CFA Institute®
Investment Foundations

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Module 7: INDUSTRY CONTROLS

Chapter 18: Risk Management

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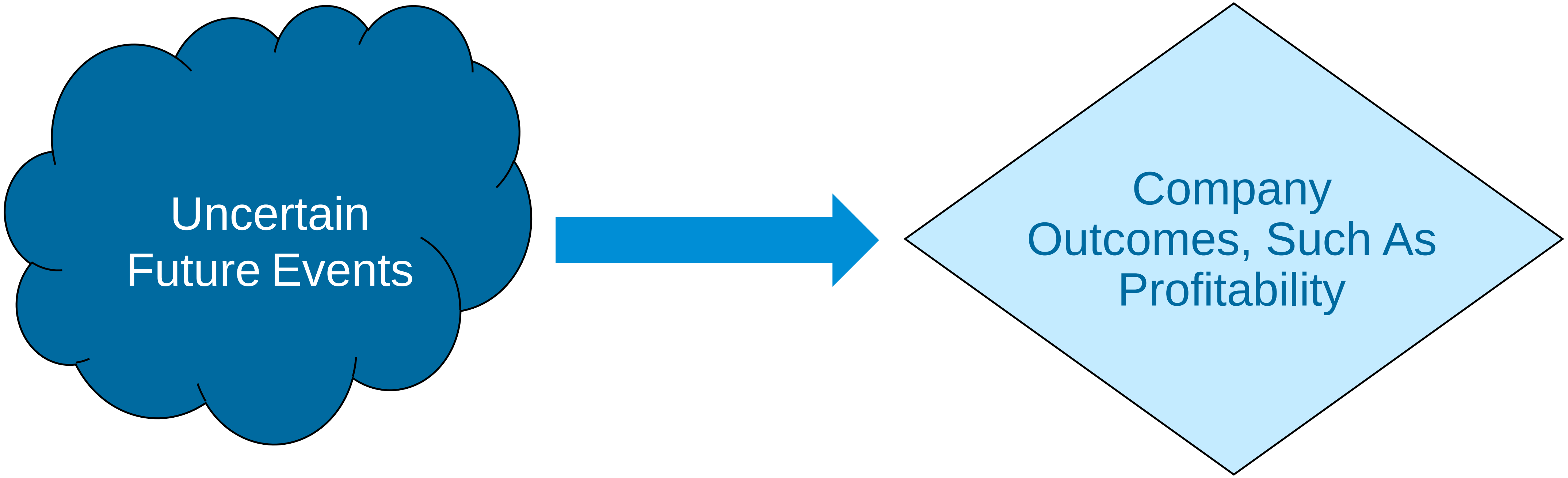
Faculty Bio

Module	Topic	Weight	LOS	Exam Qs	Hours to Study	Module Practice Qs	Chapter Practice Qs
Module 1	**Industry overview**	5%	7	6	5	28	28
Chapter 1	The Investment Industry: A Top-Down View						
Module 2	**Ethics and regulation**	10%	14	12	10	91	
Chapter 2	Ethics and Investment Professionalism						49
Chapter 3	Regulation						42
Module 3	**Inputs and tools**	20%	50	24	20	291	
Chapter 4	Microeconomics						53
Chapter 5	Macroeconomics						57
Chapter 6	Economics of International Trade						47
Chapter 7	Financial Statements						70
Chapter 8	Quantitative Concepts						64
Module 4	**Investment instruments**	20%	29	24	20	213	
Chapter 9	Debt Securities						69
Chapter 10	Equity Securities						72
Chapter 11	Derivatives						42
Chapter 12	Alternative Investments						30
Module 5	**Industry structure**	20%	27	24	20	96	
Chapter 13	Structure of the Investment Industry						28
Chapter 14	Investment Vehicles						29
Chapter 15	The Functioning of Financial Markets						39
Module 6	**Serving client needs**	5%	12	6	5	76	
Chapter 16	Investors and Their Needs						35
Chapter 17	Investment Management						41
Module 7	**Industry controls**	20%	24	24	20	154	
Chapter 18	Risk Management						51
Chapter 19	Performance Evaluation						53
Chapter 20	Investment Industry Documentation						50
	Total	**100%**	**163**	**120**	**100**	**949**	**949**

AFTER COMPLETING THIS CHAPTER, YOU SHOULD BE ABLE TO DO THE FOLLOWING:

a) Define risk and identify types of risk;
b) Define risk management;
c) Describe a risk management process;
d) Describe risk management functions;
e) Describe benefits and costs of risk management;
f) Define operational risk and explain how it is managed;
g) Define compliance risk and explain how it is managed;
h) Define investment risk and explain how it is managed;
i) Define value at risk and describe its advantages and weaknesses.

RISK



Events can be

- external or internal,
- negative or positive.

LOS a: Define risk and identify types of risk.

RISKS

There are many risks faced by investors. Investors who choose to be safe and keep a large percentage of their assets in cash are facing unanticipated inflation risk. The purchasing power of the cash will erode in the face of inflation.

