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The following is a review of the Foundations of Risk Management principles designed to address the learning objectives set forth by GARP®. This topic is also covered in:

# RISK MANAGEMENT: A HELICOPTER VIEW

Topic 1

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## EXAM FOCUS

This is an introductory topic that provides coverage of fundamental risk management concepts that will be discussed in much more detail throughout the FRM curriculum. For the exam, it is important to understand the general risk management process and its potential shortcomings, the concept of unexpected loss, and some of the underlying points regarding the relationship between risk and reward. Also, the material on the main categories of financial and non-financial risks contains several testable concepts.

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## THE CONCEPT OF RISK

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### LO 1.1: Explain the concept of risk and compare risk management to risk taking.

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**Risk** arises from the uncertainty regarding an entity's future losses as well as future gains. Therefore, in simplified terms, there is a natural trade-off between risk and return. Risk is not necessarily related to the size of the potential loss. For example, many potential losses are large but are quite predictable and can be provided for using risk management techniques. The more important concern is the variability of the loss, especially a loss that could rise to unexpectedly high levels or a loss that suddenly occurs that was not anticipated.

As a starting point, **risk management** includes the sequence of activities aimed to reduce or eliminate an entity's potential to incur expected losses. On top of that, there is the need to manage the unexpected variability of some costs. In managing both expected and unexpected losses, risk management can be thought of as a defensive technique. However, risk management is actually broader in the sense that it considers how an entity can consciously determine how much risk it is willing to take to earn future uncertain returns, which involves risk taking.

**Risk taking** refers specifically to the active assumption of incremental risk in order to generate incremental gains. In that regard, risk taking can be thought of in an opportunistic context.

## THE RISK MANAGEMENT PROCESS

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### LO 1.2: Describe the risk management process and identify problems and challenges which can arise in the risk management process.

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The risk management process involves the following five steps:

*Step 1:* Identify the risks.

*Step 2:* Quantify and estimate the risk exposures *or* determine appropriate methods to transfer the risks.

*Step 3:* Determine the collective effects of the risk exposures *or* perform a cost-benefit analysis on risk transfer methods.

*Step 4:* Develop a risk mitigation strategy (i.e., avoid, transfer, mitigate, or assume risk).

*Step 5:* Assess performance and amend risk mitigation strategy as needed.

In practice, this process is not likely to operate perfectly in the above sequence. Two key problems with the process include identifying the correct risk(s) and finding an efficient method of transferring the risk.

One of the challenges in ensuring that risk management will be beneficial to the economy is that risk must be sufficiently dispersed among willing and able participants in the economy. Unfortunately, a notable failure of risk management occurred during the financial crisis between 2007 and 2009 when it was subsequently discovered that risk was too concentrated among too few participants.

Another challenge of the risk management process is that it has failed to consistently assist in preventing market disruptions or preventing financial accounting fraud (due to corporate governance failures). For example, the existence of derivative financial instruments greatly facilitates the ability to assume high levels of risk and the tendency of risk managers to follow each other's actions (e.g., selling risky assets during a market crisis, which disrupts the market by increasing its volatility).

In addition, the use of derivatives as complex trading strategies assisted in overstating the financial position (i.e., net assets on balance sheet) of many entities and understating the level of risk assumed by many entities. Even with the best risk management policies in place, using such inaccurate information would not allow the policies to be effective.

Finally, risk management may not be effective on an overall economic basis because it only involves risk transferring by one party and risk assumption by another party. It does not result in overall risk elimination. In other words, risk management can be thought of as a zero-sum game in that some "winning" parties will gain at the expense of some "losing" parties. However, if enough parties suffer devastating losses due to an excessive assumption of risk, it could lead to a widespread economic crisis.

