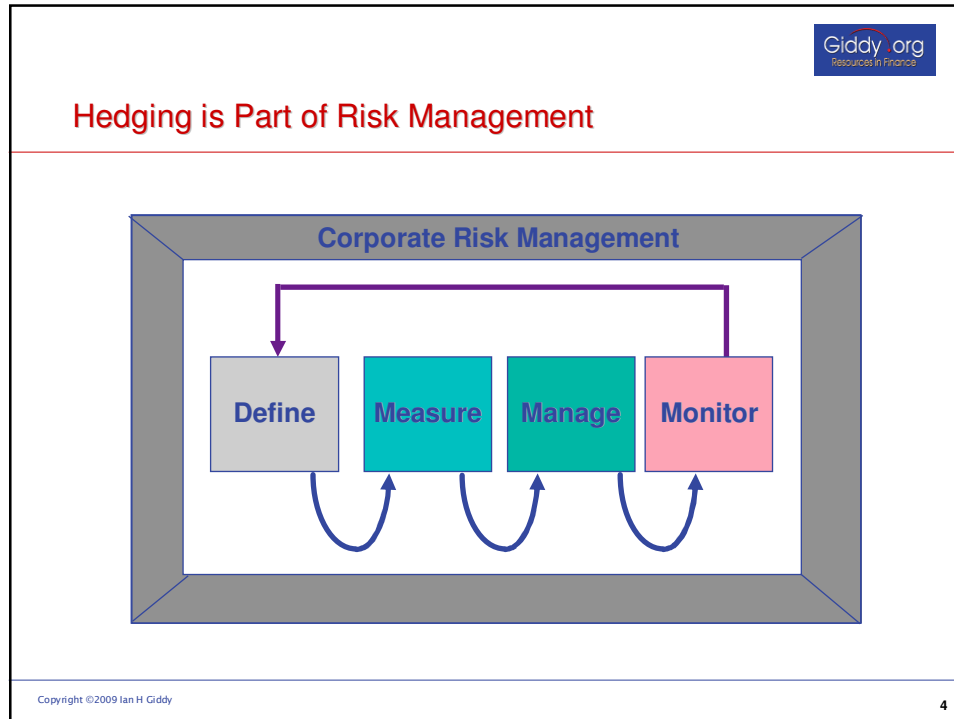



## Types of Hedging

- ❑ Transactions hedging
- ❑ Cash flow hedging
- ❑ Fair value hedging
- ❑ Hedging accounting or FDI exposure
- ❑ Measuring and hedging economic exposure



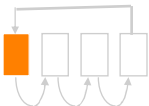
The image shows a presentation slide with a white background and a black border. In the top right corner, there is a logo for 'Giddy.org' with the tagline 'Resources in Finance'. Below the logo, the title 'Types of Hedging' is written in a red, sans-serif font. A horizontal red line separates the title from the content below. Underneath the line is a bulleted list of five items, each preceded by a blue square icon with a white 'X' inside. The items are: 'Transactions hedging', 'Cash flow hedging', 'Fair value hedging', 'Hedging accounting or FDI exposure', and 'Measuring and hedging economic exposure'. In the bottom right corner, there is a faint, light-colored map of Indonesia. At the bottom left, there is a small copyright notice: 'Copyright ©2009 Ian H Giddy'. At the bottom right, there is a small number '3'.







## What Kind of Hedging?

- ❑ **Transactions** hedging
- ❑ **Cash flow** hedging
- ❑ **Fair value** hedging
- ❑ Hedging **accounting** or FDI exposure
- ❑ Measuring and hedging **economic exposure**



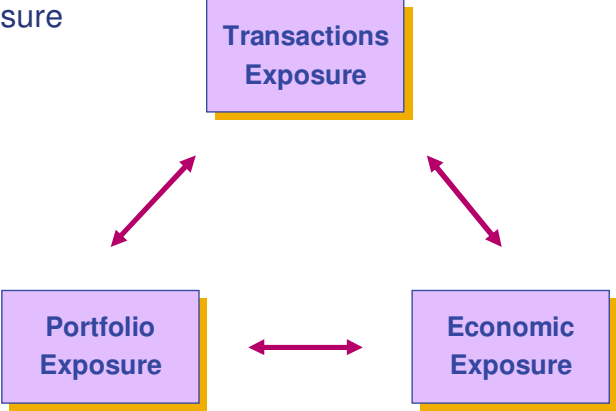


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## What Kind of Exposure?