In his book *Asset Allocation: Balancing Financial Risk*, Roger Gibson emphasizes the importance of understanding risks in the market:

“Clients often misperceive the risks they face in the investment of their money. If these misperceptions remain uncorrected, these clients very likely will make portfolio decisions that are not in their best interests. This highlights the value of providing to the client a detailed historical review of the capital markets. A client who fully understands inflation risk, interest rate risk, credit risk, and equity risk is in a much better position to make intelligent investment decisions appropriate for their financial goals.” (R. C. Gibson 2013)

LOS a: Define risk and identify types of risk.

RISKS

The types of risks an investor is exposed to depends on the investment.

- If an investor buys government bonds, then the investor is faced with **interest rate risk**. The principal value of a bond fluctuates with interest rates. As interest rates rise, bond prices decrease. In 2013, the yield on 30-year United States Treasury bonds increased from 3.04% at the beginning of 2013 to 3.96% at the end of 2013. The return on the 30-year United States Treasury was -15.03% in 2013. Note that is an unrealized loss, and if the investor holds the bond until maturity the loss is not materialized.
- Investors who buy corporate bonds or high yielding bonds can be exposed to **default risk**, which is the risk that the principal does not get paid back.
- Investors who buy equities are exposed to **market or systematic risk**. A rising tide lifts all boats.
- Owning individual stocks exposes an investor to **company-specific or unsystematic risk**. This is a particular risk to individuals who participate in stock purchase programs and have a large percentage of their portfolios tied up in the stock of their employer.
- Investors seeking to diversify and invest in another country or another currency face **exchange rate or currency risk**. The value of the currency of the investment could decrease, which would decrease the purchasing power in the home currency.

LOS a: Define risk and identify types of risk.

RISKS

- Investors who seek higher returns by investing in more risky assets there might be exposure to **liquidity risk**—it may not be so easy to sell the asset or there may be contractual holding periods.

- The return needed to meet an investor’s objective may be lower than expected. This can lead to **shortfall risk.**

- With the increasing focus on frontier markets, investors may be exposed to **regulatory risk**.

- Finally, for some people their biggest asset is their human capital, and there are risks faced by people that in some cases can be mitigated by various insurance policies.

LOS a: Define risk and identify types of risk.

CLASSIFICATION OF RISK

Source of Uncertainty

Classification of Risk

Operational Risks

(human errors, internal fraud, etc.)

As well as from external events that are beyond the control of the company but that affect its operations

Compliance Risks

(failure to follow laws, etc.)

Faces sanctions as a result.

Investment Risks

The risk associated with investing that arises from the fluctuation in the value of investments.

LOS a: Define risk and identify types of risk.

PRACTICE Q: DIFFICULT

Which of the following situations most likely increases an organisation's compliance risk?

A. Using agents and third parties
B. Separating the front and back offices
C. Monitoring and controlling business processes

PRACTICE Q: DIFFICULT

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IMPORTANCE OF RISK MANAGEMENT

Risk Management

Is a process—that is,
a series of actions to achieve
a company's objectives.

