriting departments with MyHotel. These are very similar between the two companies since they both support a loyalty program, so the relatedness is high.

4. Continued

Corporate relatedness is the extent by which BJA can transfer their core competencies to MyHotel. Since BJA has not fully developed their loyalty program, they have little experience or expertise they could transfer in this acquisition. So the corporate relatedness is low.

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

Commentary on Question:
This part of the question was straightforward, and most candidates received full marks.

Geri may diversify the firm in order to diversify her own employment risk (i.e. agency cost).

As a senior manager, a more complex loyalty program helps:

- increase compensation as managers commonly receive substantial compensation to manage them

or

- reduce managerial risk (more likely to stay employed by the company).

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

Commentary on Question:
Candidates were mostly able to apply the biases to Geri and Robert. Candidates had to give an explanation to receive marks. Saying it does not apply was not a sufficient answer without a proper explanation. Of the three biases, candidates had the most difficulty assessing the ease of recall bias.

Confirmation Biases:
Geri's involvement in the loyalty program might make her seek information that supports an acquisition.

Robert's initial belief that the business is a good fit to RPPC might encourage him to seek information that also suggests this is true.

Ease of Recall Biases:
Geri being involved with developing the BJA loyalty program allows her to recall issues related to an airline loyalty program versus a hotel loyalty program. She might underestimate or overestimate the issues relating to a hotel loyalty program based on her own airline experience.

4. Continued

Robert might recall the article explaining the difficulties currently facing loyalty programs (interchange fees) and apply this to the BJA situation.

Sunk Cost Biases:
Geri spent a month analyzing the acquisition, which is a lot of time. It is very likely that she will not want this work to go to waste, so she will recommend the acquisition despite preliminary analysis showing low IRR.

Robert has spent a little time talking with Randy about potentially acquiring MyHotel's loyalty program. Robert enthusiastically recommends this potential action to RPPC not because he's spent a lot of time analyzing the project, but more likely for other reasons, such as the relationship he has with Randy.

Accepted other possible explanations as long as they were reasonably supported.

(e)

(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.

Commentary on Question:
Candidates did not perform well on this part. Candidates had to be familiar with the case study and use information provided in it to make a sound logical recommendation. Some candidates in their recommendation would just repeat points made in the assessment part. Very few points were awarded for those types of answers.

The merits of managing BJA's loyalty program include:
i. Have more operational control: BJA has more opportunities to improve customer service.
ii. Have access to more customer data that could be used to further improve its customer service.
iii. Allow BJA to build up another core competency that could help it become more customer oriented in the future.

The merits of outsourcing BJA's loyalty program include:
i. Lower cost option: Titan being more established would be able to provide the same quality program for less money because of greater operational efficiencies.
ii. Lower risk of operational error: Since it is more established, Titan's program would be less likely to glitch.
iii. Better quality product: Titan has a more established program and would provide a better customer oriented product right away.

4. **Continued**

BJA should outsource the program because:

i. BJA’s strategic vision is (1) to be the most customer-oriented, and (2) provide the best services. This translates into a mission of focusing on (A) comfort, (B) punctuality, and (C) safety as the three most important virtues for BJA.

ii. To support this vision, BJA has a number of known core competencies, which include:

1. Low cost operations from a labor force that is uniquely non-unionized that is rare in the industry.
2. Unique business relationships with the business community that it’s built up over decades of service.

iii. BJA’s recent strategic initiatives also include:

1. Upgrading its planes to provide for better customer-oriented service, capitalizing on its winning relationship with the business community.
2. Cost control.
3. Maintaining its safety programs to foster vision for safest airline in the industry.

iv. Some constraints that BJA faces include:

1. BJA is highly leveraged, so it is not in a position to raise more capital through increasing its debt.
2. BJA is exposed to interest rate volatility due to its long-term debt.

v. In light of these points above, BJA should outsource the program because Titan has been in business for a while and offers the best in class loyalty program (BJA’s strategic vision), evidenced by its 80% market share.

Accepted other possible assessments and recommendations as long as they were reasonably supported. Recommendations had to be supported by information contained in the case study.

5. **Learning Objectives:**

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

Learning Outcomes:

(3b) Explain ERM and capital management concepts to evaluate and recommend corporate financial and ERM decisions.

- Apply capital allocation models to a multi-line organization.
- Compare and contrast various ERM and Capital Management frameworks as to their ability to assess value and articulate the risk-return strategy of an organization.
- Evaluate the value-added for an organization by jointly evaluating risk measurement and capital allocation.
- Asses how an ERM process can improve capital efficiency and articulate the risk-return strategy.