**MEASURING AND MANAGING RISK**

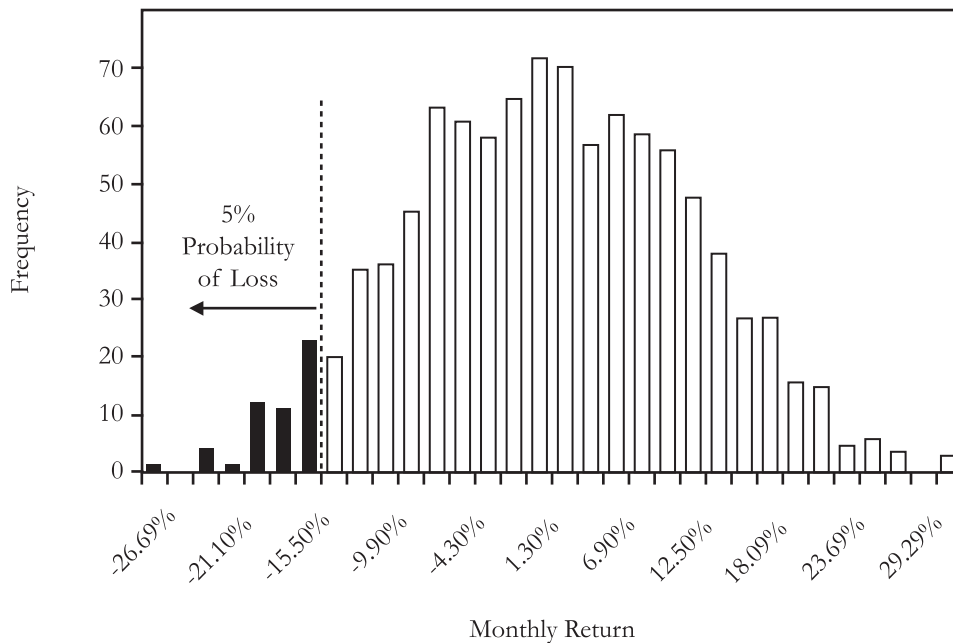
**LO 1.3: Evaluate and apply tools and procedures used to measure and manage risk, including quantitative measures, qualitative assessment, and enterprise risk management.**

**Quantitative Measures**

**Value at risk (VaR)** states a certain loss amount and its probability of occurring. For example, a financial institution may have a one-day VaR of \$2.5 million at the 95% confidence level. That would be interpreted as having a 5% chance that there will be a loss greater than \$2.5 million on any given day. VaR is a useful measure for liquid positions operating under normal market circumstances over a short period of time. It is less useful and potentially dangerous when attempting to measure risk in non-normal circumstances, in illiquid positions, and over a long period of time.

To further illustrate the concept of VaR, assume you have gathered 1,000 monthly returns for a security and produced the histogram shown in Figure 1. You decide that you want to compute the monthly VaR for this security at a confidence level of 95%. At a 95% confidence level, the lower tail displays the lowest 5% of the underlying distribution's returns. For this distribution, the value associated with a 95% confidence level is a return of -15.5%. If you have \$1,000,000 invested in this security, the one-month VaR is \$155,000 ( $-15.5\% \times \$1,000,000$ ).

**Figure 1: Histogram of Monthly Returns**





*Professor's Note: This calculation is an example of historical VaR. In Book 4, we will discuss the main types of value at risk: delta-normal VaR, historical VaR, and Monte Carlo simulation VaR.*

**Economic capital** refers to holding sufficient liquid reserves to cover a potential loss. For example, if one-day VaR is \$2.5 million and the entity holds \$2.5 million in liquid reserves, then it is unlikely to go bankrupt that day.

### Qualitative Assessment

**Scenario analysis** takes into account potential risk factors with uncertainties that are often non-quantifiable. One option is to consider an adverse scenario or worst-case scenario analysis to get an idea of the full magnitude of potential losses even if they have a very small chance of occurring. Worst-case scenario analysis involves examining the effects of possible macroeconomic scenarios on the entity and within its various divisions, often taking into account several categories of risk.

**Stress testing** is a form of scenario analysis that examines a financial outcome based on a given “stress” on the entity. For example, it is plausible for interest rates or unemployment rates to rise severely in an economic crisis and stress testing attempts to examine such crisis situations to determine the outcome on the entity.

### Enterprise Risk Management (ERM)

ERM takes an integrative approach to risk management within an entire entity, dispensing of the traditional approach of independently managing risk within each department or division of an entity. ERM considers entity-wide risks and tries to integrate risk considerations into key business decisions. Similar to traditional approaches, ERM makes use of measures such as economic capital and stress testing. Senior risk committees may exist within the entity to ensure that risks affecting the entire entity are examined. Within the ERM framework, the entity and its board of directors agree on specific risk exposure limits.