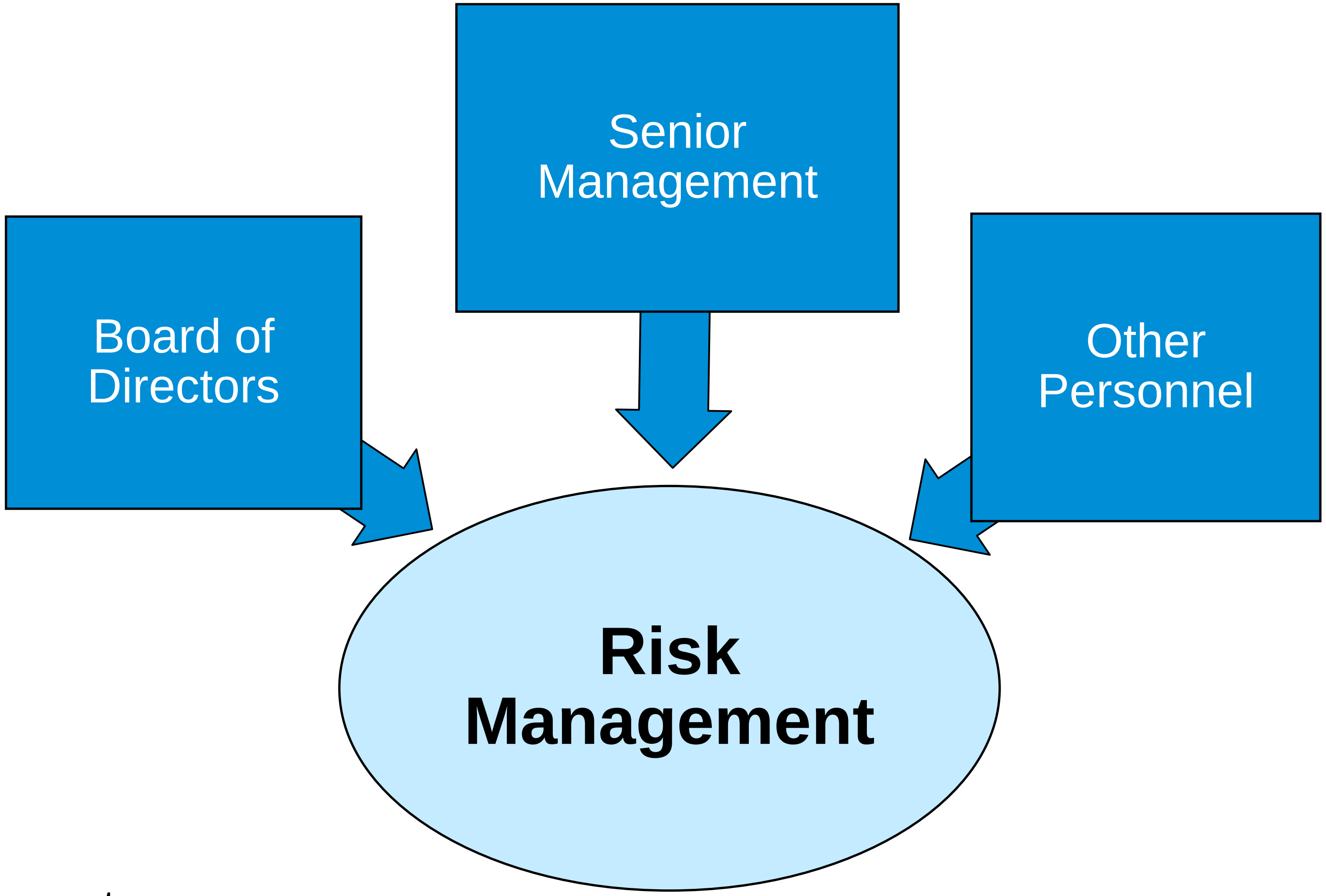
Is typically driven by a company's mission and
strategy.

A common corporate objective
is to create value in a business environment
that is usually fraught with uncertainty.

One of the main functions
of risk management is to find
the right balance between
risk and return.

LOS b: Define risk management.

RISK MANAGEMENT



LOS b: Define risk management.

RISK MANAGEMENT PROCESS

LOS c: Describe a risk management process.

SETTING OBJECTIVES

LOS c: Describe a risk management process.

DETECT AND IDENTIFY EVENTS

The next step is to detect and identify events that may affect the company's objectives.
The outcome of events can be negative, potentially leading to loss of earnings or assets, or they can be positive.
The aim of risk management is to try to capture the full range of risks, including hidden or undetected ones.
Therefore, companies should involve staff who are in different roles and business areas to detect and identify as many events as possible.
No matter how hard people try to reduce risk, it can never be completely eliminated.

LOS c: Describe a risk management process.

ASSESS AND PRIORITISE RISKS

Green:
Not much attention
Yellow:
A bit more
Orange:
Monitor more actively
Red:
Should receive special attention
Black:
Highly unlikely but could be catastrophic

Both the **Expected Frequency** of a risk event and the **Expected Severity** of that event need to be considered when prioritising risk and the appropriate response.

LOS c: Describe a risk management process.

SELECT A RISK RESPONSE

Response Strategies			
Tolerate	**Treat**	**Transfer**	**Terminate**
Accept risk and effect	Take action to reduce risk	Move risk to third party	Avoid risk by ceasing activity

LOS c: Describe a risk management process.

CONTROL AND MONITOR RISKS

Taking action involves a range of controlling and monitoring activities that must be performed in a timely manner.

Relevant information must be identified, captured, and reported accurately

Enterprise risk management (ERM) consolidates and manages risks at the firm level in an integrated way.

Should be iterative and subject to regular evaluations and revisions

LOS c: Describe a risk management process.

PRACTICE Q: EASY

A risk matrix characterises the risk of losses in terms of:

A. expected return and expected risk.
B. operational risk and compliance risk.
C. expected severity and expected frequency.

