**Ch 1 *Ch 7 Risks of Financial Institutions***

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 ***1.Definition of risk***

It is known, that many authors in particular who have concerned with risk and insurance (i.e. risk theorists, statisticians, economists, actuaries, lawmen) have defined risk. Therefore, there is no single definition of risk but there are many definitions for example:

* REJDA has defined Risk "***Uncertainty*** *concerning the occurrence of a loss*"
* WILLIAMS, HEAD, HORN & GLENDENNING have defined risk" The possibility of loss"
* GREENE & TRIESCHMANN have defined risk" "Uncertainty as to loss"

***2 - Classification of Risks***

Risks may be classified in many ways, but from **our viewpoint** we can classify the risks as either 1-***pure*** ***risks*** or 2- ***speculative risks*** as illustrated by **Figure (1 – 1)**

1. **Pure risks** mean the situations that result only in loss or no loss. One of the best examples for pure risks is ownership of property for example *ownership of a house* will have a fire or it will not. Also, *ownership a car* will be stolen or it will not be. The possible outcomes are loss or no loss. Premature death, flood ,lightining are considered other examples for ***pure*** ***risks***
2. **Speculative risks** mean the situations that result in loss or gain. *Gambling* is a good example of a speculative risk. In a gambling situation, risk is deliberately created in the hope of gain. A person who bets on ball games may either loss or wins. **Financial Institutions** involve many speculative risks.

**The investment made by a person** in *stock of exchange* may be lost if the prices of shares and bonds had decreased, but this risk is born in return for the possibility of profit (i.e. if the prices had risen). The same thing is Financial Institutions.

**Figure (1 – 1) Classification of risks**

**In the past**, the Risk management was just only for Pure Risks. Now, because of globalization and existence of financial crisis, many business institutions had created **many programs**. One of these programs for financial speculative risks and that is lead to appearance of concept of ***Financial Risk Management***. Consequently, **financial risk management** had become very important for continuing financial institutions because of competitions and contemporary international variables.

1. **Financial Risk Management**

**Before** we know financial risk management, we have to know answer the following question. **How Does Financial Risk Arise?**

Financial risk arises through countless transactions of a financial nature, including sales and purchases, investments and loans, and various other business activities. It can arise, because of the legal transactions, new projects, mergers and acquisitions, debt financing, the energy component of costs, or through the activities of management, stakeholders, competitors, foreign governments, or weather.

When financial prices change dramatically, it can increase costs, reduce revenues, or otherwise adversely affect the profitability of an organization. Financial fluctuations may make it more difficult to plan and budget, price goods and services, and allocate capital.

There are **three main sources** of financial risk:

1. Financial risks arising from an organization’s exposure to changes in market prices, such as interest rates, exchange rates, and commodity prices.

2. Financial risks arising from the actions of, and transactions with, other organizations such as vendors, customers, and counterparties in derivatives transactions.

3. Financial risks resulting from internal actions or failures of the organization, particularly people, processes, and systems.

**What Is Financial Risk Management?**

**)Financial risk management** is a process to deal with the uncertainties(RISKS) resulting from financial markets. It involves assessing the financial risks facing an organization and developing management strategies consistent with internal priorities and policies.

Addressing financial risks proactively may provide an organization with a competitive advantage. **قد توفر معالجة المخاطر المالية بشكل استباقي للمؤسسة ميزة تنافسية**.

 It also ensures that management, operational staff, stakeholders, and the board of directors agree on key issues of risk.

**Managing financial risk** necessitates making organizational decisions about risks that are acceptable versus those that are not. The passive strategy ا**لاستراتيجية السلبية** of taking no action is the acceptance of all risks by default.

**Organizations** manage financial risk using a variety of strategies and products. It is important to understand how these products and strategies work to reduce risk within the context of the organization’s risk tolerance and objectives.

1. **Financial markets (*Financial Institutions)***

Financial markets are structures through which funds flow.

**الأسواق المالية هي الهياكل التي من خلالها تتدفق الأموال**

 **Table 1–1** summarizes the financial markets. Financial markets can be distinguished along two major dimensions: (1) primary versus secondary markets and (2) money versus capital markets.

***TABLE 1–1 Types of Financial Markets***

**Primary Markets** —أو **أسواق الإصدار** markets in which users of funds (e.g., corporations) raise funds جمع الأموال through new issues of financial instruments, such as stocks and bonds. أوراق ماليه جديده for example ARAMCO

**Secondary** Ma**rkets** — أو **أسواق التداولmarkets** that trade financial instruments once they are issued. أوراق ماليه سبق طرحها في سوق الاصدار

**Money Markets** — **أسواق النقد** markets that trade **تتداول** debt securities or instruments with maturities of less than one year. i.e Commercial Papers and Certificates of Deposits

**Capital Markets** — **أسواق رأس المال** markets that trade debt and equity instruments with maturities of more than one year. i.e stocks and Bonds

**5. RISK MANAGEMENT AND THE FIRM**

Before **diving** into the discussion of the range of risks facing a corporation and before analyzing the state-of-*the art techniques available for measuring* and *managing these risks*, it is appropriate to start by asking the basic question about financial risk management.

**5.1. Why Should Firms Manage Risk?**

From a purely academic perspective, **corporate interest** in risk management seems curious. **Classic portfolio theory** tells us that **investors** can eliminate asset-specific risk by diversifying their holdings to include many different assets.

Thus, more realistic descriptions of the corporate setting give **some justifications** for **why firms should devote careful attention to the risks facing them:**

• **Bankruptcy costs.** The direct and indirect costs of bankruptcy are large and well known. If investors see future bankruptcy as a nontrivial possibility, then the real costs of a company reorganization or shutdown will reduce the current valuation of the firm. Thus, **risk management** can increase the value of a firm by reducing the probability of default. ا**حتمال التخلف عن السداد**.

