



# Table of Contents

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk Assessment

Risk Management and Hedging Techniques

Fwds and Futures

Options

Borrowing and Lending

Ad Hoc Techniques

Regulatory Implications of Risk Management

Terminology

To Put It into Practice

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

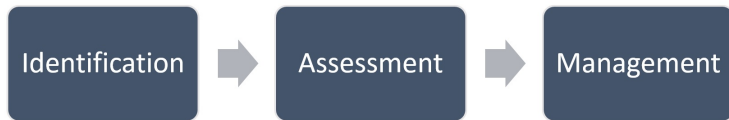
Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# What is Risk Management?

Risk Management can be defined as the process of identifying, assessing and preparing responses to (i.e. managing) one or more risk factors.



## Getting Started

### Risk Identification

- FX Risk
- Operating Risk
- Country Risk

### Risk Assessment

- FX Risk Assessment
- Country Risk Assessment

### Risk Management and Hedging Techniques

- Fwds and Futures
- Options
- Borrowing and Lending
- Ad Hoc Techniques

### Regulatory Implications of Risk Management

### Terminology

### To Put It into Practice



# Main Categories of Risk

Risk can be broadly categorized into one of the following:

- ▶ **Credit Risk:** risk of loss due to the failure of a borrower or counterparty to fulfil his contractual obligations
- ▶ **Settlement Risk:** risk that the counterparty will fail to deliver the terms of a contract (security or cash) with another party at the time of settlement
- ▶ **Market Risk:** risk of loss due to factors that affect market prices
- ▶ **Operating Risk** (including business, legal and reputational risks): risk of losses incurred for inadequate or failed internal processes, people, systems and/or external events
- ▶ **Country Risk:** possibility of losses due to country-specific economic, political and social events

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and  
Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



**FX Risk:** variability in the domestic currency value of assets and liabilities attributable to unanticipated changes in exchange rates

**WATCH OUT:** From a statistical standpoint, **variability**  $\Rightarrow$  **standard deviation**



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and  
Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Operating Risk

Operating risk is very difficult to identify (and to eliminate) and thus goes under the name of **Residual Risk**.

- ▶ Does a domestic firm with no direct business relationships abroad face operating risk?



Getting Started

Risk Identification

FX Risk

**Operating Risk**

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



# Country Risk

Uncertainty surrounding payments from abroad or assets held abroad due to the possibility of war, revolution, asset seizure, or other similar events



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



Once identified, risks have to be prioritized, in order to focus only on those that appear to be relatively **likelier** and **more severe**.

Calculating the amounts at risk thus becomes paramount...



Getting Started

Risk Identification

- FX Risk
- Operating Risk
- Country Risk

Risk Assessment

- FX Risk Assessment
- Country Risk Assessment

Risk Management  
and Hedging  
Techniques

- Fwds and Futures
- Options
- Borrowing and Lending
- Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

**Foreign Exchange Exposure:** sensitivity of changes in the real domestic currency value of assets and liabilities to changes in exchange rates. In more quantitative terms,

$$Exposure = \frac{\Delta V_D}{\Delta S_{D/F}}$$

**Watch Out:** Exposures are measured in monetary terms  $\Rightarrow$  Can you find the currency of measurement? Notice, also, that **Exposure on the same asset/liability varies depending on which currency is considered as domestic/foreign**



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

**FX Risk Assessment**

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# FX Exposure on Contractual Assets: Bank Account

- ▶ EUR-denominated bank account = EUR 1,000
- ▶  $S_{\frac{USD}{EUR}}$  from 1.1 to 1.2

$$Exposure = \frac{(1.2 \cdot 1,000) - (1.1 \cdot 1,000)}{(1.2 - 1.1)} = 1,000 EUR$$

- ▶ Is it a long or a short exposure on EUR?
- ▶ What if we dealt with a bank loan?



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

**FX Risk Assessment**  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# FX Exposure on Non Contractual Assets: Shares

- ▶ Shares (initial price)= EUR 10
- ▶ The shares belong to a European company exporting to the USA
- ▶  $S_{\frac{USD}{EUR}}$  from 1.1 to 1.2  $\Rightarrow$  the EUR appreciation harms the exporting company's competitiveness: the shares' price drops to EUR 9.50

$$\frac{(1.2 \cdot 9.5) - (1.1 \cdot 10)}{1.2 - 1.1} = 4EUR$$

- ▶ Is the US investor long or short EUR? Why?
- ▶ The appreciation has increased the USD value of the investment, **although** part of this benefit has been eroded due to the lower firm's competitiveness in int'l mks.