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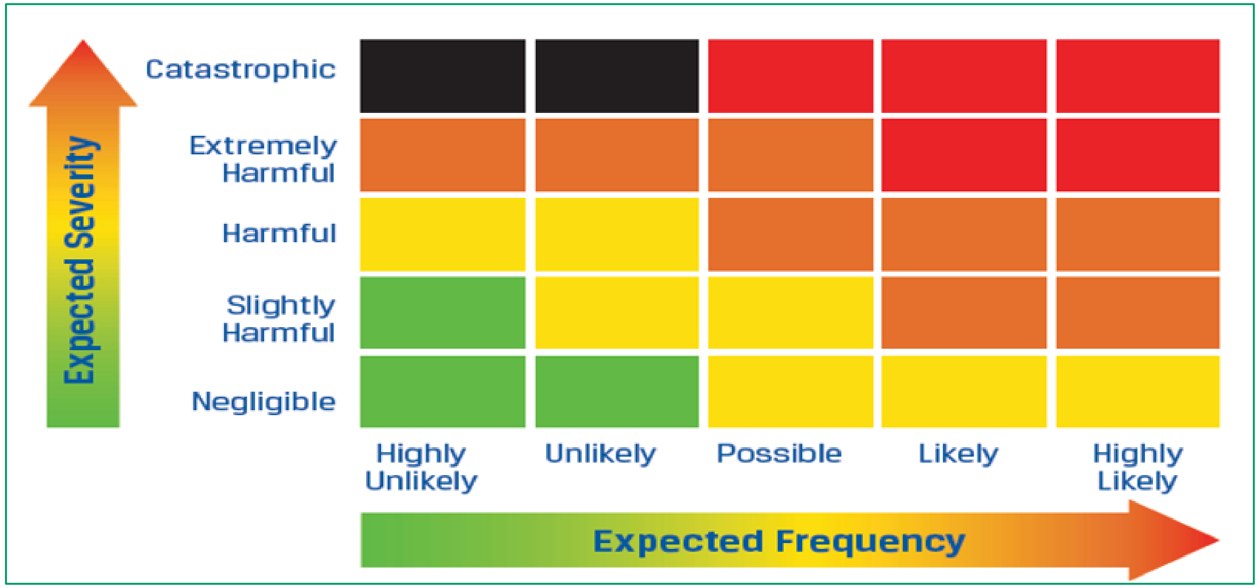


C is correct. A risk matrix compares the expected severity of a loss with the expected frequency that a loss occurs.

RISK MANAGEMENT FUNCTIONS

- Front-line employees and managers, through their daily responsibilities, form the first line of defence;
- The risk management and compliance groups operate as a second line of defence;
- An internal audit function then forms the third line of defence

- The chief risk officer often reports directly to the board of directors;
- Risk management remains everyone's responsibility;
- Members of the business functions, such as portfolio managers or traders "own" the risk of their deals;

LOS d: Describe risk management functions.

BENEFITS OF RISK MANAGEMENT

- Supports strategic and business planning
- Incorporates risk considerations in all business decisions
- Prevents excessive risk taking
- Brings greater discipline to operations
- Recognises responsibility and accountability
- Improves performance assessment
- Enhances information flow
- Complements compliance procedures and audit testing

LOS e: Describe benefits and costs of risk management.

COST OF RISK MANAGEMENT

Tangible Costs:

Hiring dedicated risk management personnel, putting more procedures in place, and investing in systems

Intangible Costs:

Slower decision making and lost opportunities

Total Costs

Allocation of resources to risk management should be based on a cost–benefit analysis.

- It is difficult to weigh the costs and benefits of risk management precisely because it is impossible to observe, let alone measure, the cost of potential catastrophes that are averted.

LOS e: Describe benefits and costs of risk management.

PRACTICE Q: EXPERT

Alpha Managers, LLC, appoints a new risk management group, and the CEO declares, “A cost–benefit analysis will demonstrate the value of this group to the firm”. Is the CEO’s statement accurate?

A. No, because there are intangible costs
B. Yes, because the costs of establishing a risk management function are tangible
C. Yes, because all business decisions can be exactly measured on a cost–benefit basis

PRACTICE Q: EXPERT

Alpha Managers, LLC, appoints a new risk management group, and the CEO declares, “A cost–benefit analysis will demonstrate the value of this group to the firm”. Is the CEO’s statement accurate?

A. **No, because there are intangible costs**

B. Yes, because the costs of establishing a risk management function are tangible

C. Yes, because all business decisions can be exactly measured on a cost–benefit basis

A is correct. The costs of establishing risk management systems range from tangible costs, such as hiring dedicated risk management personnel, putting procedures in place, and investing in systems, to intangible costs, such as slower decision making and lost opportunities. A cost–benefit analysis may not necessarily capture all the costs and benefits from risk management.

B is incorrect because not all costs are tangible.

C is incorrect because not all costs can be measured exactly.

MANAGING OPERATIONAL RISKS

Managing People

- Unintentional errors
- Fraudulent activities
  - Rogue trading
- Good HR management
- Structure of compensation

Managing Systems

Compliance

Managing the Environment

LOS f: Define operational risk and explain how it is managed.

MANAGING OPERATIONAL RISKS

Managing People

Managing Systems

- System failures
- Employee behavior
- Hackers
- Information protection

Compliance

Managing the Environment

LOS f: Define operational risk and explain how it is managed.

MANAGING OPERATIONAL RISKS

Managing People

Managing Systems

Compliance

- Policies and procedures should explicitly set out the delegation of authority and define clear responsibilities and accountability
- The segregation of duties is an important principle

Managing the Environment

LOS f: Define operational risk and explain how it is managed.