- **Transactions** exposure
- **Balance sheet/fair value** exposure
- **Economic** exposure

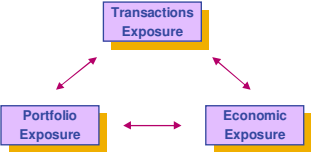


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## Transactions Exposure

- Transactions exposure results from particular transactions (such as an export) where a known cash flow in a given currency will take place at a certain date.
  - *Example: If Nokia invoices a NTT of Japan in Japanese yen for a cellphone shipment then the firm has Japanese yen exposure and can hedge this by borrowing yen.*
  - *This kind of exposure is readily hedgable using forwards, futures or debt*




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### But Transactions Exposure Can be Misleading...

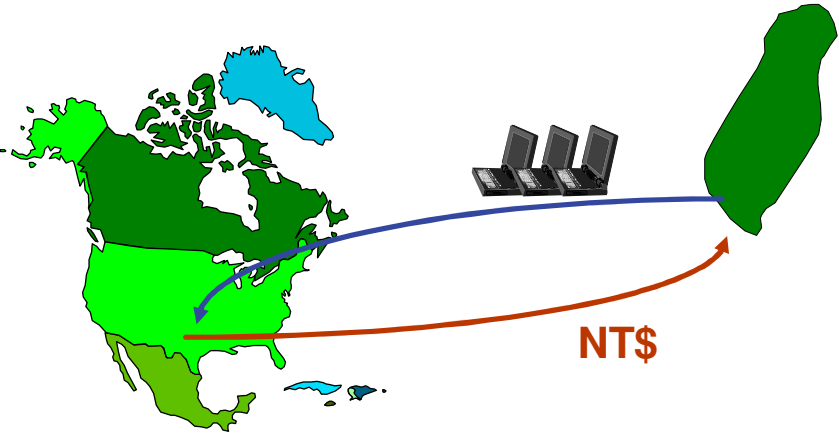
- ❑ Dell Computer purchases notebook computers in Taiwan for sale in the US.
- ❑ Dell must pay in NT\$.
- ❑ Should it hedge its anticipated payments for 2009?



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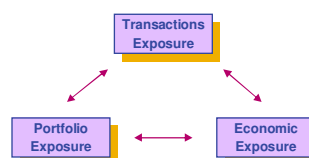
### Dell Computer



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## Portfolio Exposure

- ❑ **Portfolio risk:** currency and interest rate fluctuations can affect the value of an investment portfolio
- ❑ Security price fluctuations will affect the balance sheet
- ❑ Can be hedged, using fair value and *duration* as a risk/sensitivity measurement tool
- ❑ Can be hedged with futures, bond options, and swaps.



## Pepsico Pension: Interest Rate Risk

### Assets (each \$10m):

- ❑ 1-year USD deposit
- ❑ 5-year, 6% T-note D=4.6
- ❑ 10-year Strip

### Pension liabilities:

- ❑ \$10m 3 years
- ❑ \$10m 5 years
- ❑ \$10m 7 years

### What is Pepsico pension fund's risk?

- ◆ Duration of the assets (+ve)
- ◆ Duration of the liabilities (-ve)
- ◆ Net duration is the risk to be hedged!

## Value at Risk: SantosBank

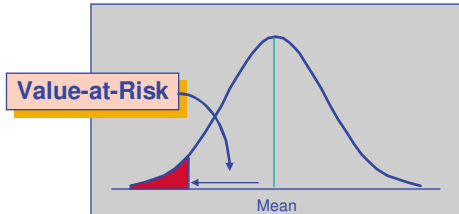
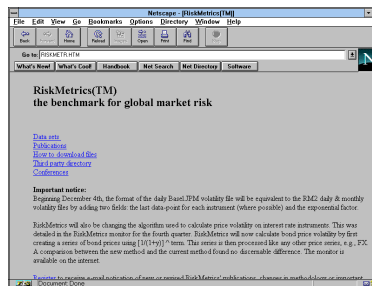
INSTRUMENT	SANTOSBANK POSITIONS
30 day	(\$1,250,000)
90 day	(\$100,000)
180 day	\$450,000
1 yr	\$120,000
2 yr	\$120,000
3 yr	\$120,000
4 yr	\$1,120,000
5 yr	\$0
7 yr	\$0
9 yr	\$0
10 yr	(\$420,000)
15 yr	\$0
NET	\$160,000
TOTAL	\$3,700,000

Asset and liability positions for a Brazilian bank's New York branch.

