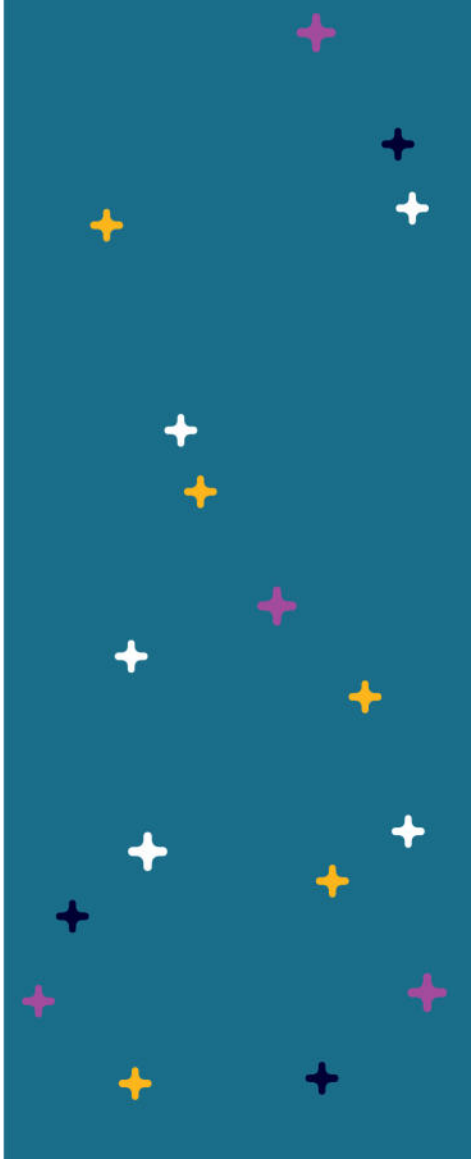
BAR

1

Risk Management and Economic Analysis

Module

1	Enterprise Risk Management Frameworks	3
2	Financial Risk Management	19
3	Market Influences on Business	39
4	International Business Operations	57
5	The Economic Effect of Significant Transactions	63



© Becker Professional Education Corporation. All rights reserved.

1 Introduction to Enterprise Risk Management

In 2004, COSO issued *Enterprise Risk Management (ERM)—Integrated Framework* ("the framework") to assist organizations in developing a comprehensive response to risk management. In recognition of the changing complexity of risk, the emergence of new risks, and the enhanced awareness of risk management by both boards and executive oversight bodies, COSO published *Enterprise Risk Management—Integrating With Strategy and Performance* in 2017 as an update to the 2004 framework.

The underlying premise of ERM is that every entity exists to provide value for stakeholders and that all entities face risk when implementing strategies to achieve this objective. The COSO ERM framework provides the following definitions:

- **Risk:** The possibility that events will occur and affect the achievement of strategy and business objectives.
- **Enterprise Risk Management**: The culture, capabilities, and practices, integrated with strategy-setting and performance, that organizations rely on to manage risk in creating, preserving, and realizing value.

1.1 Understanding the Concept of Value

Management and those charged with governance, such as an entity's board of directors, are responsible for making decisions that support the creation of value and prevent its decline. Value is defined by the type of entity:

- **For-Profit Commercial Entities:** Value is usually shaped by strategies that balance market opportunities against the risks of pursuing those opportunities.
- **Not-for-Profit and Governmental Entities:** Value may be shaped by delivering goods and services that balance the opportunity to serve the broader community against any associated risk.

Management decisions will affect the development of value, including its *creation, preservation, erosion,* and *realization*.

- Value is *created* when benefits of value exceed the cost of resources used. Resources may include people, financial capital, technology, process, and brand (market presence).
- Value is *preserved* when ongoing operations efficiently and effectively sustain created benefits. High customer satisfaction with profitable product lines is evidence of value preservation.
- Value is *eroded* when faulty strategy and inefficient/ineffective operations cause value to decline.
- Value is *realized* when benefits created by the organization are received by stakeholders in either monetary or nonmonetary form.

Material from *Enterprise Risk Management—Integrating With Strategy and Performance,* © 2017 Committee of Sponsoring Organizations of the Treadway Commission (COSO). Used with permission.

© Becker Professional Education Corporation. All rights reserved.

Pass Key

Organizations encounter risks of failing to provide or optimize value to stakeholders. ERM provides a framework to manage risks to provide a reasonable expectation of achieving value objectives.

1.2 Enterprise Risk Management and Strategy

ERM recognizes that attitudes toward risk shape the development of mission, vision, and core values. The consistency of risk attitudes with mission, vision, and core values is vital to the achievement of value objectives. Mission, vision, and core values define what an entity strives to be and how it wants to conduct business.

Pass Key

Mission represents the core purpose of the entity, including why it exists and what it hopes to accomplish.

Vision represents the aspirations of the entity and what it hopes to achieve over time.

Core values represent an organization's beliefs and ideals about what is good or bad, and acceptable or unacceptable; they influence the behavior of the organization.

1.2.1 Culture, Capabilities, and Practices

ERM is not a specific exercise or function of a business. It is the collective and ongoing interaction of an entity's culture, capabilities, and practices, and how those help support the development and execution of the company's strategy. Culture represents the collective thinking of the people within an organization. Individuals have unique points of reference that influence how they identify, assess, and respond to risk. Culture plays an important role in shaping decisions regarding risk.

Pass Key

Core values correlate with culture.

Understanding that managing risk is associated with a company's willingness and capability to navigate change and respond strategically gives an entity a competitive advantage. Competitive advantage produces value for an entity. Exploitation of competitive advantage and adaptation to change are capabilities embedded within ERM.

A company's practices include the methods and approaches deployed within an entity to manage risk. ERM is an organizational practice continually applied to the entire scope of activities of the business. It is part of management decisions at all levels of the entity.

© Becker Professional Education Corporation. All rights reserved.

1.2.2 Integration With Strategy-Setting and Performance

Strategy is set in a manner that aligns with mission and vision. Business objectives flow from strategy. Business objectives drive the activities of all business units and functions.

ERM integrates with strategy-setting and operating activities to promote an understanding of how risk potentially affects the entity overall and promote decision making consistent with risk attitudes.



Pass Key

Mission and vision correlate with strategy and business objectives.

1.3 Managing Risk Linked to Value

ERM practices are intended to provide management and the board with a reasonable expectation that the organization's overall strategy and business objectives can be achieved. The COSO defines reasonable expectation as the reasonable, but not absolute, expectation that strategy and business objectives will be achieved within the risk appetite of the organization.

An organization must continually review and manage the types and amounts of risk it is willing to accept in its pursuit of value.

1.3.1 Risk Appetite

Risk appetite represents the types and amounts of risk, on a broad level, that an organization is willing to accept in pursuit of value. Risk appetite is a range rather than a specific limit and provides guidance on the practices an organization is encouraged to pursue or not pursue.

