

PGDM-IBM, 2016-18  
Advance Risk Management  
INS-404-B

Trimester – IV, End-Term Examination: September 2017

Time allowed: 2 Hrs 30 Min

Roll No: \_\_\_\_\_

Max Marks: 50

**Instruction:** Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means**. All other instructions on the reverse of Admit Card should be followed meticulously.

**Section-A**

A1. Albert Dreiden wants to estimate the expected return on the market. He believes that the stock of the Herbert Materials Company is fairly valued, and gathers the following information:

- Expected return for Hobart 7.50%
- Risk free rate 4.50%
- beta for Hobart 0.80

Based on this information, calculate the expected return for the market portfolio.

- A2. What is Capital market line and what is its relevance in risk management?
- A3. How can a HAZOP study assist the understanding of risk and its consequences?
- A4. What risk may an organisation consider to be the killer risk?
- A5. What should risk manager consider when assessing the potential consequences of an incident?

**Section-B**

B1. You are the Risk Manager for a newly formed risk management department in a well known retail organisation. Recent major loss incidents have caused both internal and external concern, leading to the formation of your department.

- (a) Describe the impact that the recent major loss incidents may have had on the organisation in terms of costs and stakeholder interests.
- (b) Describe how the risk management department will create a risk aware culture within the organisation and the challenges they may face.

B2. Draw a risk matrix showing how probability and severity can be demonstrated. show on the matrix how it can illustrate a level of acceptable risk profitability and risk severity.

B3. Samuel Perkins invests his clients' assets in combinations of the risk free asset and the market portfolio. Current market expectations are as follows

- Expected return on the market portfolio      12%
- Standard deviation on the market portfolio      20%
- Risk free rate      4%

A. Perkins advises a client who would like to have a portfolio with a standard deviation equal to 10%. Using the market portfolio and risk free asset, a portfolio meeting client's risk tolerance will have an expected return of ?

B. What is the appropriate allocation to the optimal risky portfolio for a client who has a 10% standard deviation objective?

### Section-C

#### **Case Study Compulsory:-**

#### **OVERVIEW & COMPANY BACKGROUND**

Midwestern Utilities, Inc., (The Company) is a utility holding company with approximately \$20 billion in total assets, \$5 billion in annual revenues, and a workforce of approximately 10,000 employees. Its principal business operations are regulated electric and gas delivery businesses. The Company provides electric services to over 1 million customers in rural and urban areas and delivers gas services to over 100,000 customers in a few large metropolitan areas. The majority of the Company's business operations are subject to regulation.

#### **ERM PROCESS**

The Company has always had a strong focus on risk management given the nature of its business and the fact that it faces extensive regulation. However, it had not taken a structured enterprise-wide approach to managing risks until it began a formal Enterprise Risk Management (ERM) program after the Sarbanes-Oxley Act of 2002 was passed. The CFO of the Company initiated the process by selecting a director of ERM. The newly appointed director of ERM consulted two other utility companies that had more mature ERM processes to identify best practices that are important for a successful ERM launch.

The ERM director began the ERM process by going to each of the senior vice presidents of the major departments of the Company to request participation in the development of the initial inventory of risks. Each senior vice president then selected one individual at the director or general manager level to represent them in the ERM

function. After collecting all of the key people from each department, the ERM director organized a series of brainstorming workshops. Starting at the enterprise level and working down into the department level, the workshops focused on the major corporate risks. The workshop started with the scenarios that would be the most severe if they were to occur. Next, the workshop determined which scenarios would have the greatest likelihood of occurring. Finally, the workshop determined which scenarios would be more controllable by the Company. When this process was completed, the ERM director had a list of 14 major corporate risks that were spread out among all of the departments in the Company. For each of these risks, a person within the responsible department was named the risk owner and was given the responsibility of managing the risk. The risk owners continued to work under the senior vice presidents in their departments while also working with the ERM director to manage the risks. All of the risk owners collectively constitute the corporate risk committee, and each serve the ERM function in addition to the current position they hold in their respective departments.

#### **DEVELOPING KEY RISK INDICATORS**

The Company began developing KRIs as the ERM function matured and became more integrated with the operations of the Company. The goal was to develop metrics that would provide signals to alert management to increasing risk exposures or trends that could either present opportunities or threaten the achievement of corporate goals. The Company relied on data driven analysis to support its conclusions throughout this process, and organized its thinking by using a technique referred to as a "bowtie analysis" to identify the metrics that would be most helpful in predicting risk events.

The result of this process for regulatory risk at the Company is illustrated in the table below.

Description	Measure	Goal	Thresholds	Weighting
Energy commodity prices	# - Ratio / monthly	N/A	Red: $x \geq 1$ Yellow: $0.9 < x < 1$ Green: $x \leq 0.9$	High
Typical customer bill	Ratio of 12-month average to 5 yr. average / monthly	N/A	R: $x \geq 1$ Y: $0.9 < x < 1$ G: $x \leq 0.9$	High
State economic conditions	Unemployment % rate / monthly	N/A	R: $x \geq 9$ Y: $7 < x < 9$ G: $x \leq 7$	Medium
Exceedance of performance thresholds	# per every 3 years / monthly	N/A	R: $x \geq 4$ Y: $1 < x < 3$ G: $x = 0$	Medium
State regulatory success rate for prior 12 months	% of success rate / monthly	70%	R: $< 25\%$ Y: $25-70\%$ G: $\geq 70\%$	Low

Questions-1: illustrate the bowtie analysis as mentioned by the Risk Manager while developing key indicators.

Question-2: After the causes has been identified as a risk manager create a metric that could be used as KRIs with different scales.

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