**• Taxes**. Risk management can help reduce taxes by reducing the volatility of earnings. Many tax systems have built-in progressions and limits on the ability to 0 carry forward in time the tax benefit of past losses. Thus, everything else being equal, lowering the volatility of future pretax income will lower the net present value of future tax payments and thus increase the value of the firm.

**• Capital structure** **and the cost of capital**. Major source of corporate default is the inability to service debt. **المصدر الرئيسي لتعثر الشركات هو عدم القدرة على خدمة الديون** Other things equal, the higher the debt-to equity ratio, the riskier the firm. **Risk management** can therefore be seen as allowing the firm to have a higher debt-to-equity ratio, which is beneficial if debt financing is inexpensive. Similarly, proper risk management may allow the firm to expand more aggressively through debt financing.

• **Compensation packages**. Due to their implicit investment in firm-specific human capital, managerial level and other key employees in a firm often have a large and unhedged exposure to the risk of the firm they work for.

Thus, the riskier the firm, the more compensation current and potential employees will require to stay with or join the firm. **Proper risk management** can therefore help reducing the costs of retaining and recruiting key personnel.

**5.2. Does Risk Management Improve Firm Performance?**

The overall answer to this question appears to be **yes**. Analysis of the risk management practices in the gold mining industry found that **share prices** were less sensitive to gold price movements after risk management. Similarly, in the natural gas industry, better risk management has been found to result in less variable stock prices. A study also found that risk management in **a wide group of firms** led to a reduced exposure to interest rate and exchange rate movements.

**A more important question** is, ***does risk management improve corporate performance?*** Again, the answer appears to be yes.

Researchers have found that less volatile cash flows result in lower costs of capital and more investment. It has also been found that a portfolio of firms using risk management would **outperform** **تتفوق** a portfolio of firms that did not, when other aspects of the portfolio were controlled for.

**6. A BRIEF TAXONOMY OF RISKS نبذة مختصرة عن المخاطر or (what are types of Financial Risks.)**

We have already mentioned a number of risks facing a corporation, but so far we have not been precise regarding their definitions. Now is the time to make up for that.

**TABLE 7–1**

**Risks Faced by Financial Intermediaries**

**Interest rate risk** The risk incurred by an FI when the maturities of its assets and liabilities are mismatched.

**Market risk** The risk incurred from assets and liabilities in an FI’s trading book due to changes in interest rates, exchange rates, and other prices.

**Credit risk** The risk that promised cash flows from loans and securities held by FIs may not be paid in full.

**Off-balance-sheet risk** The risk incurred by an FI as the result of activities related to its contingent assets and liabilities held off the balance sheet. **المحتفظ بها خارج الميزانية العمومية**.

**Foreign exchange risk**: The risk that exchange rate changes can affect the value of an FI’s assets and liabilities denominated in nondomestic currencies. **المقومة بعملات غير محلية**.

**Country or sovereign risk** **مخاطر البلد أو السيادة**: The risk that repayments to foreign lenders or investors may be interrupted because of restrictions, intervention, or interference from foreign governments.

**Technology risk**  The risk incurred by an FI when its technological investments do not produce anticipated cost savings.

**Operational risk**. The risk that existing technology, auditing, monitoring, and other support systems may malfunction or break down. قد تتعطل أو تتعطل.

**Liquidity risk** The risk that a sudden surge in liability withdrawals may require an FI to liquidate assets in a very short period of time and at less than fair market prices.

**Insolvency risk** : The risk that an FI may not have enough capital to offset a sudden decline in the value of its assets. لتعويض الانخفاض المفاجئ في قيمة أصولها.

**\*\*\*\***In the remaining chapters of the text, we look at **the quantitative measurement** **and management of these risks in more detail**, But now we can high light **a quick sight for these risks in brief** as follows:-

1. ***INTEREST RATE RISK***

**Interest rate risk:** The risk incurred by an FI when the maturities of its assets and liabilities are mismatched.

That is, if **the primary securities** purchased by FIs have maturity and liquidity characteristics different from those of **the secondary securities** FIs sell, and there is mismatching between the maturities of assets and liabilities. FIs will expose themselves to interest rate risk. This may be indicated from the following examples as follows

**EXAMPLE 7–1**

***Impact of an Interest Rate Increase on an FI’s Profits When the Maturity of Its Assets Exceeds the Maturity of Its Liabilities زيادة سعر الفائدة على أرباح المؤسسة المالية تأثير***

Consider an FI that issues $100 million of liabilities of one-year maturity to finance the purchase of $100 million of assets with a two-year maturity. We show this situation in the following time lines:

 0 -----------9%------ Liabilities ---------1 11% ستدفع

 ($100 million) That is short fund

 0 -------------------10%---------------------1 -------10%----------------------- 2

 Assets

 ستحصل ($100 million)

In these time lines, the FI can be viewed as being “***short-funded***.” That is, the maturity of its liabilities is less than the maturity of its assets.

Suppose *the cost of funds* (liabilities) for an FI is 9 percent per annum and the *return on assets* is 10 percent per annum. Over the first year the FI can lock in a profit spread of 1 percent (10 percent – 9 percent) times $100 million by borrowing short term (for one year) and lending long term (for two years). Thus, its profit is $1 million (.01 × $100 m).

However, its profits for the second year are *uncertain*.