Sources:

The Failure of Risk Management, Why It's Broken and How to Fix It, Hubbard, D, 2009

- Chapters 6-12

Commentary on Question:

Commentary listed underneath question component.

Solution:

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

1) Scoring Methods do not consider issues about the perception of risk.
2) Qualitative descriptions of likelihood are understood and used very differently by different people.
3) Scoring schemes themselves add their own source of errors as a result of unintended consequences of their structure.

Other Considerations

Also considered were three problems with the "Unintended Effects of Scales" which are can lead to the problems with Scoring Methods.

1) Risk Compression.
2) Presumption of Regular Intervals.
3) Presumption of Independence.

5. Continued

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

Commentary on Question:
Students missed out on marks when they lost focus of the case facts and made assumptions about the success of current processes in place.

1) The BJT report describes Manufacturing Risk as medium. Does this mean frequency or severity? Different people will assess that ranking under their own interpretation, and that is a problem with such a simple grade of risk.
2) The Manufacturing Risk only centered on injuries to employees. Actual issues with the production of tires will lead to a huge recall event, and this was not much of a consideration.
3) Correlations with other risks are not considered. Manufacturing risks such as employee injuries and process flaws can have knock on effects to legal, reputation, and earnings that should ideally be considered by Blue Jay Tire.

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

Commentary on Question:
This question does not have to link to the responses from part B) but one could assume a natural link. Well justified answers in favor or opposed to FAST were accepted. The question was looking for 3 talking points from each student for full marks, but it did not need a specific breakdown.

FAST is a probabilistic model that will speak the language of probabilities and give an array of statistical figures that will allow Blue Jay Tire to move away from scoring methods and look at actual probabilities and outcomes that don't have ambiguity in understanding amongst employees at Blue Jay Tire.

FAST has the ability to model the effect of correlations between manufacturing and other risks. Blue Jay Tire has already seen the effect of correlations between risks with their recall incident, and FAST will help them understand the true risk of Blue Jay Tire.

However, simply buying FAST will not solve everything. A key problem with manufacturing risk was the exclusion of process risk. If Blue Jay Tire moves to purchase FAST they must ensure that all relevant risk factors are included into the model to achieve proper results.

5. Continued

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

Commentary on Question:
Some students suggested that someone needs to be in charge of manufacturing risk but further emphasis was needed that that person needed to be at a high level with influence. Just because someone is in charge of the risk does not mean they will be able to influence the decision making process of the company.

Emphasis was placed on the difference between the Canada and US LTIFR measure. No information was given that this difference is outside the limits for the Blue Jay Tire.

1) Just implementing FAST does not mean there will be a culture shift at Blue Jay Tire. If no one uses the information, then decisions of the past will be doomed to be repeated. High Level Decisions must have understanding of the analysis of FAST and be used.
2) Models are fluid and always changing. Blue Jay Tire must get calibrated in their predicting ability and should implement incentives for a calibrated culture. Model output should always be checked against actual results to continuously calibrate.

6. Learning Objectives:

2. The candidate will be able to identify the presence of liquidity & counterparty credit risk, and critique approaches to measure and manage these risks

Learning Outcomes:

(2a) Identify counterparty credit and liquidity risks concepts that arise from specific business activities.

(2b) Assess the critical nature of the counterparty credit and liquidity risk exposure.

(2c) Critique various counterparty credit and liquidity measurement and management techniques.

(2d) Qualify the impact of various regulatory requirements on exposure, capital, and the management of counterparty credit and liquidity risk.

Sources:

SDM-154-16 Management Solutions: Liquidity Framework and impact on management

SDM-107-13 Financial Institution Management - Ch 17

SDM-153-16 Basel Committee on bank supervision: liquidity risk management framework, pp.1-31

Commentary on Question:

The goal of this question is to have the candidate identify the risks presented by loyalty programs, describe risk mitigation and measurement techniques available to banks that aren't available to these programs, and calculate a measure of risk through the LCR if they were regulated as banks.

Solution:

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

Commentary on Question:

Most candidates received partial credit as they did not explain the reasons why a run on the bank scenario may occur for the loyalty program.

The loyalty program poses liability side liquidity risk in the same way as bank deposits. If customers question the solvency of the program or no longer see a benefit of continuation in the program there could be a run on the bank and the loyalty program would have to come up with cash quickly to satisfy program redemptions.

6. Continued

(b)

(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.

Commentary on Question:
The answer below is considered the best answer as it is specific to banks. Answers discussing stored and purchased liquidity were also given credit.