### EXPECTED AND UNEXPECTED LOSS

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#### LO 1.4: Distinguish between expected loss and unexpected loss, and provide examples of each.

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**Expected loss** considers how much an entity expects to lose in the normal course of business. It can often be computed in advance (and provided for) with relative ease because of the certainty involved.

For example, a retail business that provides credit terms on sales of goods to its customers (i.e., no need to pay immediately) incurs the risk of non-payment by some of those customers. If the business has been in operation for at least a few years, it could use its operating history to reasonably estimate the percentage of annual credit sales that will never be collected. The amount of the loss is therefore predictable and is treated as a regular cost

of doing business (i.e., bad debt expense on the income statement). It can be priced into the cost of the goods directly in the case of the retail business. In contrast, in lines of business in the financial sector, the cost could be recovered by charging commissions on various financial transactions or by implementing spreads between a financial institution's lending rate to borrowers and its cost of obtaining those funds.

**Unexpected loss** considers how much an entity could lose outside of the normal course of business. Compared to expected loss, it is generally more difficult to predict, compute, and provide for in advance because of the uncertainty involved.

For example, consider a commercial loan portfolio that is focused on loans to automotive manufacturing companies. During an economic expansion that favors such companies (because individuals have more disposable income to spend on items such as automobiles), the lender will realize very few, if any, loan defaults. However, during an economic recession, there is less disposable income to spend and many more loan defaults are likely to occur from borrowers, likely at the same time. This is an example of *correlation risk*, when unfavorable events happen together. The correlation risk drives up the potential losses to unexpected levels.

Another example of correlation risk lies with real estate loans secured by real property. Borrowers tend to default on such loans (i.e., default rate risk) at the same time that the real property values fall (i.e., recovery rate risk—the creditor's collateral is worth less, thereby compromising the recovery rate on the funds lent to the borrowers). These two risks occurring simultaneously could drive up the potential losses to unexpected levels.

Realizing the existence of correlation risks helps a risk manager measure and manage unexpected losses with somewhat more certainty. For example, historical analysis of the extent of such losses in the past due to correlation risk could be performed, taking into account which risk factors were involved.

## RISK AND REWARD

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### LO 1.5: Interpret the relationship between risk and reward.

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As previously mentioned, there is a trade-off between risk and reward. In very general and simplified terms, the greater the risk taken, the greater the potential reward. However, one must consider the variability of the potential reward. The portion of the variability that is measurable as a probability function could be thought of as risk whereas the portion that is not measurable could be thought of as uncertainty.

The relationship between risk and return appears easier to examine with publicly traded securities. For example, consider fixed-income securities. Government bonds have less credit risk than corporate bonds in general, so the pricing takes into account that the yield spreads for government bonds are narrower than corporate bonds across various maturities. However, for a given maturity, the full relationship between risk and return goes further than merely credit risk (e.g., liquidity risks and taxation impacts may make the relationship less clear). Additionally, the risk tolerances (i.e., ability and willingness to take on certain risks) of market participants may change over time. When risk tolerances are high, the

spread between riskless and risky bonds may narrow to an abnormally low level, which again disguises the true relationship between risk and return.

Examining the relationship between risk and return is made even more challenging when dealing with non-publicly traded securities because the pricing of such securities is less reliable compared to publicly traded securities (i.e., no market price validation).

In practice, some entities have weak risk management and/or risk governance cultures, which allows for potential returns to be overstated because they are not adjusted for risk. Correlation risks may be ignored, which understates overall risk. Some risk measures may be computed in a misleading manner because the proper computation may result in lower reported profits for the entity. For example, for entities that have management bonuses based on reported profits, the use of mark to market accounting may result in inflated profits on the income statement (and overstated values for risky assets on the balance sheet) during a strong year in order to maximize the management bonuses paid. However, at the same time, there are usually no adjustments made to risk that considers the fact that those profits have not truly been earned because no cash has been received yet and, in fact, may never materialize if the investments subsequently lose significant value.