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# FX Exposure on Non Contractual Assets: Bonds

- ▶ Bond (initial price)= EUR 1,000
- ▶ The ECB follows a policy of “leaning against the wind”
- ▶  $S_{\frac{USD}{EUR}}$  from 1.1 to 1.2  $\Rightarrow$  after the EUR appreciation, the ECB lowers the interest rates, thus forcing bonds' prices up to EUR 1,050

$$\frac{(1.2 \cdot 1,050) - (1.1 \cdot 1,000)}{(1.2 - 1.1)} = 1,600 \text{ EUR}$$

- ▶ The exposure is **larger** than the value of the bond
- ▶ Is the US investor long or short EUR? Why?
- ▶ Does an investor buying exclusively domestic currency denominated bonds face any foreign exchange exposure? Why?



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
AssessmentRisk Management  
and Hedging  
TechniquesFwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc TechniquesRegulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# One Lesson to Learn

There might be a **non zero** foreign exchange exposure on domestic assets, while bearing **no** exposure on foreign assets.



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

**FX Risk Assessment**  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



# Foreign Exchange Exposure and Parity Conditions

- ▶ **CIRP:** Suppose you bought a FC-denominated security and a fwd contract to sell FC with the same maturity. If this investment is held until expiration, will the said position bear any FX exposure? Why?
- ▶ **PPP:** Suppose that  $\Delta S_{\frac{D}{F}} = \Delta P_D - \Delta P_F$  holds and assume a positive inflationary shock occurs in the foreign country. Will a domestic investor have to face any FX risk/ exposure on a real estate investment? Why?



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice







# A Real World Example: Greece - Ratings and Yields



Source: Bloomberg, 10 Yrs Avg Gvt Bond Yields

Getting Started

Risk Identification

- FX Risk
- Operating Risk
- Country Risk

Risk Assessment

- FX Risk Assessment
- Country Risk Assessment

Risk Management and Hedging Techniques

- Fwds and Futures
- Options
- Borrowing and Lending
- Ad Hoc Techniques

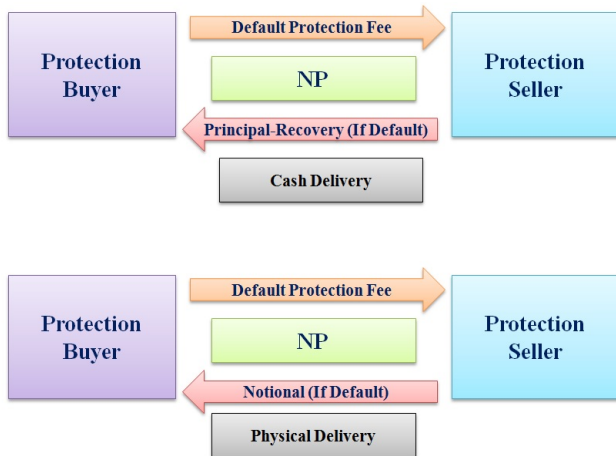
Regulatory Implications of Risk Management

Terminology

To Put It into Practice



# How does a CDS work? I



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

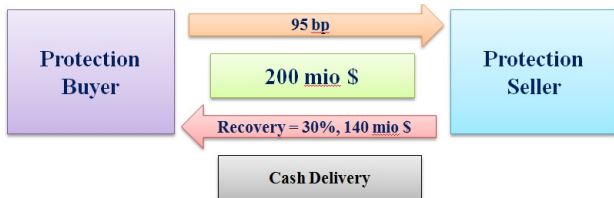
Fwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# How does a CDS work? II



Getting Started

Risk Identification

- FX Risk
- Operating Risk
- Country Risk

Risk Assessment

- FX Risk Assessment
- Country Risk Assessment

Risk Management  
and Hedging  
Techniques

- Fwds and Futures
- Options
- Borrowing and Lending
- Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