(i) Two devices are deposit insurance and a discount window. Deposit insurance is a guarantee administered by the central bank that guarantees a customer's deposits are safe in case of insolvency. The discount window is short term credit available on an overnight basis used to mitigate liquidity risk.

(ii) Adapting deposit insurance.RPPC could work with an insurance company to have them provide a guarantee that program points would be paid in case of insolvency. This would deter run on bank scenarios as if the company is in financial stress, customers would know that their program benefits are secure.

Adapting discount window.RPPC could set up a line of credit with a financial institution that would offer them short-term funding in a run on the bank scenario, reducing liquidity risk as they could draw on this if they did not have enough cash reserves.

(c)

(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.

Commentary on Question:
Most candidates did well on part (c). One error in responses that was somewhat common was candidates explaining what the LCR and NSFR were and how they were calculated rather than explaining the purpose for part (i).

6. Continued

(i) Liquidity Coverage Ratio: (LCR): Short term metric which is designed to guarantee that an entity keeps a sufficient level of high quality, unencumbered liquid assets which can be converted into cash to cover its liquidity needs during a 30 calendar day horizon in a liquidity stress scenario.
Net Stable Funding Ratio (NSFR): The idea is to limit an excessive dependence on short term financing during periods of abundant liquidity on the market, and to promote a more accurate assessment of liquidity risk, of all on and off balance sheet items, neutralizing institutions' incentives to finance their fund of liquid assets with short term funds maturing immediately after the 30 day horizon of the LCR ratio.

(ii) Benefit: Reduce short term liquidity risk by having sufficient high quality assets
Cost: Business will be less profitable forced to hold low yielding assets to cover liquidity risk

(d)

(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.

Commentary on Question:
Nearly all candidates included the Expected Monthly Outflows in error on this calculation.

(i) LCR = (Buffer of high quality liquid assets) / (Total net cash outflows in 30 days)
Total net cash outflow = Expected rate of cash outflow prescribed by Basel III x total cash value of outstanding redemptions - expected income.
Total net cash outflow = 10% x 10,000,000 -700,000 = 300,000
Need LCR >= 100%
100% = Required assets / 300,000 -->> Required assets = **300,000**

(ii) Assets must be high quality and liquid, and the following are deemed acceptable under Basel III: **Cash, Domestic Soverign Debt** (i.e. T-bills, Federal Bonds), and **Corporate bonds with a rating higher than A-** (however, these would not count for full value; a factor would be applied based on quality).

6. Continued

(e) Assess whether such an adapted Basel III approach should be used to manage the loyalty program's liquidity risks. Justify your answer.

Commentary on Question:
A good solution needed to weigh both the costs and benefits of adopting Basel III. Full credit could be given for supporting its adoption or not as long as both sides were considered. Many candidates focused only on the pros or the cons, not both.

Alternatively, some candidates did not give a recommendation on whether to adopt the adapted Basel III or not but did talk about the pros and cons so they did not receive full credit.

Adopting an adapted Basel III approach would decrease liquidity risk for the loyalty program as they would be holding liquid assets to mitigate liquidity risk. It would also encourage management to focus more on risk management and understand the risks embedded in the loyalty program.

However, this would come at a cost since they would need to hold low yielding assets for this liquidity. Also, loyalty program rewards are less risky than bank deposits as people likely won't be able to use all their points at exactly the same time in contrast to bank deposits where it is simple to withdraw deposited money. In addition, loyalty program benefits are not guaranteed and could be cut at any time in a crisis, although this would cause reputational risk.

We should balance the cost and benefit of introducing a more vigorous liquidity risk framework. We should implement certain elements of Basel III such as adding in a clear governance and monitoring process and some simplified stress testing model. I do not recommend a full Basel III implementation as there are better less costly alternatives that will achieve the desired purpose of better risk management, and the costs outweigh the benefits of full implementation.

7. Learning Objectives:

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

Learning Outcomes:

(3b) Explain ERM and capital management concepts to evaluate and recommend corporate financial and ERM decisions.

- Apply capital allocation models to a multi-line organization.
- Compare and contrast various ERM and Capital Management frameworks as to their ability to assess value and articulate the risk-return strategy of an organization.
- Evaluate the value-added for an organization by jointly evaluating risk measurement and capital allocation.
- Asses how an ERM process can improve capital efficiency and articulate the risk-return strategy.

Sources:

SDM-111-13

SDM-113-13

SDM-121-13

Commentary on Question:

This question asks candidates to demonstrate a basic understanding of economic risk capital and risk management principles.