- Risk appetite is expressed first in mission and vision.
- Risk appetite varies between products, business units, or over time in line with changing capabilities for managing risk and must be flexible enough to adapt to changing business conditions.

1.3.2 Relationship of Value and Risk Appetite

Managing risk within risk appetite enhances an organization's ability to create, preserve, and realize value. ERM seeks to align anticipated value creation with risk appetite and capabilities for managing risk over time.

2 Enterprise Risk Management Framework

Enterprise risk management is depicted as a series of sequential yet intertwined components that drive an organization toward enhanced value. A key concept underlying the ERM framework is that alignment between risk management and strategy is critical and that it should be embedded throughout a company across functions and levels.

The tone at the top and communication are linked, and weave into the similarly linked efforts to develop overall strategy, specific business objectives, and manage performance to the achievement of value.

© Becker Professional Education Corporation. All rights reserved.

Mission, vision, and values drive the process but are also affected by performance, as management constantly reviews its risks and its ability to create value.



Enterprise Risk Management—Integrating With Strategy and Performance, © 2017 Committee of Sponsoring Organizations of the Treadway Commission (COSO). Used with permission.

Enterprise risk management is defined by five interrelated components and is supported by 20 risk management principles. The components somewhat resemble the COSO cube for internal control but address the broader issues of risk as it impacts an entity.

1. Governance and Culture
2. Strategy and Objective-Setting
3. Performance
4. Review and Revision
5. Information, Communication, and Reporting (Ongoing)

Pass Key

The five components of ERM are supported by 20 principles. Recollecting which principles support which components is a potential source of multiple-choice points, summarized below:

Governance and Culture	Strategy and **O**bjective-Setting	**P**erformance	**R**eview and Revision	Information, Communication, and Reporting (**O**ngoing)
DOVES	**SOAR**	**VAPIR**	**SIR**	**TIP**

(continued)

© Becker Professional Education Corporation. All rights reserved.

(continued)

Governance and Culture	**D**	Defines **d**esired culture
	O	Exercises board **o**versight
	V	Demonstrates commitment to core **v**alues
	E	Attracts, develops, and retains capable individuals (**e**mployees)
	S	Establishes operating **s**tructure
Strategy and **O**bjective-Setting	**S**	Evaluates alternative **s**trategies
	O	Formulates business **o**bjectives
	A	**A**nalyzes business context
	R	Defines **ri**sk appetite
Performance	**V**	Develops portfolio **v**iew
	A	**A**ssesses severity of risk
	P	**P**rioritizes risk
	I	**I**dentifies risks (events)
	R	Implements risk **r**esponses
Review and Revision	**S**	Assesses **s**ubstantial change
	I	Pursues **i**mprovement in enterprise risk management
	R	**R**eviews risk and performance
Information, Communication, and Reporting (**O**ngoing)	**T**	Leverages information and **t**echnology
	I	Communicates risk **i**nformation
	P	Reports on risk, culture, and **p**erformance

2.1 Governance and Culture (DOVES)

Governance and culture together form a base for all other components of enterprise risk management.

- Governance sets the entity's tone at the top, serves to endorse the importance of enterprise risk management, and establishes oversight responsibilities for ERM.
- Culture is reflected in decision making.

2.1.1 Defines Desired Culture

The organization defines the desired behaviors that characterize the entity's desired culture. An entity's culture influences how the organization identifies risk, what types of risk it accepts, and how it manages risk. Culture is a spectrum that progresses from risk-averse to risk-neutral and extends to risk-aggressive.

2.1.2 Exercises Board Oversight

The board of directors provides oversight for an entity's strategy and carries out governance responsibilities to support management in achieving strategy and business objectives. The board is expected to have the skills, experience, and business knowledge to understand the entity's strategy; stay informed on relevant issues; and maintain an active and accountable role that is independent and conscious of potential bias.

© Becker Professional Education Corporation. All rights reserved.

Illustration 1 Board Oversight

Active and accountable board oversight is often characterized by frequent conversations with management to determine the suitability of ERM design and effectiveness in enhancing value.

2.1.3 Demonstrates Commitment to Core Values

The organization demonstrates a commitment to the entity's core values. Without support from the top of the organization, risk awareness can be undermined and risk-inspired decisions may be inconsistent with those values.

2.1.4 Attracts, Develops, and Retains Capable Individuals (Employees)

Commitment to building human capital in alignment with the strategy and business objectives is a principle of the governance and culture component. The ultimate accountability for development and retention of capable individuals starts with the board and its selection of executive leadership. The selection of team members is typically delegated to appropriate levels of management. Human resources professionals assist management in assembling competent team members through consideration of the following factors:

- Knowledge, skills, and experience
- Nature and degree of judgment and limitations of authority to be applied to a specific position
- The costs and benefit of different skill levels and experience

The ongoing process of attracting, developing, and retaining individuals requires an emphasis on training, mentoring, and evaluating talent as well as ensuring an adequate succession plan for key roles.

2.1.5 Establishes Operating Structure

Operating structures are established to pursue strategy and business objectives. Operating structures describe how an entity organizes and carries out its day-to-day operations and contributes to the alignment of risk management practices with core values.

Pass Key

The ability of an organization to successfully achieve its strategy and business objectives is impeded when the behaviors and decisions of the organization (culture) do not align with its core values and risk appetite. Strategy must be compatible with culture.

© Becker Professional Education Corporation. All rights reserved.

2.2 Strategy and Objective-Setting (SOAR)

Enterprise risk management is integrated into the entity's strategic plan through the process of setting strategy and business objectives that consider both internal and external factors and their effect on risk framed by business context.

- An organization sets its risk appetite in conjunction with strategy-setting.
- The business objectives allow strategy to be put into practice and shape the entity's day-to-day operations and priorities.

2.2.1 Evaluates Alternative Strategies

Evaluation of alternative strategies and the potential effect on composite risks faced by the organization during implementation and execution is a principle supporting the strategy and objective-setting component. Strategy is evaluated from two perspectives:

- The possibility that the strategy does not align with the mission, vision, and core values of the entity
- The implications from the chosen strategy

Misaligned strategies may impede achievement of the entity's mission. Mission, risk appetite, and strategy must be aligned.

The implications of each strategy include understanding the risks and opportunities of each strategy. Identified risks collectively form a risk profile and serve as the basis for developing and evaluating alternative strategies.

The COSO defines *risk profile* as a composite view of the risk assumed at a particular level of the entity or aspect of the business that positions management to consider the types, severity, and interdependencies of risk and how they may affect performance relative to the strategy and business objectives. Risk profile determinations are made at different levels of performance that are specific to the risk assumed. Performance could be time, number of products, or any definition of effort. The risk profile measures the composite risk of all risks assumed at each performance level.