# A Real World Example: Greece - Ratings and CDS



Source: Bloomberg, CDS on 10 Yrs Tenure

Getting Started

Risk Identification

- FX Risk
- Operating Risk
- Country Risk

Risk Assessment

- FX Risk Assessment
- Country Risk Assessment

Risk Management and Hedging Techniques

- Fwds and Futures
- Options
- Borrowing and Lending
- Ad Hoc Techniques

Regulatory Implications of Risk Management

Terminology

To Put It into Practice

# Mkt-Based Assessment Approach: CDS

**SDS:** Sovereign Default Spread, defined as

Yield on Govt Bonds $_{t,i}$ -Yield on Govt Bonds $_{t,j}$

with

- ▶ **t:** generic tenure (10 yrs, 30 yrs...)
- ▶ **i:** Country under assessment
- ▶ **j:** Country perceived as substantially risk-free (USA, Germany...)

**Watch Out:** Higher spreads mean **higher** risk

By the way, are  
risk-free countries  
truly riskless?



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# BTP-BUND Spread



Source: <http://countryeconomy.com/>

Getting Started

Risk Identification

- FX Risk
- Operating Risk
- Country Risk

Risk Assessment

- FX Risk Assessment
- Country Risk Assessment**

Risk Management and Hedging Techniques

- Fwds and Futures
- Options
- Borrowing and Lending
- Ad Hoc Techniques

Regulatory Implications of Risk Management

Terminology

To Put It into Practice





**Basic rationale:** buying/selling a forward contract  
**eliminates** the uncertainty about future exchange rate  
dynamics



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

**Fwds and Futures**

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



# Benefits of Fwds Hedging

- ▶ **No Uncertainty** regarding future cash flows
- ▶ **Reduced bankruptcy and refinancing** costs
- ▶ **Reduced volatility** in receipts and payments flows





# Futures Hedging

**Basic rationale:** buying/selling futures **eliminates** the uncertainty about future exchange rate dynamics (exactly as it was for fwds...)

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

**Fwds and Futures**

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Costs of Futures Hedging

- ▶ **Heavy standardization** (std currencies, std notional amounts, std maturities...step back to Lesson IV)⇒ you might be unable to achieve a perfect hedge
- ▶ **Marking-to-market risk**⇒ Interest rates earned on the margin account may vary during the contracts life. To make matters explicit, suppose you have to buy 1mio GBP sometime into the future and assume further that  $F_n^{\frac{USD}{GBP}} = 1.5$ . At maturity, the future realized spot rate turns out to be  $S^{\frac{USD}{GBP}} = 1.7$ :
  - ▶ **Fwds**: you pay only 1.5 mio USD, thus realizing a 0.2 mio USD gain
  - ▶ **Futures**: you still have to pay 1.7 mio USD to purchase GBP. However, considering the (approximate) 0.2 mio USD gain on the margin account, you end up paying roughly 1.5 mio USD

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



# Futures Hedging: a Practical Example

A US firm exports extensively to the UK and it is hence vulnerable to fluctuations in the  $\frac{USD}{GBP}$  exchange rate.

The American company fears that next quarter the pound will depreciate (from 1.50  $\frac{USD}{GBP}$  to 1.40  $\frac{USD}{GBP}$ ), thus bringing about a significant profit reduction (estimate: - 200,000 USD). The firm consequently decides to sell pounds in the futures market, so as to offset the exposure to exchange rate fluctuations: **How many futures should the company (short) sell?** Assume that, on the CME, each pound futures contract calls for delivery of 62,500 GBP.

$$\text{Exposure} = \frac{200,000}{(1.5 - 1.4)} = 2,000,000 \text{ GBP}$$

$$\text{Nr. Futures} = \frac{2,000,000}{62,500} = 32 \text{ Hedge Ratio}$$

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice





# Benefits of Options Hedging

- ▶ **CCTP**: No settlement risk
- ▶ **Optionality**: you put a cap/floor to the amount to be paid/received, while still having the opportunity of benefiting from favourable mkt movements
- ▶ **Reduced bankruptcy and refinancing** costs
- ▶ **Reduced volatility** in receipts and payments flows



# Watch Out

The choice among options with different strike prices depends on whether the hedger wants to insure **only** against very bad outcomes for a cheap option premium (by using an out-of-the money option) or against **anything other than very good outcomes** (by using an in-the-money option).