1. If the level of interest rates does not change, the FI can refinance its liabilities at 9 percent and lock in a 1 percent, or $1 million, profit for the second year as well. There is always a risk, however, that interest rates will change between years 1 and 2.
2. If interest rates were to rise and the FI can borrow new one year liabilities only at 11 percent in the second year, its profit spread in the second year would actually be **negative**; that is, 10 percent – 11 percent = –1 percent, or the FI’s loss is $1 million (–.01 × $100 m). The positive spread earned in the first year by the FI from holding assets with a longer maturity than its liabilities would be offset by a negative spread in the second year.

**Note that** if interest rates were to rise by more than 1 percent in the second year, the FI would stand to take losses over the two-year period as a whole.

**As a result**, when an FI holds longer-term assets relative to liabilities, it potentially exposes itself to ***refinancing risk***. This is the risk that the cost of rolling over or reborrowing funds could be more than the return earned on asset investments.

*Example*

**Note** : The classic example of this type of mismatch was demonstrated by U.S. savings institutions during the 1980s .

So, **refinancing risk:** The risk that the cost of rolling over or reborrowing funds will rise above the returns being earned on asset investments

**مخاطر إعادة التمويل**: مخاطر ارتفاع تكلفة تجديد الأموال أو إعادة اقتراضها عن العوائد التي يتم جنيها من استثمارات الأصول

 *That is , cost of financing (funds by liabilities) > return on asset investment*

**EXAMPLE 7–2**

***Impact of an Interest Rate Decrease When the Maturity of an FI’s Liabilities Exceeds the Maturity of Its Assets***

An alternative balance sheet structure would have the FI borrowing $100 million for a longer term than the $100 million of assets in which it invests. In the time lines below the FI is “***long funded***.” The maturity of its liabilities is longer than the maturity of its assets. Using a similar example, suppose the FI borrowed funds at 9 percent per annum for two years and invested the funds in assets that yield 10 percent for one year. This situation is shown as follows:

 0 ----------------------9%-------------------1 ---------------9%--------------- 2

 Liabilities That is ***long*** fund

 ($100 million)

 0 -----------10%---- Assets --------------1 8%

 ($100 million)

In this case, the FI is also exposed to an interest rate risk; by holding shorter-term assets relative to liabilities, it faces ***uncertainty*** about the interest rate at which it can reinvest funds in the second period. As before, the FI locks in a one-year profit spread of 1 percent, or $1 million. At the end of the first year, the asset matures and the funds that have been borrowed for two years have to be reinvested.

Suppose interest rates fall between the first and second years so that in the second year the return on $100 million invested in new one-year assets is 8 percent. The FI would face a loss, or negative spread, in the second year of 1 percent (that is, 8 percent asset return minus 9 percent cost of funds), or the FI loses $1 million (–.01 × $100 m). The positive spread earned in the first year by the FI from holding assets with a shorter maturity than its liabilities is offset by a negative spread in the second year.

Thus, the FI is exposed to ***reinvestment risk***; by holding shorter-term assets relative to liabilities, it faces uncertainty about the interest rate at which it could reinvest funds borrowed for a longer period.

*Example*

As interest rates fell in the early 2000s, good examples of this exposure were provided by banks that borrowed fixed-rate deposits while investing in floating-rate loans, that is, loans whose interest rates changed or adjusted frequently

So, ***reinvestment risk*** The risk that the returns on funds to be reinvested will fall below the cost of funds.

*That is return on investment in assets (on funds) < cost of financing (funds) on liabilities*

In addition to ***a potential refinancing or reinvestment risk*** that occurs when interest rates change, an FI faces ***market value risk*** as well. Remember that the market (or fair) value of an asset or liability is conceptually equal to the present value of current and future cash flows from that asset or liability. Therefore, rising interest rates increase the discount rate on those cash flows and reduce the market value of that asset or liability. Conversely, falling interest rates increase the market values of assets and liabilities. **Moreover**, mismatching maturities by holding longer-term assets than liabilities means that when interest rates rise, the market value of the FI’s assets falls by a greater amount than its liabilities. This exposes the FI to the ***risk of economic loss*** and, potentially, ***the risk of insolvency.***

 ***2-CREDIT RISK***

**Credit risk: The risk that the promised cash flows from loans and securities held by FIs may not be paid in full.**

**Credit risk** arises because of the possibility that promised cash flows on ***financial claims*** held by FIs, such as loans or bonds, will not be paid in full. Virtually all types of FIs face this risk.

***Notice***

**However**, in general, **FIs that make loans or buy bonds with long maturities are more exposed than are FIs that make loans or buy bonds with short maturities**. This means, *for example*, that banks and life insurance companies are more exposed to credit risk than are money market, mutual funds صناديق الاستثمار and property–casualty insurance companies. If the principal on all financial claims held by FIs was paid in full on maturity and interest payments were made on the promised dates, FIs would always receive back the original principal lent plus an interest return. **That is**, they would face *no credit risk*. If a borrower defaults, however, both the principal loaned and the interest payments expected to be received are **at risk.**

*As a result*, many financial claims issued by corporations and held by FIs promise a limited or fixed upside return (principal and interest payments to the lender) with a high probability and a large downside risk (loss of loan principal and promised interest) with a much smaller probability. *Good examples of financial claims* issued with these return-risk trade-offs are fixed income coupon bonds سندات قسيمة الدخل الثابتissued by corporations and bank loans.

***Example of credit risk***

The effects of **credit risk** are evident in Figure 7–1, which shows commercial bank charge-off (or write-off) rates for various types of loans between 1984 and 2012.