Illustration 2 Alternative Strategies

As a lender sets interest rates, it considers various risks to the objective of achieving a return. Those risks might include default, purchasing power, and credit risk. As term of the loan increases, the risk of loss associated with each risk also increases. The amount of time the loan is outstanding is a measure of performance. Each additional year on a loan motivates the lender to increase the interest rate on a loan in response to the increase in the composite of identified risks.

2.2.2 Formulates Business Objectives

Business objectives are the measurable steps that an organization makes to achieve its strategy. The alignment of business objectives to strategy supports the entity in achieving its mission and vision. Business objectives should align with the entity's risk appetite.

- Business objectives are developed that are specific, measurable or observable, attainable, and relevant (to the achievement of strategy).
- Business objectives may relate to financial performance, customer aspirations, operational efficiency, compliance obligations, or innovation.

© Becker Professional Education Corporation. All rights reserved.

The organization sets targets to monitor the performance of the entity and support the achievement of its business objectives. Targets may impact the risk profile of the entity (e.g., aggressive targets may result in greater risk).

2.2.3 Analyzes Business Context

The COSO defines *business context* as the trends, events, relationships, and other factors that may influence, clarify, or change an entity's current and future strategy and business objectives. Increasing market competitiveness, changing technology, or barriers to entry could be representative of business context.

2.2.4 Defines Risk Appetite

The organization defines risk appetite in the context of creating, preserving, and realizing value.

- Entities consider risk appetite in qualitative terms, while others may be quantitative. The best approach for an entity is one that aligns with the analyses used to assess risk in general, whether that is qualitative or quantitative. Risk appetite is an exercise performed to consider the risks and opportunities of a strategy and relevant alternatives, and finding the optimal balance between the two.
- General terms such as "low appetite" or "high appetite" are sufficient expressions of risk appetite. Referencing "targets," "ranges," "ceilings," or "floors" may also be used.

Ultimately, risk appetite is expressed in the context of objectives.

Illustration 3 Risk Appetite

An organization may define its risk appetite as a percentage of total capitalization that it is willing to lose in pursuit of a business objective.

2.3 Performance (VAPIR)

Identification and assessment of risks that may affect an entity's ability to achieve its strategy and business objectives represent the performance component.

- Organizations identify and assess risks that may affect the achievement of strategy and business objectives.
- Risk is prioritized according to severity and in consideration of the entity's risk appetite.
- The organization then selects risk responses and monitors performance for change.
- The resulting portfolio view describes the amount of risk the entity has assumed in the pursuit of its strategy and entity-level business objectives.

2.3.1 Develops Portfolio View

The COSO defines *portfolio view* as a composite view of risk the entity faces that positions management and the board to consider the types, severity, and interdependencies of risk and how they may affect the entity's performance relative to its strategy and business objectives.

The organization develops and evaluates a portfolio (entity-wide) view of risk. A portfolio view allows management and the board to consider the type, severity, and interdependencies of risks and how they may affect performance and align with the overall risk appetite.

© Becker Professional Education Corporation. All rights reserved.

2.3.2 Assesses Severity of Risk

The severity of risk is evaluated after it has been identified. Resources and capabilities are deployed to keep the risk within the entity's risk appetite based on the assessment.

The severity of a risk is assessed at multiple levels (across divisions, functions, and operating units) in line with the business objectives it may affect. Risks deemed severe at the operating level may be less of a concern at the division or entity level.

Severity measures relate to impact (result or effect of the risk) and likelihood (possibility of the risk occurring). Likelihood may be expressed qualitatively or quantitatively.

Risk assessment includes the concepts of inherent risk, target residual risk, and actual residual risk.

- Inherent risk is the risk to an entity in the absence of any direct or focused actions by management to alter its severity.
- Target residual risk is the amount of risk that an entity prefers to assume in the pursuit of its strategy and business objectives knowing that management will implement or has implemented direct or focused actions to alter the severity of the risk.
- Actual residual risk is the risk remaining after management has taken action.

2.3.3 Prioritizes Risk

Prioritization of risk as a basis for determining risk response is a principle underlying the performance component. Entities make informed strategy and resource allocation decisions when they consider the trade-offs of mitigating one risk against another. Factors such as risk severity, importance of the related business objective, and risk appetite are considered when prioritizing risks.

2.3.4 Identifies Risks

A risk inventory is a listing of the risks faced by an entity. Organizations create a risk inventory by identifying risks that may affect their performance in achieving strategy and business objectives. New and emerging risks are identified, and currently assessed risks are reevaluated using various techniques.

2.3.5 Implements Risk Responses

Risk responses are generally classified as:

- **Accept:** No action is taken to change the severity of the risk. Acceptance is most appropriate as a risk response when risk to strategy and business objectives is within the entity's risk appetite.
- **Avoid:** Action is taken to remove the risk (leaving a line of business, etc.). Avoidance is appropriate when an entity cannot devise a risk response that will mitigate the risk to objectives.
- **Pursue:** Action is taken that accepts increased risk to achieve improved performance. Pursuit of risk is appropriate when management understands the nature and extent of any changes required to achieve desired performance while not exceeding the boundaries of acceptable tolerance.
- **Reduce:** Action is taken to reduce the severity of the risk. Management designs risk mitigation techniques to reduce risk to an amount of severity aligned with the target risk profile and risk appetite.
- **Share:** Action is taken to reduce the severity of the risk. Sharing risk with such techniques as outsourcing and insurance lower residual risk in alignment with risk appetite.

Risk responses may trigger a review of strategic and business objectives.

© Becker Professional Education Corporation. All rights reserved.

2.4 Review and Revision (SIR)

Entities must continuously evaluate their strategies and business objectives as business context may shift and change over time. Organizations must revise business practices and supplement capabilities as necessary to ensure business objectives remain appropriate given the risk appetite of the entity.

2.4.1 Assesses Substantial Change

The entity identifies and assesses changes that may substantially affect strategy and business objectives. Assessments may include identifying internal and external environmental changes related to the business context as well as changes in culture. Changes may relate to innovation, growth, leadership, or the regulatory environment in which the entity operates.

2.4.2 Pursues Improvement in Enterprise Risk Management

The organization pursues improvement of enterprise risk management. Opportunities to revisit and improve efficiency and usefulness may occur in any area and include improvements such as new technology, changes in governance structure, or enhanced communication initiatives.

2.4.3 Reviews Risk and Performance

Organizations should evaluate the entity's performance in the context of the achievement of targets whether relevant risks were identified and considered, whether any new risks are emerging, and whether there are any necessary changes to the overall risk appetite or responses to risks. The entity should seek to make necessary revisions to the strategy, business objectives, or to the approach used to assess, prioritize, and respond to risks.

2.5 Information, Communication, and Reporting (Ongoing) (TIP)

Communication is the continual, iterative process of obtaining information and sharing it throughout the entity.