MANAGING OPERATIONAL RISKS

Managing People

Managing Systems

Compliance

Managing the Environment

- Political Risk
- Legal Risk
- Settlement Risk

LOS f: Define operational risk and explain how it is managed.

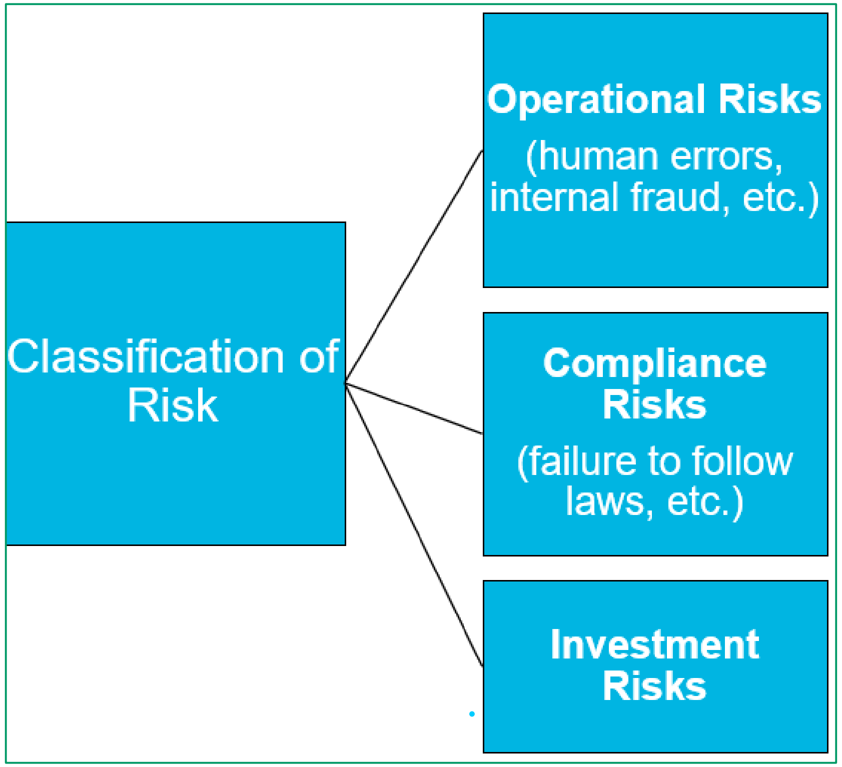
COMPLIANCE RISKS

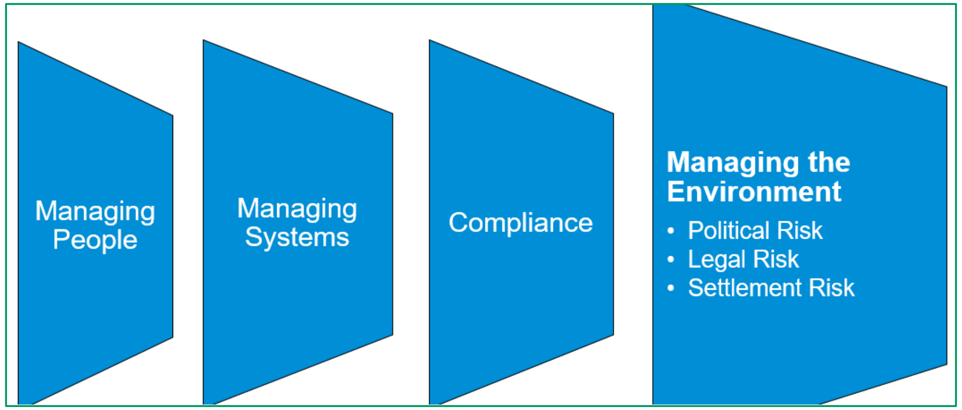
Compliance risk is the risk that a company fails to comply with all applicable rules, laws, and regulations.

Many people believe that the trend toward less regulation contributed to the global financial crisis that began in 2008.

In addition to applicable rules, laws, and regulations, many investment firms must follow guidelines from regulators, stock exchanges, and industry associations that have been given powers to oversee members.

Companies should have internal reporting procedures to encourage employees to come forward and report instances in which they suspect someone has violated internal policies, procedures, laws, or regulations.





LOS g: Define compliance risk and explain how it is managed.

EXAMPLES OF KEY COMPLIANCE RISKS

Corruption
• The abuse of power for private gain
Tax Reporting
• Is complicated because the principles and rules vary considerably by jurisdiction • There is a technical difference between “tax avoidance” and “tax evasion”
Insider Trading
• The trading of a security when in possession of important confidential information pertaining to the security in question
Anti-Money-Laundering
• To prevent money derived from criminal activities from entering the financial system

LOS g: Define compliance risk and explain how it is managed.