**FIGURE 7–1**

**Charge-Off Rates for Commercial Bank Lending Activities, 1984–2006**

 

**Notice**, in particular, the high rate of charge-offs experienced on **credit card loans** in the 1980s, most of the 1990s, and the early 2000s. Indeed, credit card charge-offs by commercial banks increased persistently from the mid-1980s until 1993 and again from 1995 through early 1998. By 1998, charge-offs leveled off, and they even declined after 1998. However, a weak economy and change in bankruptcy laws resulted in ***a surge* زيادة** in credit card charge-offs in the early 2000s.

**أدى الاقتصاد الضعيف والتغيير في قوانين الإفلاس إلى زيادة عمليات الخصم من بطاقات الائتمان**

***Conclusion*** : diversification across assets, such as loans exposed to credit risk, reduces the overall credit risk in the asset portfolio and thus increases the probability of partial or full repayment of principal and/or interest.

 ***3-LIQUIDITY RISK***

**Liquidity risk:** The risk that a sudden surge in liability withdrawals may leave an FI in a position of having to liquidate assets in a very short period of time and at low prices.

**Liquidity risk** arises when an **FI’s liability holders**, such as depositors or insurance policyholders, demand immediate cash for the financial claims they hold with an FI or when holders of off-balance-sheet loan commitments (or credit lines) suddenly exercise their right to borrow (draw down their loan commitments سحب التزامات قروضهم).

\*\* **In recent years**, the **Federal Reserve** has expressed concerns about both liability-side and asset-side (loan commitment) liquidity risks. When **liability holders** demand cash immediacy—that is, “put” their financial claims back to the FI—

1. The FI must either borrow additional funds or
2. sell assets to meet the demand for the withdrawal of funds.

The most liquid asset of all is **cash**, which FIs can use to directly meet liability holders’ demands to withdraw funds. Although FIs limit their cash asset holdings because **cash** earns no interest, low cash holdings are usually not a problem. Day-to-day withdrawals by liability holders are generally predictable, and FIs can normally expect to borrow additional funds to meet any sudden shortfalls of cash on the money and financial markets.

However, there are times when an FI can face a liquidity crisis. Because of a lack of confidence by liability holders in the FI or some unexpected need for cash, liability holders may demand larger withdrawals than normal. When all, or many, FIs face abnormally large cash demands, the cost of additional purchased or borrowed funds rises and the supply of such funds becomes restricted.

***As a consequence***, FIs may have to sell some of their less liquid assets to meet the withdrawal demands of liability holders.

This results in, **a more serious liquidity risk**, especially as some assets with “thin” markets generate lower prices when the asset sale is immediate than when the FI has more time to negotiate the sale of an asset.

***As a result***, the liquidation of some assets at low or fire sale prices (the price an FI receives if an asset must be liquidated immediately at less than its fair market value) could threaten an FI’s profitability and solvency. Good examples of such illiquid assets are bank loans to small firms. Such serious liquidity problems may eventually result in a run in which all liability claim holders seek to withdraw their funds simultaneously from the FI because they fear that it will be unable to meet their demands for cash in the near future. This turns the FI’s liquidity problem into a solvency problem and can cause it to fail.

**EXAMPLE 7–3**

***EXAMPLE 7–3 ( to know the effect or impact of liquidity***

***Impact of Liquidity risk on an FI’s Equity Value***

Consider the following balance sheet in the following table

|  |  |
| --- | --- |
|  Before the withdrawal( in millions) |  After the withdrawal |
| Assets |  | Liabilities/equity |  | Assets |  | Liabilities/equity |  |
| Cash assets | 10 | Deposits | 90 | Cash assets | 0 | Deposits | 75 |
| Nonliquid assets | 90 | equity | 10 | Nonliquid assets | 80 | equity | 5 |
|  | 100 |  | 100 |  | 80 |  | 80 |

Before **deposit withdrawals**, the FI has $10 million in Cash assets and $90 million in Nonliquid assets. These assets were funded with 90 million in Deposits and 10 million in owner’s equity.

Suppose that**, the depositors** unexpectedly ***withdrew 15 million in deposits*** (as a result bad news about profits of FI) and FI receives no new deposits to replace them. To meet these deposits withdrawals, the FI first use 10 million it has in Cash assets and then seeks to sell some of nonliquid assets to raise an additional 5 million in cash.

Assume that the FI cannot borrow any more funds in short-term money markets, and because it cannot wait to get better prices for its assets in future (because it needs cash now to meet immediate depositor withdrawals), the FI has to sell any nonliquid assets at 50 cents on dollar.

( i.e. FI will sell assets at 50%).

Thus to cover the remaining 5 million in deposit withdrawals , the FI must sell 10 million in nonliquid assets ,incurring loss of 5 million from the face value of those assets. The FI must then write off any such losses against its capital or equity funds.

Because its capital was only 10 million before the deposit withdrawal, the loss on the fire-sale of assets of 5 million leaves the FI with only 5 million in equity.

 ***4- FOREIGN EXCHANGE RISK***

***Foreign exchange risk* :** The risk that exchange rate changes can affect the value of an FI’s assets and liabilities denominated in foreign currencies.

Increasingly, FIs have recognized that both direct foreign investment and foreign portfolio investments can extend the operational and financial benefits available from purely domestic investments.

ا**مثله توضح نسب الأصول في أوراق ماليه اجنبيه**

**Thus**, *U.S. pension funds* that held approximately 5 percent of their assets in foreign securities in the early 1990s now hold close to 10 percent of their assets in foreign securities.

*Japanese pension funds* currently hold more than 30 percent of their assets in foreign securities plus an additional 10 percent in foreign currency deposits. At the same time, many large U.S. banks, investment banks, and mutual funds have become more global in their orientation. To the extent that the returns on domestic and foreign investments are **imperfectly correlated**, there are potential gains for an FI that expands its asset holdings and liability funding beyond the domestic borders.