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures  
**Options**  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

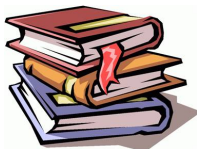
Terminology

To Put It into  
Practice



# Option Hedging Strategies: Straddles

**Straddle:** A long (short) straddle is obtained by purchasing (selling) **both a call and a put** option with **identical strike price and maturity**



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures  
**Options**  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# A Practical Example

Suppose that, at time  $t$ , you bought a call and a put option on  $\frac{USD}{EUR}$  with the same maturity and the same strike price. Based on the info below, can you determine the payoff chart?

- ▶ Call Premium = 0.03 USD
- ▶ Put Premium = 0.02 USD
- ▶ Strike Price = 1.05  $\frac{USD}{EUR}$



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

**Options**

Borrowing and

Lending

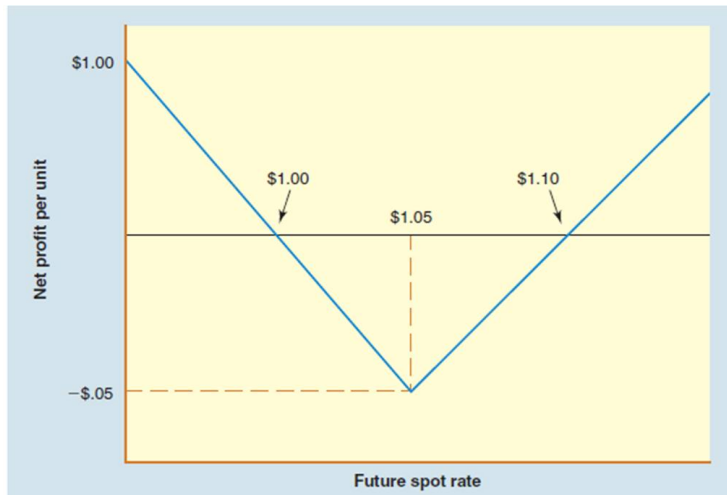
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Long Straddle Payoff Chart - Madura, 2007



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

**Options**

Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice





## A Practical Example

Suppose that, at time  $t$ , you bought a call and a put option on  $\frac{\text{USD}}{\text{EUR}}$  with the same maturity, but different strike prices. Based on the info below, can you determine the payoff chart?

- ▶ Call Premium = 0.025 USD
- ▶ Put Premium = 0.02 USD
- ▶ Call Strike Price = 1.15  $\frac{\text{USD}}{\text{EUR}}$
- ▶ Put Strike Price = 1.05  $\frac{\text{USD}}{\text{EUR}}$



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

**Options**

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Long Strangle Payoff Chart - Madura, 2007

Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

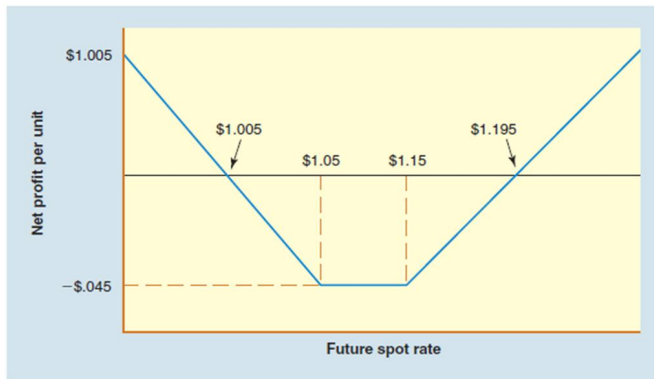
**Options**

Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice







# Hedging via Borrowing and Lending

**Basic rationale:** if we combine the spot exchange rate with borrowing and lending, we can replicate a fwds payoff profile (CIRP)



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

**Borrowing and  
Lending**

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Benefits and Costs of Hedging via Borrowing and Lending

Largely similar to those highlighted for fwds; notice, however, that hedging with borrowing and lending is generally **more expensive** than hedging with a forward contract:

- ▶ Bid-ask spread on the spot FX rate
- ▶ Borrowing-investment spread on the interest rates