## RISK CLASSES

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**LO 1.6: Describe and differentiate between the key classes of risks, explain how each type of risk can arise, and assess the potential impact of each type of risk on an organization.**

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### Market Risk

Market risk considers how changes in market prices and rates will result in investment losses. There are four subtypes of market risk: (1) interest rate risk, (2) equity price risk, (3) foreign exchange risk, and (4) commodity price risk.

**Interest rate risk** can be illustrated in simple terms by considering a bond earning a fixed rate of interest. If market interest rates rise, the value of the bond will decrease. Another form of interest rate risk is the hedging of bonds against a change in the shape of the yield curve (although it may be properly hedged against a parallel shift in the yield curve). Furthermore, interest rate risk may also arise from having completely unhedged positions or having only partially hedged positions due to underlying transactions that did not fully offset (even though they were meant to offset). In the latter case, the loss could be attributed to *basis risk*, which means that the presumed correlation between the price of a bond and the price of the hedging vehicle used to hedge that bond has changed unfavorably.

**Equity price risk** refers to the volatility of stock prices. It can be broken up into two parts: (1) *general market risk*, which is the sensitivity of the price of a stock to changes in broad market indices, and (2) *specific risk*, which is the sensitivity of the price of a stock due to unique factors of the entity (e.g., line of business, strategic weaknesses). For the investor, general market risk cannot be diversified away while specific risk can be diversified away.

**Foreign exchange risk** refers to monetary losses that arise because of unhedged or not fully hedged foreign currency positions. Foreign exchange risk results from imperfect correlations in currency price movements as well as changes in international interest rates. Potential large losses could reduce the extent of an entity's foreign investment and also put it at a competitive disadvantage compared to its foreign competitors.

**Commodity price risk** refers to the price volatility of commodities (e.g., precious metals, base metals, agricultural products, energy) due to the concentration of specific commodities in the hands of relatively few market participants. The resulting lack of trading liquidity tends to increase the amount of price volatility compared to financial securities. In addition, commodities may face significant price discontinuities (i.e., prices suddenly jump from one level to another).

## Credit Risk

Credit risk refers to a loss suffered by a party whereby the counterparty fails to meet its financial obligations to the party under the contract. Credit risk may also arise if there is an increasing risk of default by the counterparty throughout the duration of the contract. There are four subtypes of credit risk: (1) default risk, (2) bankruptcy risk, (3) downgrade risk, and (4) settlement risk.

**Default risk** refers to the non-payment of interest and/or principal on a loan by the borrower to the lender. The period of default past the due date could be at least 30 or 60 days.

**Bankruptcy risk** involves taking possession of any collateral provided by the defaulting counterparty. The risk is that the liquidation value of the collateral is insufficient to recover the full loss on default.

**Downgrade risk** considers the decreased creditworthiness (based on recent financial performance) of a counterparty to a transaction. A creditor may subsequently charge the downgraded entity a higher lending rate to compensate for the increased risk. For a creditor, downgrade risk may eventually lead to default risk.

**Settlement risk** could be illustrated using a derivatives transaction between two counterparties. At the settlement date, one of them is in a net gain ("winning") position and the other is in a net loss ("losing") position. The position that is losing may simply refuse to pay and fulfill its obligations.

Continuing with the concept of a net gain position in a transaction, credit risk exists only to that party. If the losing party defaults, then the winning party may lose some or all of that net gain. The portion that is expected to be recovered is called the *recovery value* and the portion that is expected to be lost is the *loss given default* (LGD). For example, if a party's net gain position is \$500,000 at settlement and only \$400,000 is expected to be recovered, then the recovery value is \$400,000 and the LGD is \$100,000. Expressed as percentages, the recovery rate is 80% and the LGD is 20%.

It is also necessary to consider credit risk within a portfolio of loans. The basic issue is to ensure that the lender charges a rate of interest to the borrower that is commensurate with

the risk taken. In addition, in order to avoid concentration risk, the lender should ensure sufficient diversification of loans across geographical areas and industries. Somewhat related to concentration risk are correlation risk and overall economic health. Economic recessions will result in more loan defaults and there is tendency for loans in similar geographical areas or industries to default at the same time. Finally, loan portfolios should consider the maturities of the loans and avoid concentration on specific maturities, giving rise to portfolio maturity risk. A more diversified portfolio with loans across a reasonable range of maturities will also help avoid liquidity risk by having more frequent cash inflows (i.e., loan principal repayments) over time rather than having most of the cash inflows at only specified times.