The returns on domestic and foreign direct investing and portfolio investments are not perfectly correlated for ***two reasons***. *The first* is that the underlying technologies of various economies differ, as do the firms in those economies.

**For example**, one economy may be based on agriculture while another is industry based. Given different economic infrastructures, one economy could be expanding while another is contracting. In the early 2000s, for example, the U.S. economy was rapidly expanding while the European economy was stagnant **راكد** . *The second* *reason* is that **exchange rate changes** are not perfectly correlated across countries. This means the dollar–euro exchange rate may be appreciating while the dollar–yen exchange rate may be falling.

One potential benefit from an FI’s becoming increasingly global in its outlook is an ability to expand abroad directly through branching or acquisitions or by developing a financial asset portfolio that includes foreign securities as well as domestic securities.

Even so, **foreign investment** exposes an FI to foreign exchange risk.

**Foreign exchange risk** is the risk that exchange rate changes can adversely affect the value of an FI’s assets and liabilities denominated in foreign currencies.

To understand ***how foreign exchange risk arises*** read this example

**Example**

 Suppose that a U.S. FI makes a loan to a British company in pounds sterling (£). Should the British pound depreciate in value relative to the U.S. dollar, the principal and interest payments received by U.S. investors would be devalued in dollar terms.

Indeed, were the British pound to fall far enough over the investment period, when cash flows are converted back into dollars, the overall return could be negative. **That is**, on the conversion of principal and interest payments from pounds into dollars, foreign exchange losses can offset the promised value of local currency interest payments at the original exchange rate at which the investment occurred.

**In general**, an FI can hold assets denominated in a foreign currency and/or issue foreign liabilities. Consider a U.S. FI that holds £100 million in pound loans as assets and funds £80 million of them with pound certificates of deposit. The difference between the £100 million in pound loans and £80 million in pound CDs is funded by dollar CDs (i.e., £20 million worth of dollar CDs).

See Figure 7–3 . In this case, the U.S. FI is net long £20 million in pound assets; that is, it holds more foreign assets than liabilities. The U.S. FI suffers losses if the exchange rate for pounds falls or depreciates against the dollar over this period. In dollar terms, the value of the pound loan assets falls or decreases in value by more than the pound CD liabilities do. **That is**, the FI is exposed to the risk that its net foreign assets may have to be liquidated at an exchange rate lower than the one that existed when the FI entered into the foreign asset–liability position.

**FIGURE 7–3**

 **The Foreign Asset and Liability Position: Net Long Asset Position in Pounds**

 0-------------------------------- Foreign assets -----------------------------£100 million

 0-------------------- Foreign liabilities ------------- £80 million

**FIGURE 7–4**

**The Foreign Asset and Liability Position: Net Short Asset Position in Pounds**

 0-------------------- Foreign assets ------------- £80 million

 0-------------------------------- Foreign liabilities -----------------------------£100 million

Instead, the FI could have £20 million more pound liabilities than assets; in this case, it would be holding a net short position in pound assets, as shown in Figure 7–4 . Under this circumstance, the FI is exposed to foreign exchange risk if the pound appreciates against the dollar over the investment period. This occurs because the value of its pound liabilities in dollar terms rose faster than the return on its pound assets.

**الخلاصة**

**Consequently**, to be approximately hedged, the FI must match its assets and liabilities in each foreign currency.

**Note that** the FI is fully hedged only if we assume that it holds foreign assets and liabilities of exactly the same maturity. Consider what happens if the FI matches the size of its foreign currency book (pound assets = pound liabilities = £100 million in that currency) but mismatches the maturities so that the pound assets are of six-month maturity and the liabilities are of three-month maturity. The FI would then be exposed to foreign interest rate risk—the risk that British interest rates would rise when it has to roll over its £100 million in pound CD liabilities at the end of the third month. Consequently, an FI that matches both the size and maturities of its exposure in assets and liabilities of a given currency is hedged, or immunized, against foreign currency and foreign interest rate risk. To the extent that FIs mismatch their portfolio and maturity exposures in different currency assets and liabilities, they face both foreign currency and foreign interest rate risks.

**As already noted**, if foreign exchange rate and interest rate changes are not perfectly correlated across countries, an FI can diversify away part, if not all, of its foreign currency risk.

***5-COUNTRY OR SOVEREIGN RISK***

**Country or sovereign risk :** The risk that repayments from foreign borrowers may be interrupted because of interference from foreign governments.

As we noted in the previous section, a globally oriented FI that mismatches the size and maturities of its foreign assets and liabilities is exposed to foreign currency and foreign interest rate risks. Even beyond these risks, and even when investing in dollars, holding assets in a foreign country can expose an FI to an additional type of foreign investment risk called ***country or sovereign risk.***

**Country or sovereign risk** is a different type of credit risk that is faced by an FI that purchases assets such as the bonds and loans of foreign corporations.

 **ماذا يحدث عند مقارنة بين ما يحدث في شركة محلية وشركة اجنبيه عند عدم دفع القرض الذى حصلت عليه**

**For example**

 When ***a domestic corporation*** is unable or unwilling to repay a loan, an FI usually has recourse to the domestic bankruptcy courts and eventually may recoup **استعاد** at least a portion of its original investment when the assets of the defaulted firm are liquidated or restructured.

**By comparison**, *a* ***foreign corporation*** may be unable to repay the principal or interest on a loan even if it would like to. Most commonly, the government of the country in which the corporation is headquartered may prohibit or limit debt payments because of foreign currency shortages and adverse political reasons.