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

**Borrowing and  
Lending**

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



# A Few Available Techniques to Hedge against Country Risk I

- ▶ **Keeping control of key corporate operations:**  
Domestic investors try to maintain full control of crucial activities and, more generally, take steps to prevent key operations from being able to run without their cooperation
- ▶ **Planned divestment:** The owner of an FDI can agree to turn over ownership and control to local people at a specific time in the future
- ▶ **Joint Ventures:** Shared ownership of an investment, instituted because of the need for a large amount of capital or to reduce the risk of confiscation or expropriation

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



# Basel 3 Regulatory Framework I

Basel 3 is an internationally agreed set of measures developed by the **Basel Committee on Banking Supervision - BCBS** in response to the financial crisis of 2007-2009. **These measures aim at strengthening the regulation, supervision and Risk Management of financial institutions.**



The BCBS is an international Committee made up of banking Supervisory Authorities (e.g. Banque de France, Banque d'Italie, Deutsche Bundesbank...)

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

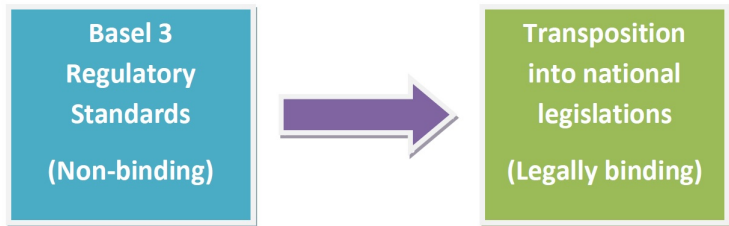
Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Basel 3 Regulatory Framework II

BCBS members are **committed to implementing and applying the said regulatory standards in their jurisdictions** within the timeframe established by the Committee.



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Basel 3 Architecture

Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

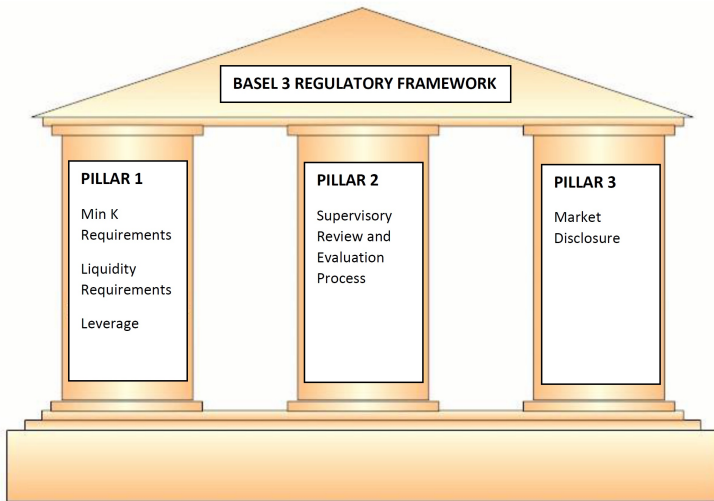
Risk Management  
and Hedging  
Techniques

Fwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice





# The 3 Pillars I

- ▶ **Pillar 1:** Focus on Capital, Leverage and Liquidity
  - ▶ Sets out the rules to determine Regulatory Capital Requirements for Credit, Market, Settlement and Operating Risks
  - ▶ Further requirements are also established for Liquidity, Leverage and Capital Buffers
- ▶ **Pillar 2:** Both internal and external assessments are taken into consideration
  - ▶ Internal revision of Regulatory Capital Adequacy to assess whether additional capital is to be prudentially set aside, in excess of Pillar 1 requirements ⇒ **ICAAP and ILAA**
  - ▶ External assessment conducted by NSA (National Supervisory Authorities) to evaluate a financial intermediary in terms of risk management infrastructure, capital, liquidity and governance framework

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



# Basel 3 Capital Requirements

3 minimum thresholds (**Capital Ratios**) are to be met at all times:

## CET 1 Capital Ratio

$$\frac{CET1}{RWEA} \geq 0.045 \quad (1)$$

## Tier 1 Capital Ratio

$$\frac{Tier1}{RWEA} \geq 0.06 \quad (2)$$

## Total Capital Ratio

$$\frac{TotK}{RWEA} \geq 0.08 \quad (3)$$

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Risk Weighted Exposure Amount - RWEA

All firm's assets are to be risk-weighted, depending on the risks they expose the financial intermediary to.