Solution:

(a)

(i) Describe three negative outcomes that ABC would face in the event of a plane crash.

(ii) Explain whether the negative outcomes identified in part (i) can be managed using risk capital.

Commentary on Question:

Candidates performed well on part (i) of this question, but some struggled on part (ii). Many candidates stated that if the risk was quantifiable, then it could be managed using risk capital without considering the practicality of doing so. In order to receive full credit, candidates needed to recognize an insurance market exists for some of these risks (i.e. liability, property, etc.), and would be a more appropriate means for mitigating these risks.

7. Continued

(i) Below are a few possible responses. Other answers were accepted if reasonable and justified.

- Reputational risk could devastate ABC. If customers do not trust the airline, they will choose to fly with other airline companies.
- Possible lawsuits from families of plane crash victims.
- Plane, equipment, and other property would be lost in an event of a crash. These items would need to be replaced, and some scheduled flights may need to be cancelled in the meantime.
- Employee injury or death as well as resignation due to fear of safety can cause a shortage of employees. Some flights may need to be cancelled.

(ii) Answers should correspond with risks stated in part (i):

- <u>Reputational risk</u> – No, it is impossible to quantify the impact from this risk. Even if money was set aside to increase marketing campaigns, many customers would likely still choose other airlines.
- <u>Lawsuits/Litigation</u>
  i. No, since there is an active market for liability insurance, ABC should purchase this type of insurance, rather than utilizing risk capital.

  OR

  ii. Yes, this risk is quantifiable, so risk capital could be set up. However, an active market for liability insurance exists and should be utilized instead. Paying insurance premiums will be significantly more cost-effective than setting aside capital.

- <u>Property Loss</u>
  i. No, since there is an active market for P&C insurance, ABC should purchase this type of insurance, rather than utilizing risk capital.

  OR

  ii. Yes, this risk is quantifiable, so risk capital could be set up. However, an active market for property and casualty insurance exists and should be utilized instead. Paying insurance premiums will be significantly more cost-effective than setting aside capital.

7. Continued

- Employee Shortage – No, similar to reputational risk on the customer side, it is difficult to quantify the employee's sentiment on feeling safe. It will be difficult to recruit new employees to replace those lost, and the additional amount needed to spend on recruiting efforts and compensation would be difficult to quantify and likely not be sufficient.

(b) Critique whether this approach is an appropriate response to public perception of ABC as a result of the recent safety report.

Commentary on Question:
This question asked candidates to critique the solution from the viewpoint of the public. Many candidates focused on VaR as a metric, listing cons of VaR over other risk metrics, instead of critiquing the risk capital approach itself. In order to receive full credit, the candidate needed to recognize that this solution is only holding capital to mitigate losses when an incidence occurs, but does not actually improve the safety of the airline – which is the main concern of the public.

No, the Safety Solution is not an appropriate response to public perception of ABC due to the following reasons:

- Implementing the model will not keep the company and its customers safe and instead will fully protect against reputational risk.
- The purpose of the model is to hold capital for certain potential losses that would arise when a plane crash occurs. It does nothing to actually prevent the crash from happening.
- The model doesn't represent a comprehensive view of the risks faced by ABC.
- The model fails to address the operational risks that actually threaten ABC.
- Reporting alternate safety metrics vs. the standardized report may actually draw more attention to potential safety issues at ABC.
- In order to help prevent a crash, ABC needs to improve safety procedures, provide increased training, invest in new planes, etc. The public would be more concerned with these efforts.
- Clearly this model doesn't actually prevent ABC from an incident; it merely reports risk measures that would suggest that the frequency of such events is low and perhaps that ABC has capital sufficient to pay some financial losses.

(c) Describe the similarities between British Petroleum and ABC.

Commentary on Question:
Candidates generally performed well on this part of the question.

7. Continued

- Both companies are looking to mitigate the damage from safety failures after receiving poor safety reports.
- The managements' pre-occupation with safety doesn't appear to be linked to operations.
- Both the airline and oil industry have huge risks that can devastate the company and affect its reputation.
- ABC is mainly concerned with plane crashes, and BP was concerned with major accidents. Neither company seems to put much thought into preventing minor safety incidents and increasing process safety.

(d) Recommend three improvements that ABC could implement that would improve the safety of the company and its customers. Justify your answer.

Commentary on Question:
Very few candidates received full marks for this part of the question. To receive full credit, candidates needed to go beyond the common sense responses and focus on risk management improvements such as linking to operations, improving process safety leadership, implementing a safety culture, etc.