**----- مثال اخر لهذا الخطر**

**For example** U.S., European, and Japanese banks had enhanced sovereign risk exposures to countries such as Argentina, Russia, Thailand, South Korea, Malaysia, and Indonesia. Financial support given to these countries by the International Monetary Fund (IMF), the World Bank, and the U.S., Japanese, and European governments enabled the banks to avoid the full extent of the losses that were possible.

**Nevertheless**, Indonesia had to declare a moratorium **وقف** on some of its debt repayments, while Russia defaulted on payments on its short-term government bonds.

In 1999, some banks agreed to settle their claims with the Russian government, receiving less than five cents for every dollar owed them.

 In 2001, the government of Argentina, which had pegged ربطت its peso to the dollar on a one-to-one basis since the early 1990s, had to default on its government debt largely because of an overvalued peso and the adverse effect this had on its exports and foreign currency earnings.

In December 2001, Argentina ended up defaulting on $130 billion in government-issued debt and, in 2002, passed legislation that led to defaults on $30 billion of corporate debt owed to foreign creditors. Argentina’s economic problems continued into 2003; in September 2003 it defaulted on a $3 billion loan repayment to the IMF.

**ماهو الحل**

**In the event of such restrictions**, **reschedulings**, or outright prohibitions أو الحظر التام لسداد التزامات الديون من قبل الحكومات ذات السيادة on the payment of debt obligations by sovereign governments, the FI claimholder has little, if any, recourse to the local bankruptcy courts or an international civil claims court. The major leverage available to an FI to ensure or increase repayment probabilities and amounts is its control over the future supply of loans or funds to the country concerned. However, such leverage may be very weak in the face of a country’s collapsing currency and government.

***6-MARKET RISK***

**Market risk :** The risk incurred in the trading of assets and liabilities due to changes in interest rates, exchange rates, and other asset prices.

In other words, **Market risk** is defined as **the risk to** **a financial portfolio** from movements in market prices such as equity prices, foreign exchange rates, interest rates.

***ملاحظات على خطر السوق (Notes for Market Risk)***

1. **Market risk** arises when FIs actively trade assets and liabilities (and derivatives) rather than hold them for longer-term investment, funding, or hedging purposes.
2. **Market risk** is closely related to interest rate, equity return, and foreign exchange risk in that as these risks increase or decrease, the overall risk of the FI is affected.

However, market risk adds another dimension resulting from its trading activity.

1. **Market risk** is the incremental risk incurred by an FI when interest rate, foreign exchange, and equity return risks are combined with an active trading strategy, especially one that involves short trading horizons such as a day.

**Conceptually**, an FI’s trading portfolio can be differentiated from its investment portfolio on the basis of time horizon and secondary market liquidity.

1. **The trading portfolio** contains assets, liabilities, and derivative contracts that can be quickly bought or sold on organized financial markets.
2. **The investment portfolio** (or in the case of banks, the so-called *banking book*) contains assets and liabilities that are relatively illiquid and held for longer holding periods.

Table 7–4 shows a hypothetical breakdown between *banking book* and *trading book* assets and liabilities.

**TABLE 7–4**

**The Investment (Banking) Book and Trading Book of a Commercial Bank**

 **Assets Liabilities**

Banking book Cash Deposits

 Loans Other illiquid borrowed funds

 Premises and equipment Capital

 Other illiquid assets

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Trading book Bonds (long) Bonds (short)

 Commodities (long) Commodities (short)

 FX (long) FX (short)

 Equities (long) Equities (short)

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 Derivatives\* (long) Derivatives\* (short)

As can be seen, **the banking book** contains the majority of loans and deposits plus other illiquid assets. **The trading book** contains long and short positions in instruments such as bonds, commodities, foreign exchange (FX), equities, and derivatives.

With the increasing securitization of bank loans (e.g., mortgages), more and more assets have become liquid and tradable. Of course, with time, every asset and liability can be sold. While bank regulators have normally viewed tradable assets as those being held for horizons of less than one year, private FIs take an even shorter-term view. ***In particular***, FIs are concerned about the fluctuation in value—or value at risk (VAR)—of their trading account assets and liabilities for periods as short as one day—so-called daily earnings at risk (DEAR)—especially if such fluctuations pose a threat to their solvency.

To see an extreme case of the type of risk involved in active trading, consider Barings, the 200-year-old **British merchant bank** that failed as a result of trading losses in February 1995. In this case, the bank (or, more specifically, one trader, Nick Leeson) was betting that the Japanese Nikkei Stock Market Index would rise by buying futures on that index (some $8 billion worth). However, for a number of reasons—including the **Kobe earthquake**—the index actually fell.

**As a result**, over a period of one month, the bank lost over $1.2 billion on its trading positions, rendering the bank insolvent. That is, the losses on its futures positions exceeded the bank’s own equity capital resources.

***7-OFF-BALANCE-SHEET RISK***

**Off-balance-sheet risk:** The risk incurred by an FI due to activities related to contingent assets and liabilities.

(i.e loans commitments or *standby letter of credit guarantees by insurance companies and banks to back the issuance of municipal bonds* )

***Example***

One of the most striking trends for many **modern FIs** has been the growth in their off-balance-sheet activities and thus their off-balance-sheet risk . While all FIs to some extent engage in off-balance-sheet activities, most attention has been drawn to the activities of banks, especially large banks. By contrast, off- balance sheet activities have been less of a concern to *smaller depository institutions* and many *insurance companies*.