E.g. A bond held for trading denominated in a foreign currency will have to be risk-weighted both for interest rate and for FX risks



$$RWA = \sum \text{Asset Value} \cdot \text{Risk Weight} \quad (4)$$

$$RWEA = RWA \cdot 12.5 \quad (5)$$

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Special Topics: A Deeper Insight into Basel III

International  
Financial and  
Foreign Exchange  
Markets

Lecturer: Riccardo Gastaldo



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# Long (Short) Positions

An investor is **long (short)** in a currency if she or he **gains (loses)** when the spot value of the currency increases, and **loses (gains)** when it decreases.



Getting Started

Risk Identification

- FX Risk
- Operating Risk
- Country Risk

Risk Assessment

- FX Risk Assessment
- Country Risk Assessment

Risk Management  
and Hedging  
Techniques

- Fwds and Futures
- Options
- Borrowing and Lending
- Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice







# Confiscation vs Expropriation

- ▶ **Confiscation:** Government takeover **without** compensation
- ▶ **Expropriation:** Government takeover **with** compensation



## Getting Started

### Risk Identification

FX Risk  
Operating Risk  
Country Risk

### Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

### Risk Management and Hedging Techniques

Fwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc Techniques

### Regulatory Implications of Risk Management

### Terminology

### To Put It into Practice



# CET 1, Tier 1 and Total Capital

- ▶ **CET 1** = “Purest” form of capital, including shares and retained earnings
- ▶ **Tier 1** = CET 1 + Additional Tier 1
- ▶ **Total Capital** = Tier 1 + Tier 2



Getting Started

Risk Identification

FX Risk  
Operating Risk  
Country Risk

Risk Assessment

FX Risk Assessment  
Country Risk  
Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures  
Options  
Borrowing and  
Lending  
Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

## To Put It into Practice I

**9.1:** The treasurer of the XYZ company based in Country 1 is expecting a dividend payment of 10 mio Currency 2 from a subsidiary located in Country 2 in two months. His/her expectations of the future  $S_{\frac{\text{Currency1}}{\text{Currency2}}}$  spot rate are mixed and thus decides to hedge, with the aim of minimizing FX risk. The current exchange rate is  $S_{\frac{\text{Currency1}}{\text{Currency2}}} = 0.63$ . The two-month futures rate is at  $F_{\frac{2}{12} \frac{\text{Currency1}}{\text{Currency2}}} = 0.6279$ . The two-month Country 2 interest rate is 0.075. The two-month Country 1 T-Bill yields 0.055. Puts on Currency 2 with maturity of two months and strike price of  $K_{\frac{\text{Currency1}}{\text{Currency2}}} = 0.63$  are traded on the CME at Currency 1 0.0128.



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice



## To Put It into Practice III

**9.2:** Consider the following option strategy, involving the simultaneous sale of two different options (call and put, same maturity, same strike):

Call option premium: USD 0.01

Put option premium: USD 0.015

Strike:  $K_{\frac{USD}{GBP}} = 1.35$

Each option calls for the delivery of GBP 45,500

- ▶ Draw the payoff profile
- ▶ Would you use the foregoing option strategy to hedge against small market movements Why?



Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice

# To Put It into Practice IV

**9.3:** On 8<sup>th</sup> September 201X, in order to hedge your investment portfolio, you bought 2 futures contracts for 100,000 B each @  $\frac{A}{B}=81.5$ . Assume that the daily settlement prices are shown in the table below:

	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>14</b>	<b>15</b>
<b>Settlement Px</b>	81.7	81.6	81	81.3	81	80.9

- ▶ What are the daily cash flows from marking-to-market?
- ▶ If you deposit 70,000 A into your margin account, and your broker requires 50,000 A as maintenance margin, when will you receive a margin call and how much will you have to deposit?

Getting Started

Risk Identification

FX Risk

Operating Risk

Country Risk

Risk Assessment

FX Risk Assessment

Country Risk

Assessment

Risk Management  
and Hedging  
Techniques

Fwds and Futures

Options

Borrowing and

Lending

Ad Hoc Techniques

Regulatory  
Implications of  
Risk Management

Terminology

To Put It into  
Practice