### Liquidity Risk

Liquidity risk is subdivided into two parts: (1) funding liquidity risk and (2) trading liquidity risk.

**Funding liquidity risk** occurs when an entity is unable to pay down or refinance its debt, satisfy any cash obligations to counterparties, or fund any capital withdrawals. **Trading liquidity risk** occurs when an entity is unable to buy or sell a security at the market price due to a temporary inability to find a counterparty to transact on the other side of the trade. For a transaction that must be executed immediately or in the near future, it might have to be done at a very significant discount, thereby leading to a huge loss. The loss effect is magnified for larger transactions.

The impact of trading liquidity risk on an entity could include impairments in its abilities to control market risk and to cover any funding shortfalls.

### Operational Risk

Operational risk considers a wide range of “non-financial” problems such as inadequate computer systems (technology risk), insufficient internal controls, incompetent management, fraud (e.g., losses due to intentional falsification of information), human error (e.g., losses due to incorrect data entry or accidental deletion of a file), and natural disasters.

Within a financial institution, the leveraged nature of derivatives transactions makes them susceptible to operational risk. Additionally, the difficulty in accurately valuing complicated derivatives transactions adds to operational risk.

A very robust system of internal controls is required within an entity or else there is a risk of significant losses due to various operational risks.

### Legal and Regulatory Risk

In practice, legal and regulatory risk is highly integrated with operational and reputation risk. Within a two-way financial transaction, an example of legal risk would be one party suing the other party in an attempt to nullify or terminate the transaction. From an investing perspective, an example of regulatory risk could be a change in tax law that increases the tax rate of certain types of income, thereby lowering the after-tax investment



returns for many investors, or changes in regulations that involve further areas of compliance, thereby increasing compliance costs for an entity.

### **Business Risk**

For the purposes of this topic, we will consider business risk from a financial perspective. In this regard, business risk revolves around uncertainty regarding the entity's income statement, although, in practice, there is a substantial amount of integration with strategic and reputation risk. From an income statement perspective, revenues may be uncertain because of the uncertainty surrounding the demand for products and/or the price that should be set. Production and administration costs may also be uncertain.

Business risk may arise because the actual product demand is significantly lower than anticipated or the marketplace's toleration of a selling price is much lower than expected. In addition, there may be production cost overruns or unexpected costs that substantially increase total expenses. Either way, the decreased revenues and/or the increased costs may be significant enough that the entity suffers financial losses.

From a non-financial (i.e., operational) perspective, a manufacturing company may experience business risk due to testing, production, or shipping delays. The result would be lost sales and/or substitution to competitors' products by consumers.

### **Strategic Risk**

Strategic risk can be thought of in the context of large new business investments, which carry a high degree of uncertainty as to ultimate success and profitability. For example, an entity could spend millions of dollars developing a new product that ultimately fails in the marketplace because consumers find it unsuitable for their needs.

Alternatively, it could be thought of from the perspective of an entity changing its business strategy compared to its competitors. For example, a financial institution may choose to change its lending focus from lending to stable firms and attempt to lend funds to risky firms at high rates of interest in order to earn higher profits. However, an economic crisis ensues and many of those risky firms default on their loans, leading to large losses to the lending financial institution.

The impact of strategic risk will be felt by an entity if its business decision has an unsuccessful result, thereby incurring large losses and loss of reputation/confidence by investors.

### **Reputation Risk**

Reputation risk consists of two parts: (1) the general perceived trustworthiness of an entity (i.e., that the entity is able and willing to meet its obligations to its creditors and counterparties) and (2) the general perception that the entity engages in fair dealing and conducts business in an ethical manner.

## Topic 1

### Cross Reference to GARP Assigned Reading – Crouhy, Galai, and Mark, Chapter 1

Reputation risk could arise partly due to the existence of the internet. For example, social networking sites and blogs could allow for rumors—true or false—to be spread about an entity very quickly. An entity's involvement in questionable and sophisticated financial transactions such as structured finance products or special purpose entities may give rise to reputation risk for an entity because the interpretation of the accounting and tax rules related to such transactions may be misleading and border on illegal in some cases.