 ***ملحوظة هامه على هذا الخطر***

**An off-balance-sheet activity**, by definition, does not appear on an FI’s current balance sheet since it does not involve holding a current primary claim (asset) or the issuance of a current secondary claim (liability).

**Instead,** **off-balance-sheet activities** affect the future shape of an FI’s balance sheet in that they involve the creation of contingent assets and liabilities that give rise to their potential (future) placement on the balance sheet. Thus, accountants place them “*below the bottom line*” of an FI’s asset and liability balance sheet.

**مثال**

**\*\*\**A good example of an off-balance-sheet activity*** is the *issuance of standby letter of credit guarantees by insurance companies and banks to back the issuance of municipal bonds*. إصدار ضمانات الاعتماد الاحتياطية من قبل شركات التأمين والبنوك لدعم إصدار سندات البلدية

Many state and local governments could not issue such securities without bank or insurance company letter of credit guarantees that promise principal and interest payments to investors should the municipality default on its future obligations.

Thus, ***the letter of credit*** guarantees payment should a municipal government (e.g., New York State) face financial problems in paying the promised interest payments and/or the principal on the bonds it issues. If a municipal government’s cash flow is sufficiently strong so as to pay off the principal and interest on the debt it issues, the letter of credit guarantee issued by the FI expires unused. Nothing appears on the FI’s balance sheet today or in the future.

However, ***the fee*** earned for issuing the letter of credit guarantee appears on the FI’s income statement.

**As a result**, the ability to earn *fee income* while not loading up or expanding the balance sheet has become an important motivation for FIs to pursue off- balance sheet business. Unfortunately, this activity is not risk free. Suppose the municipal government defaults on its bond interest and principal payments. Then the contingent liability or guaranty the FI issued becomes an actual liability that appears on the FI’s balance sheet. That is, the FI has to use its own equity to compensate investors in municipal bonds. Indeed, significant losses in off-balance-sheet activities can cause an FI to fail, just as major losses due to balance sheet default and interest rate risks can cause an FI to fail.

***Letters of credit*** are just one **example of off-balance-sheet activities**. Others include loan commitments by banks, mortgage servicing contracts by thrifts, While some of these activities are structured to reduce an FI’s exposure to credit, interest rate, or foreign exchange risks, mismanagement or speculative use of these instruments can result in major losses to FIs.

***8-TECHNOLOGY AND OPERATIONAL RISKS***

**Technology and operational risks** are closely related and in recent years have caused great concern to FI managers and regulators alike.

The Bank for International Settlements (BIS), the principal organization of central banks in the major economies of the world, defines

 ***Operational risk*** (inclusive of technological risk) as “*the risk of loss resulting from inadequate or failed internal processes, people, and systems or from external events.*” A number of FIs add reputational risk and strategic risk (e.g., due to a failed merger) as part of a broader definition of operational risk.

**مثال لهذا الخطر** ***Operational risk***

**Technological innovation** has been a major growth area of FIs in recent years.

In the 1990s and 2000s, banks, insurance companies, and investment companies all sought to improve operational efficiency with major investments in internal and external communications, computers, and an expanded technological infrastructure.

***مثال هام في وقتنا الحالي***

***For example***, most banks provide *depositors* with the capabilities to check account balances, transfer funds between accounts, manage finances, pay bills, and perform other functions from their home personal computers.

**At the wholesale level**, electronic transfer of funds through *automated clearing houses* (ACH) and wire transfer payment networks such as the *Clearing House Interbank Payments Systems* (CHIPS) have been developed. Indeed, the global financial services firm Citigroup has operations in more than 100 countries connected in real time by a proprietary-owned satellite system.

***\*\*\*The major objectives of technological expansion*** are to lower operating costs, increase profits, and capture new markets for the FI. In current terminology, the objective is to allow the FI to exploit, to the fullest extent possible, better potential economies of scale and economies of scope in selling its products. ***Economies of scale***refer to *an FI’s ability to lower its average costs of operations by expanding its output of financial services*. **Economies of scope** refer to an FI’s ability to generate cost synergies تآزر التكلفة by producing more than one output with the same inputs.

***For example***, an FI could use the same information on the quality of customers stored in its computers to expand the sale of both loan products and insurance products.

**That is**, the same information (e.g., age, job, size of family, income) can identify both potential loan and life insurance customers. Indeed, the attempt to better exploit such economies of scope lies behind megamergers such as that of Citicorp with Travelers to create Citigroup, an FI that services over 100 million customers in areas such as banking, securities, and insurance.

**بعض المعلومات عن *Technology risk***

**بعض المعلومات عن *Technology risk***

* ***Technology risk*** occurs when technological investments do not produce the anticipated cost savings in the form of economies of either scale or scope.

 ***(i) Diseconomies of scale***.

 ***For example***, arise because of excess capacity, redundant technology, and/or organizational and bureaucratic inefficiencies (red tape) that become worse as an FI grows in size.

 (**ii**) ***Diseconomies of scope*** arise when an FI fails to generate perceived synergies or cost savings through major new technology investments.

* **Technological risk** can result in major losses in the competitive efficiency of an FI and, ultimately, in its long-term failure. Similarly, gains from technological investments can produce performance superior to an FI’s rivals as well as allow it to develop new and innovative products, enhancing its long-term survival chances.

**بعض المعلومات عن  *Operational risk***

* **Operational risk** is partly related to **technology risk** and can arise whenever

 existing technology malfunctions or back-office support systems break down.

***For example***, a failure of a back-office system occurred in September 2001 when Citibank’s (a subsidiary of Citigroup) ATM system crashed for an extended period of time. Citibank’s 2,000 nationwide ATMs, its debit card system, and its online banking functions went down for almost two business days.