- Management uses relevant information from both internal and external sources to support enterprise risk management.
- The organization leverages information systems to capture, process, and manage data and information. By using information that applies to all components, the organization reports on risk, culture, and performance.

2.5.1 Leverages Information and Technology

The organization leverages the entity's information and technology systems to support the organization with relevant information. Relevant information helps the organization be more agile in its decision making and provides a competitive advantage.

© Becker Professional Education Corporation. All rights reserved.

Illustration 4 How Information Supports Decisions

Different types of information support different levels of the decision making:

Governance and culture-related practices. The organization may need information on the standards of conduct and individual performance in relation to those standards.

Strategy and objective-setting practices. The organization may need information on stakeholder expectations about risk appetite.

Performance-related practices. Organizations may need information on their competitors to assess changes in the amount of risk.

Review and revision-related practices. Organizations may need information on emerging trends in enterprise risk management.

Data management is integral to risk-aware decisions. Effective data management considers three key elements:

- Data and information governance promote standardization of high-quality data.
- Processes and controls promote data reliability.
- Data management architecture refers to the fundamental design of the technology. Design is driven by value defined by management's needs.

Information captured can be grouped by an entity by using a set of common risk categories (e.g., organized by functional area). Organization and aggregation of risk information may help an entity assess concentrations of risk and amend risk responses.

2.5.2 Communicates Risk Information

The organization uses communication channels to support enterprise risk management. Communications are made to internal and external stakeholders and with the board of directors. Communication techniques vary widely. Communication methods must be evaluated for effectiveness.

2.5.3 Reports on Risk, Culture, and Performance

The organization reports on the relationships among risk, culture, and performance at multiple levels and across the entity. Reporting may be either quantitative or qualitative and be made to a wide range of users, including management, risk owners, assurance providers, external stakeholders, and others.

Risk reporting may include reporting information such as portfolio risk (entity-wide), profile risk (focused on a specific risk profile of a division or level), new or emerging risks, and trends related to risk.

Reporting on culture seeks to measure and provide feedback on behavior and attitudes. Reporting can be complex and may be embodied by information on analytics related to cultural trends, benchmarking to other entities or standards, or analyses related to lessons learned.

The frequency of reporting should be commensurate with the severity and priority of risk.

© Becker Professional Education Corporation. All rights reserved.

3 Benefits and Application of the ERM Framework

The ERM objective is to provide management and stakeholders with reasonable expectation that strategies will be achieved. The COSO defines *reasonable expectation* as the amount of risk of having strategy and business objectives that is appropriate for an entity (within the risk appetite of the entity), recognizing that no one can predict risk with precision. Having a strong ERM system in place allows entities to integrate risk management practices with strategy-setting and performance management. This integration helps entities realize benefits related to value.

3.1 Benefits of Enterprise Risk Management

Companies that effectively integrate enterprise risk management are likely to benefit in their overall ability to realize value. Benefits may include the ability to:

- Increase the range of opportunities by considering all reasonable possibilities.
- Increase the positive outcomes and reduce negative or unexpected outcomes.
- Better manage entity-wide risk.
- Reduce performance variability by better anticipating risks and minimizing their impact.
- Improve and optimize the use of resources.

3.2 Applying Enterprise Risk Management Concepts

3.2.1 Governance and Culture

An entity defines its mission and vision. The mission and vision are a product of attitudes that will ultimately define risk appetite. The entity takes steps to ensure that the proper operating structure, management oversight, and core values are defined. Hiring and retaining competent and capable individuals are an integral part in any organization set on creating, preserving, and ultimately, realizing value.

3.2.2 Strategy and Objective-Setting

- Risk appetite not only considers the amount of risk a firm will take to achieve its objectives, but also what the firm perceives as risk and how vigorously it will respond.
- As an entity defines its objectives, it recognizes the business context of those objectives and further refines its risk appetite.
- The entity determines its risk capacity. The COSO defines *risk capacity* as the maximum amount of risk that an entity can absorb in the pursuit of strategy and business objectives.
- The entity refines its business objectives to measurable targets that are aligned with risk appetite.

3.2.3 Performance

- In preparing to pursue its objectives, an entity develops a risk inventory. All risks may not be directly relevant to the organization's objectives, but the inventory provides a comprehensive listing of risks that face the organization.
- The entity isolates and prioritizes the risks relevant to its objectives in part by analyzing their likelihood and impact and develops a risk profile.
- The entity considers its targets and risk profile and develops a risk tolerance that will allow some variability in achieving the objectives while staying within risk appetite.
- Risk responses are established to reduce the risk profile to within the entity's risk appetite.

© Becker Professional Education Corporation. All rights reserved.

3.2.4 Review and Revision

Business objectives or targets are set at performance levels where the risk profile is less than the risk appetite of the firm. The evaluation requires judgment, and the firm will adopt a risk tolerance for some variability in estimates and results. As business context shifts, entities will need to revise its practices to ensure alignment with the risk appetite is sustained.

3.2.5 Information, Communication, and Reporting (Ongoing)

Results are reviewed, communicated, and refined over time to ensure that internal and external stakeholders have timely and relevant information.

4 Application of ERM to Environmental, Social, and Governance (ESG) Risks

Environmental, social, and governance (ESG) related risks are becoming more relevant to the ability of entities to exist and thrive. As the landscape of risks continuously changes, it is imperative for entities to have a strong ERM system in place to ensure that strategy and business objectives remain aligned with risk appetite.

4.1 Understanding ESG-Related Risks

ESG issues are generally defined as follows:

- **Environmental Issues:** Include broad aggregate matters such as pollution, deforestation, and climate change. ESG values include positive efforts contributing to environmental protection.
- **Social Issues:** Include such legal and social matters as occupational health and safety, customer relations, employee relations, and human rights. ESG values include positive efforts contributing to socially responsible behavior and outcomes.
- **Governance Issues:** Include proactive board membership and succession planning, promoting fair compensation, promoting diversity and inclusion, establishing strong data security, preventing bribery and fraud, preventing culturally and politically insensitive remarks, and preventing discrimination. ESG values include positive efforts within an entity's governance to produce sustainable outcomes.

4.2 Application of ERM to ESG-Related Risks

Entities can apply the five ERM components to ESG risks as a means of identifying, responding, and reporting ESG-related risks. Integration of ESG values into corporate decision elevates ESG from periodic compliance reporting to an element of strategic planning.

4.2.1 Governance and Culture for ESG-Related Risks

This component of the ERM framework focuses on the oversight and culture of an entity and how that is applied to the entity's approach to risk management. For ESG-related risks, it is important that management is aware and understands applicable ESG-related risks. This awareness can be created by obtaining a deeper understanding of mandatory and voluntary ESG compliance requirements, ensuring that information related to ESG risks is shared in a collaborative manner throughout the organization, and considering individuals with ESG-related skills and knowledge during the hiring and talent management process.