The impact of reputation risk on an entity could start with lost profits and eventually lead to insolvency as public perception of the entity diminishes together with the value of the entity.

## KEY CONCEPTS

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### LO 1.1

Risk arises from the uncertainty regarding an entity's future losses as well as future gains. Risk management includes the sequence of activities aimed to reduce or eliminate an entity's potential to incur expected losses. Risk taking refers specifically to the active assumption of incremental risk in order to generate incremental gains.

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### LO 1.2

In its basic format, the risk management process is as follows:

*Step 1:* Identify the risks.

*Step 2:* Quantify and estimate the risk exposures or determine appropriate methods to transfer the risks.

*Step 3:* Determine the collective effects of the risk exposures or perform a cost-benefit analysis on risk transfer methods.

*Step 4:* Develop a risk mitigation strategy (i.e., avoid, transfer, mitigate, or assume risk).

*Step 5:* Assess performance and amend risk mitigation strategy as needed.

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### LO 1.3

Value at risk (VaR) states a certain loss amount and its probability of occurring.

Economic capital refers to holding sufficient liquid reserves to cover a potential loss.

Scenario analysis takes into account potential risk factors with uncertainties that are often non-quantifiable.

Stress testing is a form of scenario analysis that examines a financial outcome based on a given "stress" on the entity.

Enterprise risk management takes an integrative approach to risk management within an entire entity, dispensing of the traditional approach of independently managing risk within each department or division of an entity.

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### LO 1.4

Expected loss considers how much an entity expects to lose in the normal course of business. It can often be computed in advance (and provided for) with relative ease because of the certainty involved.

Unexpected loss considers how much an entity could lose usually outside of the normal course of business. Compared to expected loss, it is generally more difficult to predict, compute, and provide for in advance because of the uncertainty involved.

**LO 1.5**

There is a trade-off between risk and reward. In very general and simplified terms, the greater the risk taken, the greater the potential reward. However, one must consider the variability of the potential reward. The portion of the variability that is measurable as a probability function could be thought of as risk whereas the portion that is not measurable could be thought of as uncertainty.

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**LO 1.6**

There are eight key classes of risk: (1) market risk, (2) credit risk, (3) liquidity risk, (4) operational risk, (5) legal and regulatory risk, (6) business risk, (7) strategic risk, and (8) reputation risk.

Market risk considers how changes in market prices and rates will result in investment losses. There are four subtypes of market risk: (1) interest rate risk, (2) equity price risk, (3) foreign exchange risk, and (4) commodity price risk.

Credit risk refers to a loss suffered by a party whereby the counterparty fails to meet its financial obligations to the party under the contract. Credit risk may also arise if there is an increasing risk of default by the counterparty throughout the duration of the contract. There are four subtypes of credit risk: (1) default risk, (2) bankruptcy risk, (3) downgrade risk, and (4) settlement risk.

Liquidity risk is subdivided into two parts: (1) funding liquidity risk and (2) trading liquidity risk. Funding liquidity risk occurs when an entity is unable to pay down or refinance its debt, satisfy any cash obligations to counterparties, or fund any capital withdrawals. Trading liquidity risk occurs when an entity is unable to buy or sell a security at the market price due to a temporary inability to find a counterparty to transact on the other side of the trade.

Operational risk considers a wide range of non-financial problems such as inadequate computer systems, insufficient internal controls, incompetent management, fraud, human error, and natural disasters.

Legal risk could arise when one party sues the other party in an attempt to nullify or terminate the transaction. Regulatory risk could arise from changes in laws and regulations that are unfavorable to the entity (e.g., higher tax rates, higher compliance costs).

Business risk revolves around uncertainty regarding the entity's income statement. Revenues may be uncertain because of the uncertainty surrounding the demand for the products and/or the price that should be set. Production and administration costs may also be uncertain.

Strategic risk can be thought of in the context of large new business investments, which carry a high degree of uncertainty as to ultimate success and profitability. Alternatively, it could be thought of from the perspective of an entity changing its business strategy compared to its competitors.