- Management's pre-occupation with safety should be linked to operations. The company could consider hiring an outside consultant to evaluate and suggest improvements for safety procedures, provide increased training, invest in new planes, invest in advanced safety mechanisms for the planes, etc.
- Management's obsession with measuring safety needs to create urgency in changing the way safety is handled day-to-day if they really desire to mitigate the risk of adverse events.
- ABC should address the issues of process safety leadership, incorporate process safety into management decision-making, and introduce a safety culture across the company.

8. **Learning Objectives:**

5. The candidate will understand the decision making process and the lessons learned from the risk taking activities and experiences of other organizations. In particular, the candidate will be able to apply the learning objectives of all the prior sections of the syllabus to the risk management principles embodied within the case studies explored in this section.

Learning Outcomes:

(5d) Apply concepts of innovation and market disruption.

(5e) Apply best practices of product development.

Sources:

Identifying New Product Development Best Practice (Pg. 2-4)

Creating Bold Innovation in Mature Markets (Pg. 1)

Airbnb - A Spare Room for Debate (Pg. 4)

How Uber and the Sharing Economy can win over Regulators (Pg. 3)

Commentary on Question:

The goal of this question is for candidates to prove that they have a good understanding of the concept of new product development and innovation by meeting the following key test objectives:

a) Show they know the different dimensions of New Product Development (NPD).

b) Identify best practices in NPD as related to Blue Ocean.

c) Recognize and explain the relevance of the different dimensions of NPD to Blue Ocean in the case study.

d) Demonstrate an understanding of risk transformation in relation to innovating new insurance products.

e) Utilize RAROC for decision-making and value measurement.

Solution:

(a) Define each of the dimensions I to VII above.

Commentary on Question:

Most candidates did well on this part of the question, though many candidates struggled with defining "Project Climate."

8. Continued

1. Strategy: The defining and planning of a vision and focus for research and development (R&D), technology management, and product development efforts at the SBU, division, product line, and/or individual project levels.

2. Research: The application of methodologies and techniques to sense, study, and understand customers, competitors, and macro-environmental forces in the marketplace.

3. Commercialization: The activities related to the marketing, launch, and post-launch management of new products that stimulate customer adoption and market diffusion.

4. Process: The implementation of product development stages and gates for moving products from concept to launch, coupled with those activities and systems that facilitate knowledge management across projects and the overall company.

5. Project Climate: The means and ways that underlie and establish product development intracompany integration at the individual and team levels, including the leading, motivating, managing, and structuring of individual and team human resources.

6. Company Culture: The company management value system driving those means and ways that underlie and establish product development thinking and product development collaboration with external partners, including customers and suppliers.

7. Metrics and Performance Measurement: The measurement, tracking, and reporting of product development project and product development program performance.

(b) Identify two best practices, as described by the Kelley School of Business, related to new product development exhibited by Blue Ocean. Justify your answer by citing examples in the Case Study.

Commentary on Question:
Below are examples of three common responses given by candidates. Other well-justified responses were acceptable.

8. **Continued**

1. Strategy: Company views new product development as a long-term strategy (as relates to the company being built on innovation), mission and strategic plan help define strategic arenas for new opportunities (as relates to its mission to strengthen the brand identity as a dominant innovator), or opportunity identification is ongoing and can redirect the strategic plan in real-time to respond to market forces and new technologies (as relates to renewable energy insurance).

2. Research: Concept, product, and market testing are consistently undertaken and expected with all new product development projects (as relates to research performed on pet insurance market and renewable energy feasibility study).

3. Company Culture: Top management supports the new product development process (as relates to the Chief Actuary's support for innovating new products).

(c)

(i) Identify which new product dimension(s) are related to each "Phase" of Edward's development plan by adding a check mark to the appropriate box in the table above if the new production dimension is relevant to the phase.

(ii) Describe how each dimension identified in part (i) will help achieve the goal of the particular phase in the development plan.

Commentary on Question:
Overall, candidates did fine on this question. Almost all of the candidates were perceptive enough to draw the table on their answer sheets, as opposed to a couple candidates who had added their answers to part (i) directly into the question booklet, which made grading a bit of a challenge. Many candidates did not get full marks on this question because they had not recognized that Phase 1 and Phase 3 had multiple dimensions associated with the phase.

Phase 1 – Strategy
This dimension is relevant to Phase 1 because they need to determine what kind of insurance solution to offer, who is their target market, when to offer their product to their target market, why their target market will purchase their product, and how to distribute their product. There is no one size fit all insurance product, which means Blue Ocean needs to determine where to best focus their efforts. In addition, Blue Ocean would consider the prioritization and balance of this project with available resources and capital constraints.