© Becker Professional Education Corporation. All rights reserved.

4.2.2 Strategy and Objective-Setting for ESG-Related Risks

This component of the ERM framework includes understanding the business context of an entity and setting the strategy and business objectives in a manner that aligns the entity's risk appetite with its goal of creating value. When applying to ESG-related risks, management must consider the impact of the strategy and business objectives on nature and society and ensure that these impacts are considered in the short, medium, and long term. An entity must build upon the foundational knowledge discussed in the previous component and begin to gain a deeper understanding of the potential impacts through an analysis of existing and emerging ESG-related risks.

4.2.3 Performance for ESG-Related Risks

The performance component includes identifying, assessing, prioritizing, and responding to risks. Examples of ERM risks that are linked to ESG risk often include reputational, operational, credit, market, compliance, and liquidity risks.

- **Identification:** Entities may use many different approaches for identifying ESG-related risks, including megatrend analysis, SWOT analysis, impacts and dependency mapping, and stakeholder engagement. A stakeholder workshop may include discussions in which risk events are identified, likelihood and impact of events are reviewed, root causes of the event are identified, and prevention and detection approaches are evaluated for potential effectiveness. Ensuring collaboration between risk management and sustainability practitioners is key to the proper identification of ESG-related risks.
- **Assessment and Prioritization:** It is necessary to appropriately assess and prioritize risks to ensure that the entity's response is appropriate given the nature and severity of the risk. Leveraging ESG expertise is important to ensure that risk severity is appropriately assessed and communicated to management in a way that they understand.
- **Response:** Responding to identified risks is critical to an effective ERM framework. An entity considers the source of the risk, the cost and benefit of responses, and the overall risk appetite. A thorough understanding of the short-, medium-, and long-term impacts of ESG-related risks is important to ensure an appropriate response.

Illustration 5 ESG-Related Risks

Big Pharma Drug Co. is concerned with the compliance and reputational risk associated with unfair or predatory pricing of patented formulas. The governance issue of fraud and social issue of customer relations represent reputational risks. Stakeholders might discuss the likelihood that life-saving drugs might be overpriced, that the pricing might be considered predatory or even unlawful. Stakeholders would consider the impact of the pricing along with ways to prevent or correct instances in which pricing may be contrary to ESG values.

4.2.4 Review and Revision for ESG-Related Risks

Ongoing review and revision of the risk management approaches are an important component of ensuring that the approaches remain effective. For ESG-related risks, entities must continuously assess internal and external changes to ensure risks are appropriately identified and prioritized and seek improvements to ESG-related risk responses.

© Becker Professional Education Corporation. All rights reserved.

4.2.5 Information, Communication, and Reporting for ESG-Related Risks

The key objective of the ERM framework related to effective communication and reporting is that management and other stakeholders remain informed of risks so they are able to make informed decisions. Reporting may be to internal or external stakeholders and may be mandatory or voluntary. Because ESG issues can be complex, it is critical that data reported is accurate.

Examples of climate-related report disclosures may include:

- Oversight and governance of climate-related risks.
- Whether processes for identifying, assessing, and managing climate-related risks are integrated into overall risk management systems or processes.
- Plans to reduce climate-related risks.
- Specific climate-related metrics for financial statement disclosure (e.g., audited assertions regarding the impact of climate change on financial statement line items).
- Disclosures of greenhouse gas (GHG) emissions metrics.
- Climate-related targets or goals.

© Becker Professional Education Corporation. All rights reserved.

NOTES

© Becker Professional Education Corporation. All rights reserved.

1 Trade-offs Between Risk and Return

1.1 Definitions

Risk and return are a function of both market conditions and the risk preferences of the parties involved.

- **Risk:** May be defined as the chance of financial loss. More formally, the term "risk" may be used interchangeably with the term "uncertainty" to refer to the variability of returns associated with a given asset.
- **Return:** May be defined as the total gain or loss experienced on behalf of the owner of an asset over a given period. Typically, greater risk yields greater returns. The seller of financial securities compensates the buyer of financial securities with increased opportunity for profit by offering a higher rate of return.

1.2 Risk Preferences

Different managers have varying attitudes toward risk. Three basic risk preference behaviors exist:

- **Risk-Indifferent Behavior:** Reflects an attitude toward risk in which an investor seeks out the highest rate of return without any regard for risk. A risk-indifferent manager does not demand a higher rate of return when exposed to a greater level of risk.
- **Risk-Averse Behavior:** Reflects an attitude toward risk where investors are generally not willing to accept high risk. A risk-averse manager is willing to accept lower returns in exchange for minimizing risk and chooses the preservation of capital over the potential for a higher rate of return. If exposed to a greater risk, they would require a higher rate of return to compensate for the increased risk. Most managers are risk-averse.
- **Risk-Seeking Behavior:** Reflects an attitude toward risk where investors are generally willing to accept higher risk in exchange for higher returns. Risk-seeking managers are willing to accept greater economic uncertainty in exchange for the potential of higher returns.

2 Types of Risk

Measurements of risk attempt to capture the multiple dimensions of risk. Risk exposures include interest rate, market, default, credit, liquidity, and price risk.

2.1 Interest Rate Risk (or Yield Risk)

Interest rate risk (or yield risk) is often used in the context of financial instruments and represents the exposure of the owner of the instrument to fluctuations in the value of the instrument in response to changes in interest rates.

© Becker Professional Education Corporation. All rights reserved.

2.2 Market/Systematic/Nondiversifiable Risk

The exposure of a security or firm to fluctuations in value as a result of operating within an economy is referred to as *market risk*. Market risk is sometimes referred to as *nondiversifiable risk* because it is a risk inherent in operating within the economy. Nondiversifiable risk is attributable to factors such as war, inflation, international incidents, and political events.

2.3 Unsystematic/Firm-Specific/Diversifiable Risk

Diversifiable risk (which is also referred to as *nonmarket, unsystematic,* or *firm-specific risk*) represents the portion of a firm's or industry's risk that is associated with random causes and can be eliminated through diversification. Diversifiable risk is attributable to firm-specific or industry-specific events (e.g., strikes, lawsuits, regulatory actions, or the loss of a key account).



Pass Key

It is important to be able to classify risk into two broad categories:

- **D** **Diversifiable** risk
- **U** **Unsystematic** risk (nonmarket/firm-specific)
- **N** **Nondiversifiable** risk
- **S** **Systematic** risk (market)

Remember the mnemonic **DUNS** to keep these risk types and their alternative names clear.

2.4 Credit Risk

Credit risk affects borrowers. Exposure to credit risk includes a company's inability to secure financing or secure favorable credit terms as a result of poor credit ratings. As credit ratings decline, the interest rate demanded by lenders increases, collateral may be required, and other terms are generally less favorable to the borrower.