Reputation risk consists of two parts: (1) the general perceived trustworthiness of an entity (i.e., that the entity is able and willing to meet its obligations to its creditors and counterparties) and (2) the general perception that the entity engages in fair dealing and conducts business in an ethical manner.

**CONCEPT CHECKERS**

1. Which of the following statements regarding risk and risk management is correct?
  - A. Risk management is more concerned with unexpected losses versus expected losses.
  - B. There is a relationship between the amount of risk taken and the size of the potential loss.
  - C. The final step of the risk management process involves developing a risk mitigation strategy.
  - D. If executed properly, the risk management process may allow for risk elimination within an economy.
  
2. Examining the impact of a dramatic increase in interest rates on the value of a bond investment portfolio could be performed using which of the following tools?
  - I. Stress testing.
  - II. Enterprise risk management.
  - A. I only.
  - B. II only.
  - C. Both I and II.
  - D. Neither I nor II.
  
3. Which of the following items would be associated with unexpected losses?
  - I. Loan defaults are increasing simultaneously while recovery rates are decreasing.
  - II. Lending losses are covered by charging a spread between the cost of funds and the lending rate.
  - A. I only.
  - B. II only.
  - C. Both I and II.
  - D. Neither I nor II.
  
4. In considering the major classes of risks, which risk would best describe an entity with weak internal controls that could easily be circumvented with a lack of segregation of duties?
  - A. Business risk.
  - B. Legal and regulatory risk.
  - C. Operational risk.
  - D. Strategic risk.
  
5. Local Bank, Inc., (LBI) has loaned funds to a private manufacturing company, named We Make It All (Make It). The current balance of the loan is \$1 million and it is secured by a piece of land and the corresponding building owned by Make It. Due to an economic downturn, Make It suffered a loss for the first time in its 10-year operating history and is currently experiencing some cash flow difficulties. In addition, the land and building that is held as collateral has recently been appraised at only \$800,000. Based only on the information provided, which of the following risks faced by LBI have increased?
  - A. Bankruptcy risk and default risk.
  - B. Bankruptcy risk and settlement risk.
  - C. Default risk and downgrade risk.
  - D. Default risk, downgrade risk, and settlement risk.

## CONCEPT CHECKER ANSWERS

1. A Risk management is more concerned with the variability of losses, especially ones that could rise to unexpectedly high levels or ones that suddenly occur that were not anticipated (unexpected losses).

Choice B is not correct because risk is not necessarily related to the size of the potential loss. For example, many potential losses are large but are quite predictable and can be provided for using risk management techniques. Choice C is not correct because the final step of the risk management process involves assessing performance and amending the risk mitigation strategy as needed. Choice D is not correct because the risk management process only involves risk transferring by one party and risk assumption by another counterparty. It is a zero-sum game so it does not result in overall risk elimination.

2. C Examining the impact of a dramatic increase in interest rates is an example of stress testing. Enterprise risk management makes use of measures such as stress testing.
3. A Loan defaults are increasing simultaneously while recovery rates are decreasing is an example of correlation risk. Correlation risk could drive up the potential losses to unexpected levels.

In contrast, if lending losses are covered with a spread, given that there is sufficient information to compute such a spread, then the losses would likely be considered expected losses.

4. C Weak internal controls and lack of segregation of duties would represent a non-financial risk and be best described as an operational risk.

Choice A is not correct because business risk focuses on the income statement (i.e., revenues too low and expenses too high). Choice B is not correct because legal and regulatory risk focuses on the risk of an entity being sued or the risk of unfavorable changes in the rules and laws that the entity must follow. Choice D is not correct because strategic risk focuses on significant new business investments or significant changes in an entity's business strategy.

5. A The fact that the loan is secured by land and the building is now worth less than the amount of the loan outstanding subjects LBI to increased *bankruptcy risk* in the sense that the liquidation value of the collateral is insufficient to recover the loss if the loan defaults. The financial loss and the cash flow difficulties suggest that there is increased *default risk* for LBI as well.

*Downgrade risk* does not apply here because Make It's loan is not publicly traded and is unlikely to be rated by a recognized rating agency. *Settlement risk* does not apply here either because there is no exchange of cash flows at the end of the transaction that would be required to incur such risk. In this case, the loan is settled when Make It fully repays the principal balance owed.