PRACTICE Q: EXPERT

To reduce expenses, a small investment firm is considering combining its trading desk and its back-office operations. If it does so, the firm will increase its exposure to:

A. business risk.
B. compliance risk.
C. operational risk.

PRACTICE Q: EXPERT

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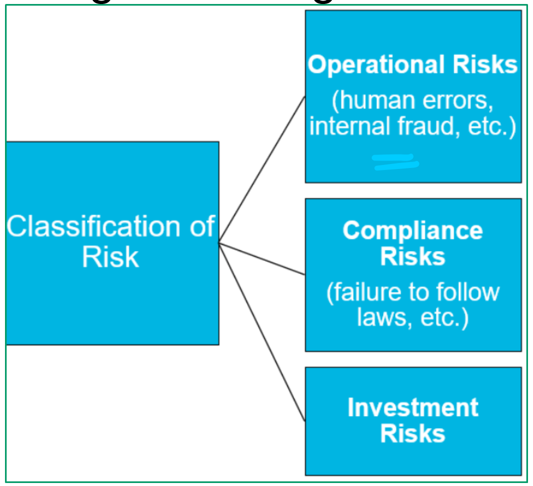


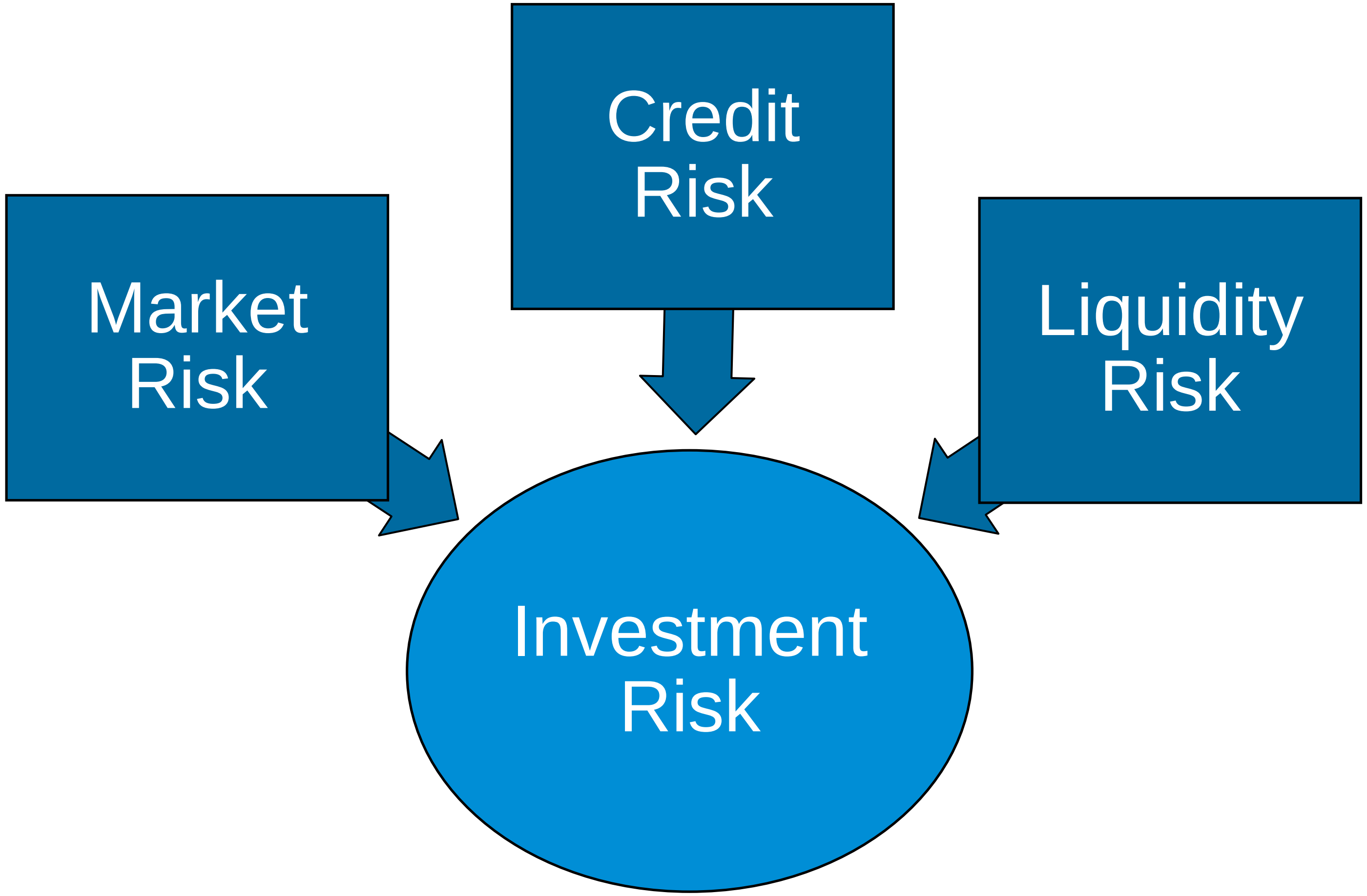
A. business risk.
B. compliance risk.
C. operational risk.