2.5 Default Risk

Default risk affects lenders. Creditors are exposed to default risk to the extent that it is possible that its debtors may not repay the principal or interest due on their indebtedness on a timely basis.

2.6 Liquidity Risk

Liquidity risk affects lenders (investors). Lenders or investors are exposed to liquidity risk when they desire to sell their security, but cannot do so in a timely manner or when material price concessions have to be made to do so.

2.7 Price Risk

Price Risk represents the exposure that investors have to a decline in the value of their individual securities or portfolios. Factors unique to individual investments and/or portfolios contribute to price risk, which becomes an even greater concern with increased market volatility. Price risk is related to diversifiable (unsystematic) risk.

© Becker Professional Education Corporation. All rights reserved.

3 Computation of Return

Return compensates investors and creditors for assumed risk. Return is often stated or measured by interest rates. Interest can be expressed as either a cost (interest expense) to debtors or income (interest income) to investors.

3.1 Stated Interest Rate

- **Definition:** The *stated interest rate* (sometimes referred to as nominal interest rate) represents the rate of interest charged before any adjustment for compounding or market factors.
- **Computation:** The *stated interest rate* is the rate shown in the agreement of indebtedness (e.g., a bond indenture or promissory note).

Example 1 Stated Interest Rate

Facts: A $10,000 promissory note states that payments will be made quarterly at a 10 percent interest rate per annum.

Required: Calculate the stated interest rate. *Hint:* You do not need a calculator.

Solution: Stated rate = 10 percent

3.2 Effective Interest Rate

- **Definition:** The *effective interest rate* represents the actual finance charge associated with a borrowing after reducing loan proceeds for charges and fees related to a loan origination.
- **Computation:** Effective interest rates are computed by dividing the amount of interest paid based on the loan agreement by the net proceeds received.

Example 2 Effective Interest Rate

Facts: A $10,000 promissory note has a stated rate of 10 percent per annum and is due in one year. The bank charges a loan origination fee of $75 and the state in which the loan is made levies a $50 documentary stamp charge. Taxes and fees are taken from loan proceeds.

Required: Compute the effective interest rate.

Solution:

Interest paid (10,000 × 10%)	$ 1,000
Divided by net proceeds (10,000 − 75 − 50)	÷ 9,875
Effective interest rate	10.13%

© Becker Professional Education Corporation. All rights reserved.

3.3 Annual Percentage Rate

- **Definition:** The *annual percentage rate* of interest represents a noncompounded version of the effective interest rate. The annual percentage rate is the rate required for disclosure by federal regulations.
- **Computation:** Annual percentage rates are computed as the effective periodic interest rate times the number of periods in a year. Annual percentage rate emphasizes the amount paid relative to funds available.

Example 3 Annual Percentage Rate

Facts: A $10,000 promissory note displays a stated rate of 8 percent with interest to be paid semiannually. The bank charges a $75 loan origination fee and a documentary tax of $50 is assessed by the state.

Required: Calculate the annual percentage rate.

Solution:

Step 1: Compute the effective periodic interest rate (as per above)

Interest paid (10,000 × 8% × 6/12)	$ 400
Divided by available funds (10,000 − 75 − 50)	÷ 9,875
Effective periodic interest rate	4.05%

Step 2: Multiply the effective periodic interest rate by the number of periods in a year

Effective periodic interest rate	4.05%
Periods in a year	× 2
Annual percentage rate	8.10%

3.4 Effective Annual Percentage Rate

- **Definition:** The *effective annual percentage rate* represents the stated interest rate adjusted for the number of compounding periods per year. The effective annual percentage rate is abbreviated APR.
- **Computation:** The effective APR is computed as follows:

$$\text{Effective annual interest rate} = [1 + (i/p)]^p - 1$$

i = Stated interest rate

p = Compounding periods per year

© Becker Professional Education Corporation. All rights reserved.

Example 4 Effective Annual Percentage Rate

Facts: A note has an 8 percent stated rate of interest compounded semiannually (two times per year).

Required: Compute the effective annual percentage rate or APR.

Solution:

Effective annual interest rate = $[1 + (i/p)]^p - 1$

Effective annual interest rate = $[1 + (0.08/2)]^2 - 1 = 8.16\%$

3.5 Simple Interest (Amount)

- **Definition:** Simple interest is the amount represented by interest paid only on the original amount of principal without regard to compounding.
- **Computation:** Simple interest is formulated as follows:

$$SI = P_0(i)(n)$$

P_0 = Original principal

i = Interest rate per time period

n = Number of time periods

Example 5 Simple Interest

Facts: A $10,000 promissory note bears simple interest at 8 percent for two years.

Required: What is the simple interest on this obligation?

Solution:

$SI = P_0(i)(n)$

$SI = \$10{,}000\ (8\%)(2)$

$SI = \$1{,}600$

© Becker Professional Education Corporation. All rights reserved.

3.6 Compound Interest (Amount)

- **Definition:** Compound interest is the amount represented by interest earnings or expense that is based on the original principal plus any unpaid interest earnings or expense. Interest earnings or expense, therefore, compounds and yields an amount higher than simple interest.
- **Computation:** Compound interest is computed as a future value as follows:

$$FV_n = P_0 (1 + i)^n$$

P_0 = Original principal

i = Interest rate

n = Number of periods

Example 6 Compound Interest

Facts: A promissory note for $10,000 carries an interest rate of 8 percent for two years, compounded annually.

Required: Compute the maturity value of the promissory note.

Solution:

$$FV_n = P_0(1 + i)^n$$
$$FV_n = \$10{,}000\ (1 + 0.08)^2$$
$$FV_n = \$10{,}000\ (1.1664)$$
$$FV_n = \$11{,}664$$

3.7 Required Rate of Return

The required rate of return is calculated adding the following risk premiums to the risk-free rate:

- **Maturity Risk Premium (MRP):** Is the compensation that investors demand for exposure to interest rate risk over time. This risk increases with the term to maturity.
- **Purchasing Power Risk or Inflation Premium (IP):** Is the compensation investors require to bear the risk that price levels will change and affect asset values or the purchasing power of invested dollars (e.g., real estate).
- **Liquidity Risk Premium (LP):** Is the additional compensation demanded by lenders (investors) for the risk that an investment security (e.g., junk bonds) cannot be sold on a short notice without making significant price concessions. Liquidity is defined as the ability to quickly convert an asset to cash at fair market value.
- **Default Risk Premium (DRP):** Is the additional compensation demanded by lenders (investors) for bearing the risk that the issuer of the security will fail to pay interest and/or principal due on a timely basis.

© Becker Professional Education Corporation. All rights reserved.