*What risk does it face?*

## BIS: Minimize Value at Risk

INSTRUMENT	SANTOSBANK POSITIONS
30 day	(\$1,250,000)
90 day	(\$100,000)
180 day	\$450,000
1 yr	\$120,000
2 yr	\$120,000
3 yr	\$120,000
4 yr	\$1,120,000
5 yr	\$0
7 yr	\$0
9 yr	\$0
10 yr	(\$420,000)
15 yr	\$0
NET	\$160,000
TOTAL	\$3,700,000



## Fair Value Hedging

- Fair Value is the amount at which the asset could be bought or sold in a current transaction between willing parties, or transferred to an equivalent party, other than in a liquidation sale. This is used for assets whose carrying value is based on mark-to-market valuations.
- **Fair value hedging** implies you hedge only the “market value” of an asset or liability, not the book value.
- Example: Bank Indonesia owns \$10 million of a GE bond whose value has fallen to 88% of its purchase price, as a result of the company’s ratings downgrade. Should the bank hedge \$10m or \$8.8m?

ISSUER CUSIP	COUPON MATURITY	PRICE HIGH LOW	YIELD HIGH LOW	VOLUME # OF TRADES
GENERAL ELEC CAP CORP MEDIUM TERM INTS BOOK ENTRY 96962GTY4	6.000 08/15/2012	103.950 80.000	4.670 13.820	330.141K 3,498 Trades <a href="#">Full History</a>
GENERAL ELEC CAP CORP MEDIUM TERM INTS BOOK ENTRY 96963G366	5.250 10/19/2012	99.700 81.938	5.341 11.511	450.557K 2,285 Trades <a href="#">Full History</a>
GENERAL ELEC CO 969604LV9	5.000 02/01/2013	102.008 88.849	4.428 8.421	147.090K 2,230 Trades <a href="#">Full History</a>

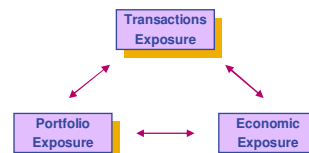


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## Economic Exposure

- **Economic risk** arises from the real business risk of the company, insofar as it is tied to market interest rates, FX, commodity prices
- It affects the *shareholder value*, but may be difficult to quantify
- Hedging may require tailored solutions



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## Economic Exposure

- Economic exposure is how the firm's revenues and costs will respond to exchange rate changes.
  - *Example: Even though Intel invoices German customers in Euros, its future revenues may be unaffected by fluctuations in the Euro if the currency of determination of prices in the semiconductor business is the dollar*
- The **currency of determination** is the currency in which most of the competition prices similar products.



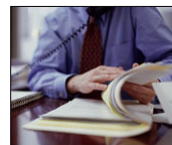
## Translation vs Economic Exposure


### Translation exposure

- Exposure = "Exposed" assets - "exposed" liabilities

### Economic exposure

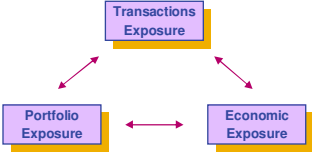
- Exposure = How will an unanticipated exchange rate change affect the cash flows of the firm?
  - Domestic sales
  - Exports
  - Domestic costs
  - Import costs



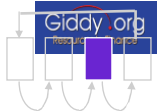


### Types of Exposure: Summary

- *Three Views of Market Price Risk:*
  - Transactions - lock in forward rate
  - Portfolios
    - Avoid portfolio mismatching
    - Minimize Value at Risk
    - Use Fair Value
  - Economic risk - business sensitivity to market prices.



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### Corporate Exposure Management: Match Tools to Risks

**Hard**

↙ ↘

**Soft**

Current trade flow data →

Portfolio system reports →

Accounting information →

Budgeted trade flow data →

Economic exposure estimates →

**Inflexible,  
committed**

↙ ↘

**Flexible,  
optional**

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