8. **Continued**

Phase 1 – Company Culture
This dimension is relevant to Phase 1 because without fostering an innovative company culture, they would not have new suggestions to develop new insurance products (in this case, the sales and marketing team). In addition, a good company culture would mean good relationships to further collaborate or develop collaboration with external partners (e.g. marketing and distribution).

Phase 1 – Commercialization
This dimension is relevant to Phase 1 because they plan to work closely together with sales, marketing, and pricing on the new product and understand their marketing and distribution capabilities in order to develop a product that will reach their intended target market. Working closely with their own insurance salesforce allows Blue Ocean to gather useful feedback that will help drive more meaningful new product development.

Phase 2 – Research
This dimension is relevant to Phase 2 because after identifying strategic opportunities, they need to perform studies to justify how much the target market is worth, understand the different ways available to engage their potential customers, and gauge their competition. The goal of the research would be to formally evaluate the product concept and potential market.

Phase 3 – Process
This dimension is relevant to Phase 3 because they need to determine if they have the capabilities of moving the new product from concept to launch, understand how much it costs to complete each activity, and whether they can support the product with their existing systems.

Phase 3 – Commercialization
This dimension is relevant to Phase 3 because they need to understand how much marketing and distribution will cost in order to launch the new insurance product, as well as how much the management of post-launch activities such as customer service will cost and help drive further customer retention and diffusion.

Phase 4 – Metrics and Performance Measurement
This dimension is relevant to Phase 4 because without meaningful indicators to monitor the acceptance and profitability of the new product, they will be unable to track and report the products performance to its management and potential investors and evaluate whether to continue or end the project. Metrics also allow Blue Ocean to quantify potential risks associated with launching a new innovative product, which will be a factor in determining whether the product is worth the risk.

8. **Continued**

Phase 5 – Process
This dimension is relevant to Phase 5 because a good new development process has clear go/no-go criteria that will help management decide whether or not to proceed with launching the new insurance product.

(d) From the table above,

(i) Identify the expected outcomes for (A) to (L).

(ii) Justify each of your answers in part (i).

Commentary on Question:
Most candidates understood that they needed to answer this question from the perspective of the AirBnB property owner, but marks were also awarded if the candidate answered the question consistently from the perspective of AirBnB. The most difficult part of this question was Risk 4 (Business Interruption), where many candidates struggled with appropriately justifying their responses.

1. Property damage
   (A) Relevance: Yes, because renters may cause property damage beyond any existing insurance coverage.
   (B) Frequency: Expected to increase because the quality of renters is less consistent and predictable due to lower barrier of accommodation costs compared to traditional hotel businesses.
   (C) Severity: Expected to increase because the quality of renters is less consistent and predictable due to lower barrier of accommodation costs compared to traditional hotel businesses.

2. Natural catastrophe
   (D) Relevance: Yes, because natural disasters such as earthquakes can still affect the rental property.
   (E) Frequency: No change is expected because a natural catastrophe is not caused by renters.
   (F) Severity: No change is expected because a natural catastrophe is not caused by renters.

3. N/A

8. Continued

4. Business interruption
   (G) Relevance: Yes and no are acceptable outcomes. For example, business interruption may be relevant because property owners may eventually consider P2P rentals an important source of income (lost revenues).
   (H) Frequency: Expected to increase or decrease are both acceptable outcomes. For example, the argument for expected decrease is because properties being rented are less concentrated than hotel rooms that are within the same building.
   (I) Severity: Expected to increase or decrease are both acceptable outcomes. For example, the argument for expected decrease is that overall severity will decrease due to reduced location concentration as multiple hotel rooms could be affected by same source of problem.

5. Management liability
   (J) Relevance: No, because the AirBnb property owners are spread all over the world, and one death will not stop other places from being listed for rent.
   (K) Volatility: No change is expected because this risk does not exist within this property rental ecosystem or between different property owners.
   (L) Severity: No change is expected because this risk does not exist within this property rental ecosystem or between different property owners.

6. N/A

(e) Determine the capital reduction from diversification required for Blue Ocean management to introduce new P2P insurance products if management solely based its investment decision making on RAROC. Show your calculation.

Commentary on Question:
Almost all candidates correctly answered this question and received full marks.

RAROC (Current) = 175M/2000M = 8.75%
RAROC (with P2P) = (175M+50M) / C = 8.75%
Solve for C = 2571.43M
Lowest Diversification Benefit = (2000M + 900M) - C = 328.57M

9. Learning Objectives:

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

4. The candidate will understand organizational behavioral concepts and apply strategic management frameworks to corporate financial and ERM business problems.