B is correct. The segregation of duties is an important principle of managing compliance risk. A clear separation needs to exist between an investment firm's front and back offices.

A is incorrect. Business risk is the risk of not being able to operate profitably in a given competitive environment.

C is incorrect. Operational risk refers to the risk of losses from human, system, and process failures and from events that are beyond the control of the organisation but that affect its operations.

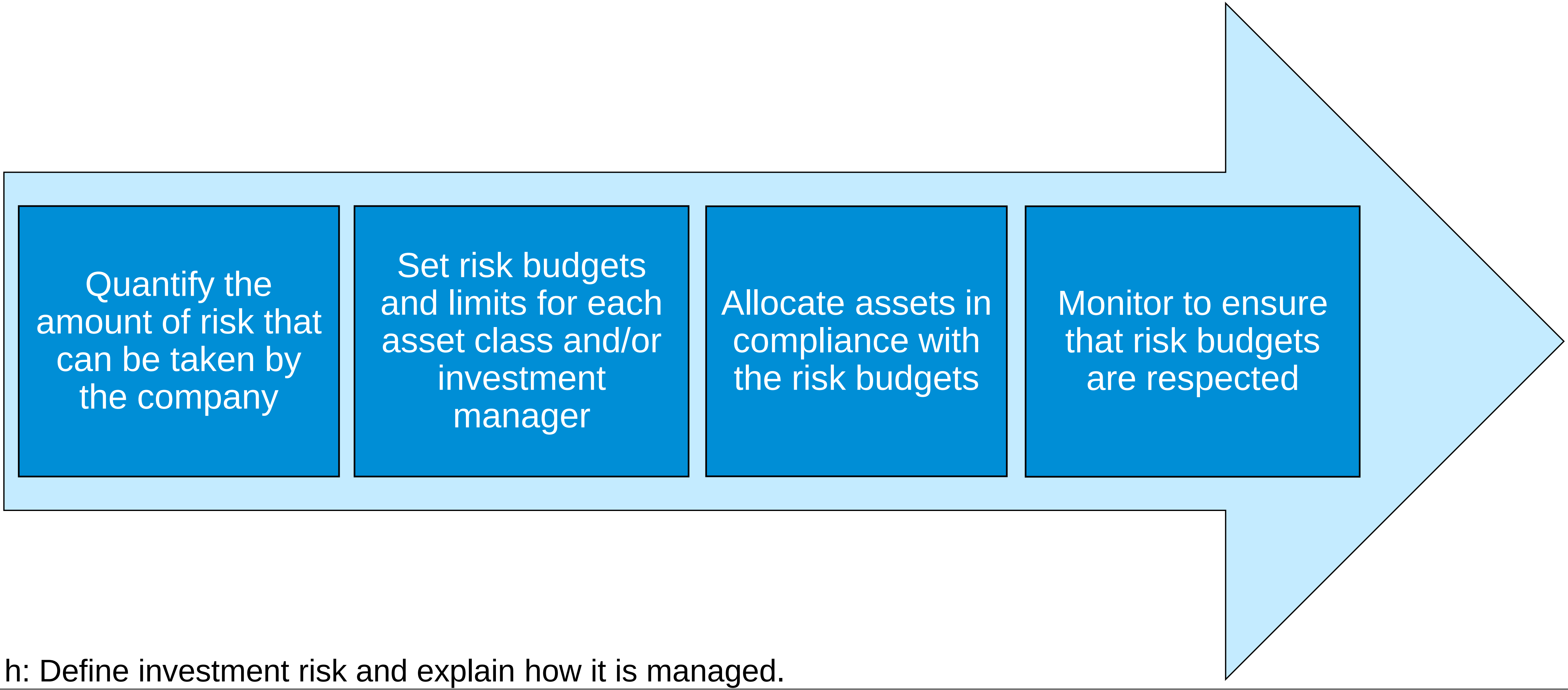
INVESTMENT RISK



The expected loss from credit exposure is a function of **three elements**: the amount of money lent to a particular borrower, the probability that the borrower defaults, and the loss that would be incurred if the borrower defaults. The amount that is at risk may be reduced if collateral or guarantees from third parties are included.