Illustration 1 Default Risk Premium

A bank desires to purchase a corporate bond for its investment portfolio. Given the characteristics of the bond issue/issuer and current financial market conditions, a required rate of return of 8 percent is deemed appropriate for the bond issue, as follows:

	Real rate of return	3%
+	Inflation premium (IP)	2%
	Nominal rate of return	5%
+	Risk premium:	
	Interest rate risk (MRP)	
	Liquidity risk (LP)	
	Default risk (DRP)	3%
	Required rate of return	8%

4 Mitigating and Controlling Financial Risk

Business entities must be able to not only identify and assess various financial risks, but also implement strategies to mitigate and control the impact these risks can have on their operations and finances.

4.1 Diversification

Diversifiable risk represents the portion of a single asset's risk that is associated with random causes and can be eliminated through diversification. Diversification is the process of building a portfolio of investments of different and offsetting risks. Although diversification can reduce certain risks, business are exposed to risks that cannot be managed through diversification (i.e., nondiversifiable risks). A diversified investor should be concerned only with nondiversifiable (systematic) risk because, in theory, an investor can create a portfolio of assets that eliminates all (or virtually all) diversifiable risk.

4.2 Strategies to Mitigate and Control Specific Financial Risks

Companies use many different strategies to reduce their exposure and vulnerability to the various financial risks.

4.2.1 Mitigating Interest Rate Risk

An investor can mitigate interest rate risk by investing in floating rate debt securities, which do not change in value when interest rates change and also generate higher coupon payments when interest rates rise. Derivatives such as forward rate agreements (FRAs) or interest rate swaps, in which the investor pays a fixed interest rate and receives a floating interest rate, can also be used to mitigate interest rate risk.

© Becker Professional Education Corporation. All rights reserved.

4.2.2 Mitigating Market Risk

Market risk, because it is inherent in the marketplace and overall economy, is not as easy to mitigate. Market risk cannot be mitigated through diversification. One way to control market risk is to invest in derivatives that provide gains to the investor when the market declines. Short selling (selling an investment in the hopes of buying it back at a lower price later) is another strategy that provides returns when the market declines.

Illustration 2 Short Sale

The CFO of Dillon Bank is concerned that falling oil prices may lead to an overall stock market decline in the coming months. In order to protect the bank's investment portfolios against a market decline, the CFO opens several short positions in index funds designed to track the S&P 500. She will earn a profit if the market does decline, as she can buy back the funds at lower prices. However, if the market rises, she will eventually have to buy back the funds at higher prices than the original sale price.

4.2.3 Mitigating Unsystematic Risk

Unsystematic risk can be minimized through diversification. If an investor has a broad portfolio of investments, then an event that has a negative effect on one firm, industry, or investment type would have less of an effect on the value of the portfolio as a whole.

4.2.4 Mitigating Credit Risk

Credit risk is managed through improvements in credit ratings, which are assigned at entity and individual debt levels. When credit ratings are higher, borrowing can occur at more favorable terms (such as lower interest rates). Factors evaluated in determining credit ratings include overall economic outlook, industry conditions, cash flow measures, leverage, capital structure, management strength, historical performance, and financial ratios measuring solvency, liquidity, profitability, etc. Management has various degrees of control over these factors, but awareness of them and understanding of how changes can affect credit ratings are crucial to controlling this risk.

4.2.5 Mitigating Default Risk

Default risk can be mitigated in several ways. As a lender, an entity may choose to lend only to borrowers with low risk of default. Another option is to adjust the interest rates charged to better reflect the risk of each borrower, such that higher-risk borrowers will pay higher interest rates.

Illustration 3 Default Risk

Miller Inc. wants to reduce its default risk and is considering two plans. Miller can either reduce the population of potential customers by extending credit to customers with credit ratings only above a certain threshold, or it can continue extending credit to all customers but charge higher interest rates to borrowers that pose greater risks of not paying back money owed.

© Becker Professional Education Corporation. All rights reserved.

4.2.6 Mitigating Liquidity Risk

Liquidity risk is higher for investments that don't have active markets (e.g., forward contracts, limited partnerships). Liquidity risk is mitigated by allocating a greater percentage of capital to investments that trade on active markets, such as equities, corporate bonds, futures contracts, and options.

4.2.7 Mitigating Price Risk

Price risk can be minimized through diversification. Price risk also can be mitigated through short selling or derivatives, such as put options.

5 Currency Exchange Rate Risk

Within domestic environments, a single currency defines the value of assets, liabilities, and operating transactions. In international settings, the values of assets, liabilities, and operating transactions are established not only in terms of the single currency, but also in relation to other currencies. Exchange rate (FX) risk exists because the relationship between domestic and foreign currencies may be subject to volatility.

5.1 Factors Influencing Exchange Rates

Circumstances that give rise to changes in exchange rates are generally divided between trade-related factors (including differences in inflation, income, and government regulation) and financial factors (including differences in interest rates and restrictions on capital movements between companies).

5.1.1 Trade Factor (Relative Inflation Rates)

When domestic inflation exceeds foreign inflation, holders of domestic currency are motivated to purchase foreign currency to maintain the purchasing power of their money. The increase in demand for foreign currency forces the value of the foreign currency to rise in relation to the domestic currency, thereby changing the rate of exchange between the domestic and foreign currency.

Illustration 4 Relative Inflation Rates

Assume that the U.S. dollar is relatively stable while the Mexican peso is suffering from sudden inflationary pressures. As the Mexican peso buys less in the domestic Mexican economy, Mexicans and their banking institutions seek the safe haven of the U.S. dollar to maintain the purchasing power of their liquid resources. The demand for U.S. dollars created by Mexicans buying them with Mexican pesos makes the U.S. dollar more valuable in terms of the peso and drives up the exchange rate. The U.S. dollar commands more pesos in an exchange of currency.

5.1.2 Trade Factor (Relative Income Levels)

As income increases in one country relative to another, exchange rates change as a result of increased demand for foreign currencies in the country in which income is increasing.

© Becker Professional Education Corporation. All rights reserved.

Illustration 5 Relative Income Levels

The income level in the United States increases significantly in the second quarter. Americans flock to Mexico City on vacation to buy piñatas. The increased supply of American dollars seeking to buy pesos to purchase Mexican goods causes the value of the American dollar to fall in relation to a stated number of pesos. The exchange rate is thus affected by relative income levels and the associated demand for foreign currency created by higher domestic income.

5.1.3 Trade Factor (Government Controls)

Various trade and exchange barriers that artificially suppress the natural forces of supply and demand affect exchange rates.

Illustration 6 Government Controls

A tariff on imported piñatas would have the effect of discouraging the purchase of imports, thereby reducing demand for the peso and maintaining the exchange rate.