Learning Outcomes:

(1a) Critique accounting concepts used in the production of financial statements.

(1c) Evaluate various financial reporting metrics for use in corporate decision-making.

(4b) Evaluate and apply the concepts of strategic management, recognizing the factors that affect the development and implementation of strategies.
- Demonstrate the importance of analyzing the firm’s external environment and the internal organization.
- Define types of business-level strategies and recommend an appropriate business-level strategy for a given situation.
- Explain the impact of competitive dynamics on strategic management.

Sources:

SDM-100-13

SDM-152-16

SDM-153-16

Ch.3 Strategic Mgt book

Case Study BJA

Commentary on Question:

Many candidates demonstrated adequate knowledge and understanding of general accounting concepts and are capable of critiquing their use in the production of financial statements. However, many candidates also failed to use these concepts to support corporate decision-making. Many responses make no attempt to address case facts and relevance to Blue Jay Air.

Solution:

(a)

(i) Explain in what ways DAC is consistent with the principles of accrual accounting.

(ii) Describe how utilizing DAC will affect a company’s book value for the year of capitalization and following years assuming sales are constant.

9. **Continued**

Commentary on Question:
Many candidates received full credit if they mentioned expense matching and recognized that the DAC increases book value. Candidates who explained that accrual accounting recognizes revenues and expenses when they occur received no credit. Some candidates received only partial credit if they commented only on the effect on earnings without tying it to book value.

(i) The key principle of accrual accounting with respect to DAC is the matching principle. The DAC spreads the acquisition costs over the life of the policy to better match the revenues they were incurred to earn.

(ii) In the year of capitalization, the book value would be higher than without capitalization due to lower expenses. This flows through income and the difference is reflected on the asset side as a DAC asset. In the following years, the book value will continue to be higher until the DAC asset has been fully amortized.

(b) Assess whether Blue Jay Air should purchase the new aircraft or not, based only on the purchase's effects on the above accounting ratios. Justify your answer.

Commentary on Question:
Correctly calculating all three ratios was required for full credit. Many candidates struggled with the calculation of the depreciation expense and its inclusion in the Operating Profit Margin and Return on Assets. Credits were awarded for either a marginal or complete ratio calculation.

Depreciation expense = (200 – 50) / 15 = 10 per year
Additional profit = 60 – 40 – 10 = 10 per year

Marginal OPM = 10 / 60 = 16.7% favorable compared to 8%
Marginal RoA = 10 / 200 = 5.0% unfavorable compared to 10%
Debt ratio will decrease due to a debt-free increase in assets; favorable.

Based on the above ratios, BJA should purchase the new aircraft.

(c) Assess whether the straight-line depreciation method is appropriate for the new aircraft. Justify your answer.

Commentary on Question:
The takeaway for this question is that the depreciation schedule should closely reflect the matching principle. Candidates received no credit for mentioning that it is BJA's current depreciation method or making conclusions that aircrafts should be depreciated more quickly or slowly in the earlier years as this is not supported by case facts.

9. **Continued**

Possible solution #1:
Straight-line depreciation is appropriate because the aircraft is expected to generate a constant $60 million of revenues a year. A flat depreciation expense closely matches a constant revenue pattern.

Possible solution #2:
Straight-line depreciation is not appropriate as aircrafts experience wear-and-tear based on level of use. BJA should adopt activity based costing and use the units of production or units of time method.

(d)

(i) Describe two considerations for an acquisition of each of Xolar and Skylite based on the accounting information above assuming the purchase prices are equal.

(ii) Describe two non-financial considerations for an acquisition for each of Xolar and Skylite.

Commentary on Question:
Candidates were encouraged to use financial and non-financial information from both the exam text and the case study to support decision-making from BJA's perspective. Many candidates generally performed poorly on this question because they simply compared and contrasted Xolar and Skylite Aircraft while making no attempt to connect these considerations to BJA's key risks and objectives. Candidates were awarded points for considerations not included below if they are well substantiated in the context of BJA.

Financial and non-financial considerations include, but are not limited to:

(i) Financial:

- Xolar's operating margin is widening by controlling operating expenses. BJA may be able to leverage these cost-cutting measures.
- Xolar's financials are experiencing very little growth. This will be a problem if BJA's management decides it would like to expand in the aircraft manufacturing business versus the current simple integration.
- Skylite's operating margin is widening by increasing operating revenues.
- Skylite's forecast gives no indication of Skylite trying to control operating costs, which runs counter to the industry's key element.
- Skylite's non-operating expenses are growing comparative quickly. This may be the result of interest expenses or other expenses that BJA cannot easily control with a cost-cutting program.