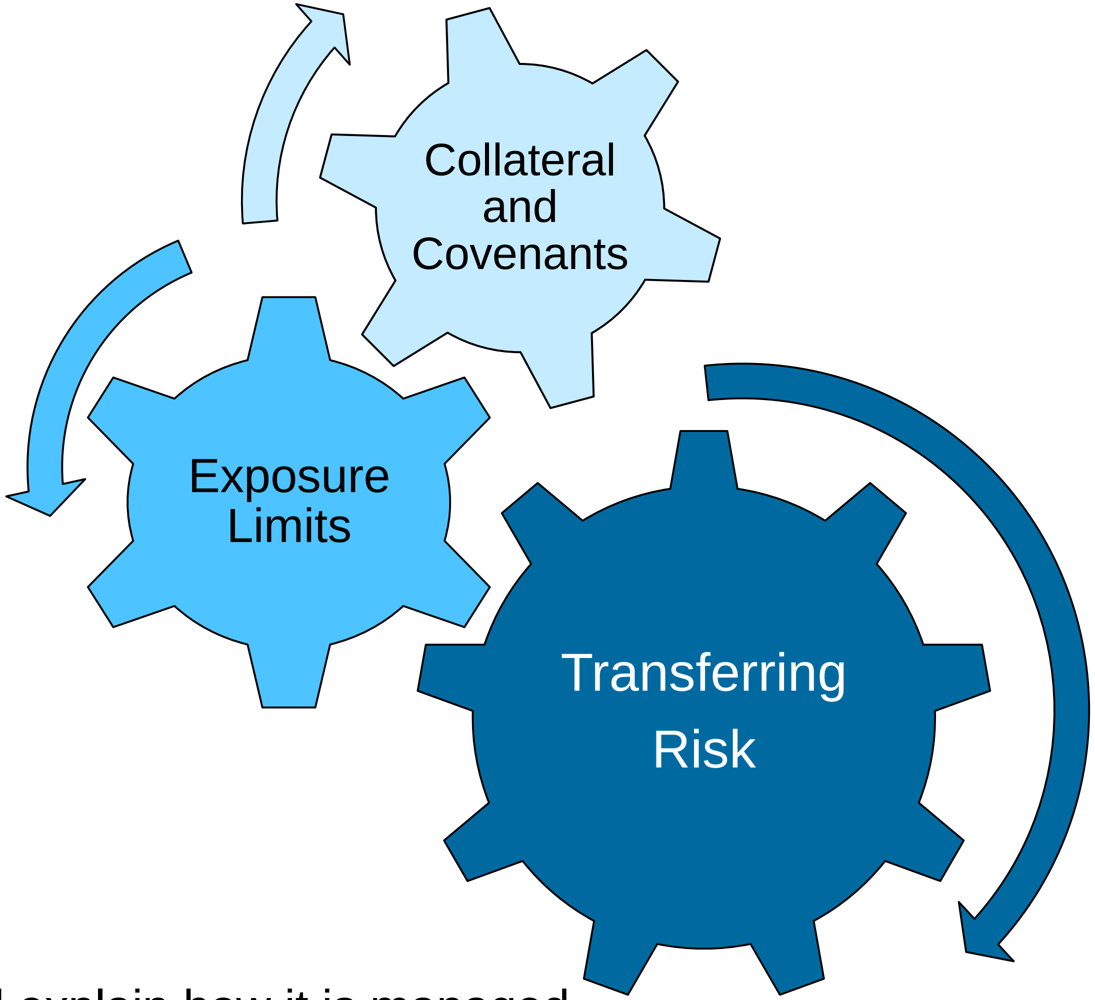
LOS h: Define investment risk and explain how it is managed.

MANAGING MARKET RISK: RISK BUDGETING



LOS h: Define investment risk and explain how it is managed.

MANAGING CREDIT RISK



LOS h: Define investment risk and explain how it is managed.

PRACTICE Q: EXPERT

The expected loss from extending credit is a function of which of the following elements?

A. Amount of exposure and probability of loss
B. Probability of default and loss given default
C. Probability of default and discount on collateral

PRACTICE Q: EXPERT

The expected loss from extending credit is a function of which of the following elements?

A. Amount of exposure and probability of loss

B. Probability of default and loss given default

C. Probability of default and discount on collateral

B is correct. The expected loss from credit exposure is a function of three elements:

1. the amount the lender has exposed to a particular borrower,
2. the probability that the borrower defaults, and
3. the loss that would be incurred if the borrower defaults.

A is incorrect because expected loss is a function of probability of default.

C is incorrect because discount on collateral is only one component of loss given default.

VALUE AT RISK (VaR)

Relies on statistical concepts, such as standard deviation.

VaR gives an estimate of the minimum loss of value that can be expected for a given period for a given probability.

For example, a portfolio that has a VaR of $1 million for one day with a probability of 5% means that there is a 5% chance that the portfolio will fall in value by at least $1 million in a single day.

VaR is

- a standard metric that can be applied across different investments,
- relatively easy to calculate,
- a useful tool for risk budgeting, and
- widely used and mandated for use by some regulators.

LOS i: Define value at risk and describe its advantages and weaknesses.

WEAKNESSES OF VaR

VaR gives an estimate of the minimum, but not the maximum, loss of value that can be expected.

VaR does not guarantee that a loss in excess of VaR will not happen more frequently.

- VaR primarily relies on historical data to forecast future expected losses, but past returns may not be a good predictor of future returns
- VaR often assumes that returns are normally distributed and follow a bell-shaped distribution.

It is worth noting that the weaknesses related to VaR apply to all measures that rely on models and is known as **model risk**.

LOS i: Define value at risk and describe its advantages and weaknesses.