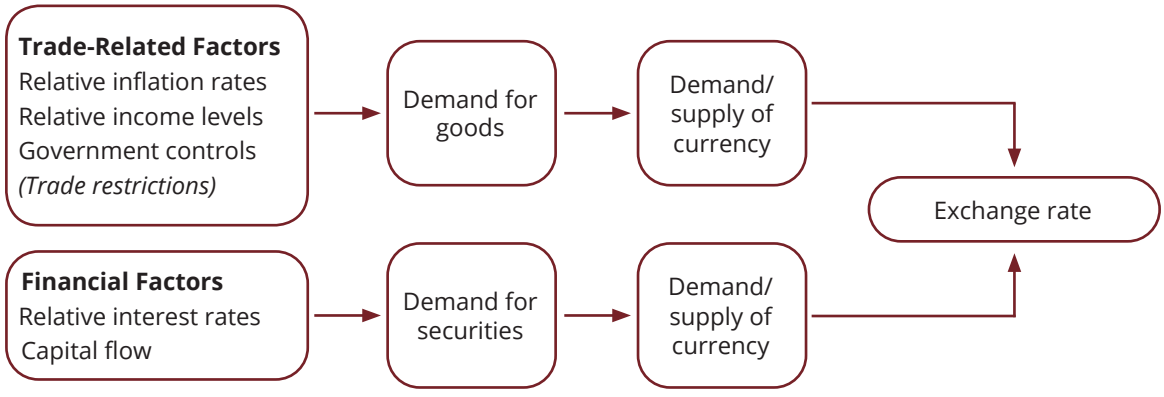
5.1.4 Financial Factors (Relative Interest Rates and Capital Flows)

Interest rates create demand for currencies by motivating either domestic or foreign investments. The forces of supply and demand create changes in the exchange rate as investors seek fixed returns. The effect of interest rates is directly affected by the volume of capital that is allowed to flow between countries.

Illustration 7 Relative Interest Rates and Capital Flows

Assume that returns on institutional investments in Mexico skyrocket in the third quarter while returns on comparable institutional investments remain significantly lower in the United States. U.S. investors find the opportunity to earn high returns with similar risks in Mexican financial institutions irresistible. The demand for pesos increases as American investment increases. The exchange rate changes as the peso commands more U.S dollars.

Summary Chart: Circumstances That Impact Exchange Rates



© Becker Professional Education Corporation. All rights reserved.

5.2 Risk Exposure Categories

5.2.1 Transaction Exposure

Exchange rate risk is defined, in part, by *transaction exposure*. Transaction exposure is defined as the potential that an organization could suffer economic loss or experience economic gain upon settlement of individual transactions as a result of changes in the exchange rates. Measurement of transaction exposure is generally done in two steps:

1. Project foreign currency inflows and foreign currency outflows.
2. Estimate the variability (risk) associated with the foreign currency.

Illustration 8 Transaction Exposure

Seattle Import/Export, a U.S. import/export company, imports commodities from Canada that it pays for in Canadian dollars and exports commodities to Canada for which it receives Canadian dollars. If Seattle Import/Export anticipated that it would export C$10,000,000 to Canada over the next year while importing C$8,000,000 over the same period, the net exposure in Canadian dollars is a C$2,000,000 inflow (receivable).

If the current exchange rate is $0.75/C$1, the net exposure in U. S. dollars is $1,500,000 (C$2,000,000 × 0.75). If the rate is anticipated to fluctuate five cents, between $0.70 and $0.80, the total U.S. dollar fluctuation exposure would be expected to be between $1,400,000 and $1,600,000.

5.2.2 Economic Exposure

In addition to transaction exposure, exchange rate risk is defined, in part, by *economic exposure*. Economic exposure is defined as the potential that the present value of an organization's cash flows could increase or decrease as a result of changes in the exchange rates. Economic exposure is generally defined through local currency appreciation or depreciation and is measured in relation to organization earnings and cash flows.

- **Currency Appreciation and Depreciation**

  Currency appreciation (depreciation) refers to the strengthening (weakening) of a currency in relation to other currencies.

  - **Effect of Currency Appreciation**

    As a domestic currency appreciates in value or becomes stronger, it becomes more expensive in terms of a foreign currency. Inflows (of foreign currency payments) tend to decline as exports become more expensive, whereas outflows (to foreign vendors) tend to increase as imports become less expensive.

  - **Effect of Currency Depreciation**

    As a domestic currency depreciates in value or becomes weaker, it becomes less expensive in terms of a foreign currency. Inflows (of foreign currency payments) tend to increase as exports become less expensive, whereas outflows (to foreign vendors) tend to decrease as imports become more expensive.

  The economic exposure created by domestic currency appreciation or depreciation with respect to a foreign currency depends on the net inflow or outflow of foreign currency.

© Becker Professional Education Corporation. All rights reserved.

5.2.3 Translation Exposure

In addition to the transaction and economic exposures, exchange rate risk is defined in part by *translation exposure*. Translation exposure is the risk that assets, liabilities, equity, or income of a consolidated organization that includes foreign subsidiaries will change as a result of changes in exchange rates. Translation exposure is generally defined by the degree of foreign involvement, the location of foreign subsidiaries, and the accounting methods used and measured in relation to the effect on the organization's earnings or comprehensive income.

- **Degree of Foreign Involvement**: Translation exposure increases as the proportion of foreign involvement by subsidiaries increases.

Illustration 9 Translation Risk

Domestic International Inc. has no foreign subsidiaries but is deeply involved in exporting to neighboring countries. Global International Inc. has 12 foreign subsidiaries which, combined, make up 65 percent of consolidated revenues. Domestic International has less translation exposure than Global International because it has no foreign subsidiaries. Domestic's international business does expose the company to exchange rate risks, however, in terms of both transaction and economic exposure.

Because of Global International's extensive foreign operations, the parent company has significant exposure to foreign currency translation exposure, and depending on the entity's export/import activity, Global International may also be exposed to foreign exchange transaction and economic risks.

- **Locations of Foreign Investments:** Measurements of financial results of foreign investments frequently occur in the foreign currency in which the investee company operates. The exposure of the parent company to translation risk is affected by the stability of the foreign currency in comparison to the parent's domestic currency. The more stable the exchange rate, the lower the translation risk. The more volatile the exchange rate, the higher the translation risk.

6 Mitigating and Controlling Transaction Exposure

Financial instruments and hedges can be used to mitigate the effect of exchange rate fluctuations on individual transactions.

6.1 Measuring Specific Net Transaction Exposure

Net transaction exposure is the amount of gain or loss that might result from either a favorable or an unfavorable settlement of a transaction.

6.1.1 Selective Hedging

Hedging is a financial risk management technique in which an organization, seeking to mitigate the risk of fluctuations in value, acquires a financial instrument that behaves in the opposite manner from the hedged item. In effect, hedging is a process of reducing the uncertainty of the future value of a transaction or position (e.g., asset, liability, income) by actively engaging in various derivative investments.

© Becker Professional Education Corporation. All rights reserved.