9. **Continued**

(ii) Non-Financial:

- Xolar has a cost-cutting campaign which aligns BJA with an industry key element of cost control. However, it is yet unproven.
- Xolar is losing sales and market share to Skylite Aircraft. BJA needs to consider whether or not it intends for Xolar to provide for BJA only or continue to sell aircraft to other airlines.
- Xolar's X730 aircraft is involved in too many incidents which takes away from one of BJA's three important virtues: safety.
- Only 5 airlines other than BJA use Xolar's X370. It will be harder for BJA to increase Xolar's revenues and/or market share after acquisition.
- The majority of BJA's aircrafts are manufactured by Xolar. BJA's aircraft maintenance crew should be well-trained to maintain Xolar aircraft, leading to synergies created via cost reduction. Furthermore, Xolar personnel can train or provide assistance to BJA's personnel.
- Skylite's turnaround in marketing strategy led to a number of new orders last year, meaning it cannot dedicate 100% of its resources to BJA. Xolar is more readily available in this regard.
- Skylite has a great safety record.
- Skylite is part of a global aerospace and defense corporation which may have a vastly different corporate culture than BJA. BJA should consider additional costs of integration.

(e) Describe the shortcomings of using book value as the primary value metric of a company following an acquisition.

Commentary on Question:
Most candidates performed well on this question. Candidates who only mentioned goodwill received no credit as goodwill is generated and included in the book value upon acquisition as an intangible asset.

Book value reflects the historical cost of the company. Although it reflects net income as a measure of performance, it does not reflect gains on value created through synergies through acquisition. It does not reflect the company's intrinsic value.

9. **Continued**

(f) Rank the following performance measures based on their effectiveness in assessing the success of the acquisition:

- Operating profit margin
- Credit rating
- Total long term debt
- Market share

Justify your ranking.

Commentary on Question:
Emphasis is given on the candidate's supporting justification rather than the actual ranking. Candidates typically performed poorly on this question. Many candidates explained which measures were effective for a typical acquisition, but make no attempts in connecting these measures to this particular acquisition using case facts.

In order of decreasing effectiveness:
Credit rating = operating profit margin > total long term debt > market share

Maintaining the credit rating is a key risk management objective. Coupled with the large debt ratio and the fact that BJA needed to finance the acquisition from either new investors or selling Blue Jay Tire, continuing investor confidence and credit worthiness are key and the credit rating is a good indicator of this.

One main objective of a vertical integration such as this is cost control. Cost control is a key element in this industry. Note that Skylite has had significant cost overrun issues. The operating profit margin is a good indicator of whether or not BJA is benefitting from any synergies derived or if Skylite's cost overrun issues have been resolved.

The debt ratio is disproportionately large at the moment. BJA should control debt levels going forward.

Increasing market share is not a key objective for BJA. The acquisition of Skylite is a vertical integration, and is not expected to increase market share immediately.

(g) Critique whether the proposed performance measures are appropriate for each executive.

9. Continued

Commentary on Question:
Candidates performed worse than expected. Candidates needed to be able to identify the responsibilities of each executive and whether or not the proposed measures supported metrics directly or indirectly under the executive's control. Candidates were given credit if the critique supported the assumptions as candidates typically did not agree whether or not the total revenues was part of the VP Operations' responsibilities.

The VP Finance is responsible for overseeing BJA's finance and accounting function. This includes managing BJA's capital position, debt, etc. Since a key management objective is to maintain the credit rating at BBB- or better, coupled with the fact that BJA's debt ratio is really high, the credit rating should be one of the VP Finance's key metrics. Although the VP Finance may be responsible for establishing targets for operating expenses, s/he is not responsible for controlling BJA's operating expenses.

The VP Operations is responsible for streamlining BJA's flight operations, enhancing efficiency by reducing operating costs and maximizing flight uptime. Total revenue is a good indicator of whether or not the operations are efficient. Furthermore, the JACDEC safety index is a good measure because the VP Operations is responsible for guaranteeing the safety of the passengers. Further note that the index is part of BJA's balanced scorecard.

The VP Marketing is responsible for maximizing awareness, and thereby sales of BJA. Both the number of loyalty program participants and average flight seat occupancy are both indirect indicators of revenue levels. More importantly, they measure the sustainability of future revenue. Therefore, both measures are appropriate.