 ***Operational risk*** is not exclusively the result of technological failure.

***For example***,

Employee fraud and errors constitute ***a type of operational risk*** that often negatively affects the reputation of an FI.

***Conclusion***

**1-Technology risk:** The risk incurred by an FI when technological investments do not produce the cost savings anticipated.

**2-Operational risk :** The risk that existing technology or support systems may malfunction or break down.

تتعطل أو تنهار .

**3-Economies of scale**: -اقتصاديات الحجم The degree to which an FI’s average unit costs of producing financial services fall as its outputs of services increase.

**4-Economies of scope**: اقتصاديات النطاق The degree to which an FI can generate cost synergies by producing multiple financial service products.

***9- INSOLVENCY RISK***

**Insolvency risk:** The risk that an FI may not have enough capital to offset a sudden decline in the value of its assets relative to its liabilities.

**Insolvency risk** is a consequence, or outcome of one or more of the risks described above: interest rate, market, credit, off-balance-sheet, technology, and foreign exchange, sovereign, and liquidity risks.

**Technically**, **insolvency occurs** when the capital or equity resources of an FI’s owners are driven to, or near to, zero because of losses incurred as the result of one or more of the risks described above.

***An Example***

Consider the case of the 1984 **failure** of **Continental Illinois National Bank and Trust Company**, still the biggest bank failure in U.S. history. Continental’s strategy in the late 1970s and early 1980s had been to pursue asset growth through aggressive lending, especially to the oil and gas sector. Continental’s loan portfolio grew at an average rate of 19.8 percent per year from 1977 to 1981. The downturn in the U.S. economy at the beginning of the 1980s resulted in the default of many of these loans (credit risk).

**In addition,** Continental had a very small **core deposit** base, relying instead on purchased and borrowed funds such as fed funds, RPs, and Eurodollar deposits.

The increasing number of defaults in Continental’s loan portfolio fueled concerns about the bank’s ability to meet its liability payments, resulting in the refusal by a number of major lenders to renew or roll over the short-term funds they had lent to Continental (liquidity risk). The substantial defaults on Continental’s loans combined with its inability to obtain new or retain existing funds resulted in the rapid deterioration of Continental’s capital position (insolvency risk). Continental was unable to survive, and federal regulators assumed control in 1984.

**In general**, the more equity capital to borrowed funds an FI has—**that is**, the lower its leverage—the better able it is to withstand losses تتحمل الخسائر whether due to adverse interest rate changes, unexpected credit losses, or other reasons. Thus, both management and regulators of FIs focus on an FI’s capital (and adequacy) as a key measure of its ability to remain solvent and grow in the face of a multitude of risk exposures.

***10- OTHER RISKS AND THE INTERACTION OF RISKS***

In this chapter, we have concentrated on **ten major risks** continuously impacting an FI manager’s decision-making process and risk management strategies. These risks were interest rate risk, market risk, credit risk, off-balance-sheet risk, technology and operational risk, foreign exchange risk, country or sovereign risk, liquidity risk, and insolvency risk. Even though the discussion generally described each independently, in reality, these risks are often interdependent مترابطة.

***For example***, **أمثلة**

1. when interest rates rise, corporations and consumers find maintaining promised payments on their debt more difficult.

Thus, over some range of interest rate movements, credit, interest rate, and off-balance-sheet risks are positively correlated.

**Furthermore**,

1. the FI may have been counting on the funds from promised payments on its loans for liquidity management purposes. Thus, liquidity risk is also correlated with interest rate and credit risks. The inability of a customer to make promised payments also affects the FI’s income and profits and, consequently, its equity or capital position.

**Thus**, each risk and its interaction with other risks ultimately affects insolvency risk.

Similarly, foreign exchange rate changes and interest rate changes are also highly correlated. When the Federal Reserve changes a key interest rate (such as the Fed funds rate) through its monetary policy actions, exchange rates are also likely to change.

Various other risks, often of a more discrete or event type, also impact an FI’s profitability and risk exposure such as the 1929 and 1987 stock market crashes or the September 2001 terrorist attacks in the United States.

**أخطار آخرى تؤثر على الشركات**

These can have a major impact on an FI’s risk exposure. **Other event risks include** fraud, theft, earthquakes, storms, malfeasance المخالفات, and breach of fiduciary trust; all of these can ultimately cause an FI to fail or be severely harmed. Yet each is difficult to model and predict.

**Finally**, more general macroeconomic or systematic risks, such as increased inflation, inflation volatility, and unemployment, can directly and indirectly impact an FI’s level of interest rate, credit, and liquidity risk exposure. For example, inflation was very volatile in the 1979–82 period in the United States

***Summary of chapter 7***

This chapter provided *an introductory view of ten major risks faced by modern FIs*. They face interest rate risk when their assets and liabilities maturities are mismatched. They incur market risk on their trading assets and liabilities if there are adverse movements in interest rates, exchange rates, or other asset prices. They face credit risk or default risk if their clients default on their loans and other obligations. Modern-day FIs also engage in a significant number of off-balance-sheet activities that expose them to off-balance-sheet risks: contingent asset and liability risks. The advent of sophisticated technology and automation exposes FIs to both technological risk and operational risk. If FIs conduct foreign business, they are subject to additional risks, namely foreign exchange and sovereign risks. Liquidity risk is a result of a serious run on an FI because of excessive withdrawals or problems in refinancing.

 **Finally**, insolvency risk occurs when an FI’s capital is insufficient to withstand a decline in the value of assets relative to liabilities. The effective management of these risks determines the success or failure of a modern FI. The chapters that follow analyze each of these risks in greater detail.