

USE OF DERIVATIVES IN PENSION FUNDS

Andrew Wise

2 December 2005

Derivatives in pension funds

- Futures
- Options
- Swaps
- Credit derivatives

Futures

Contracts to buy or sell at a
future date at an agreed price

Futures in pension funds

- Short term
- Create liquidity
- Large scale asset allocation switching

Asset allocation switching

- £2bn switch from UK equities to bonds
- Sold £2bn equity futures (FTSE100 index)
- Bought £2bn bonds
- Sold actual stock in smaller tranches
- Unwound the future on each equity sale

Selling £2bn from equities

	Equities (£m)	Cash (£m)	Equity exposure(£m)
Before starting	8,000	0	8,000
Sell £2bn FTSE 100 index futures	8,000	0	6,000
Sell £300m equities	7,700	300	5,700
Buy £300m FTSE100 index futures	7,700	300	6,000
Sell £500m equities, buy £500m futures	7,200	800	6,000
etc.....			
After completion	6,000	2,000	6,000

Marking to market

If you sold £2,000m equity futures.....

....and the market drops 1% on Tuesday...

.....you get paid £20m on Wednesday!



Marking to market

But.....

....if the market gains 1% on Wednesday...

.....then you pay £20m on Thursday!



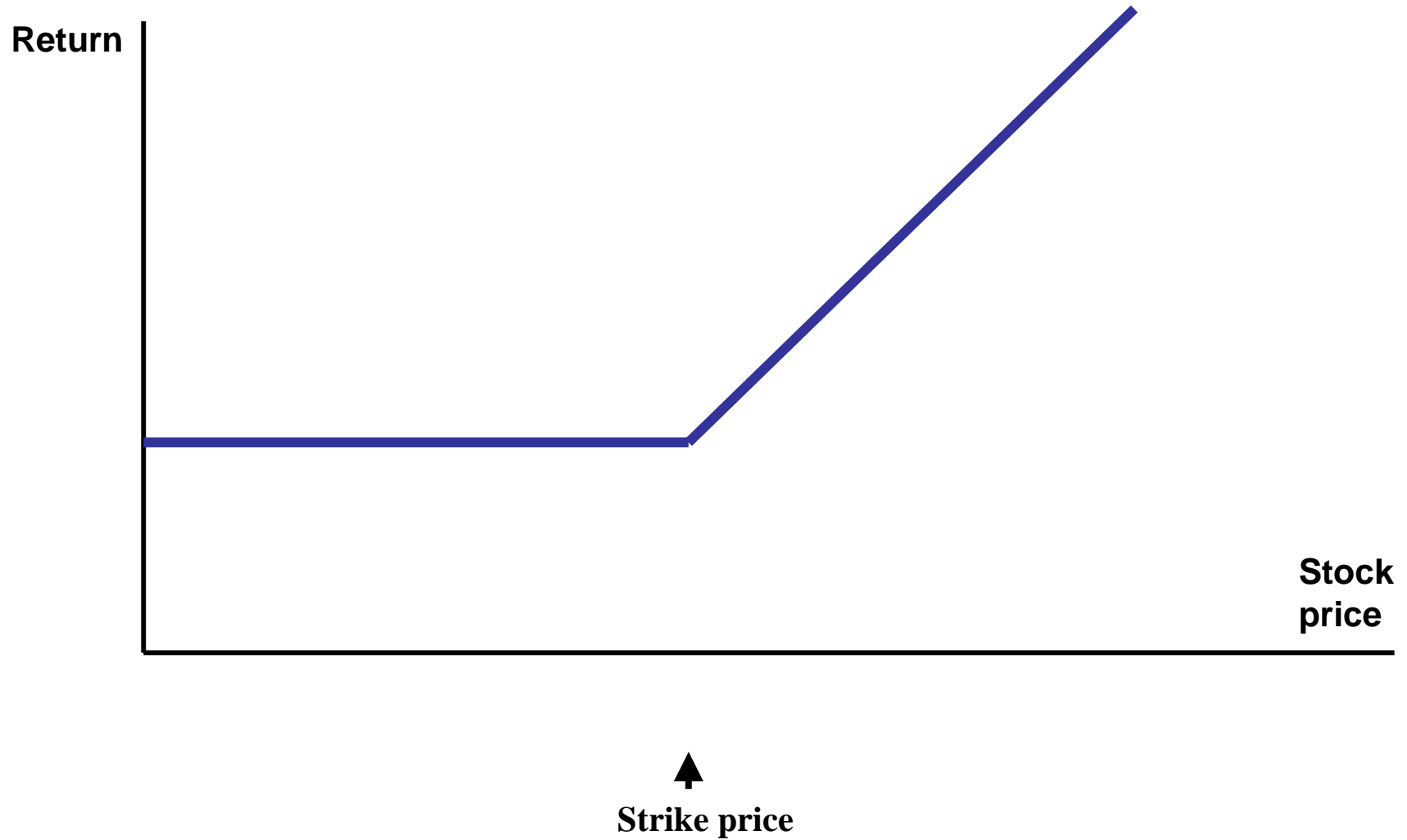
Options

Contracts giving the right but not the obligation to buy or sell at a future date at an agreed price

Put options

Used to protect against downside equity risk

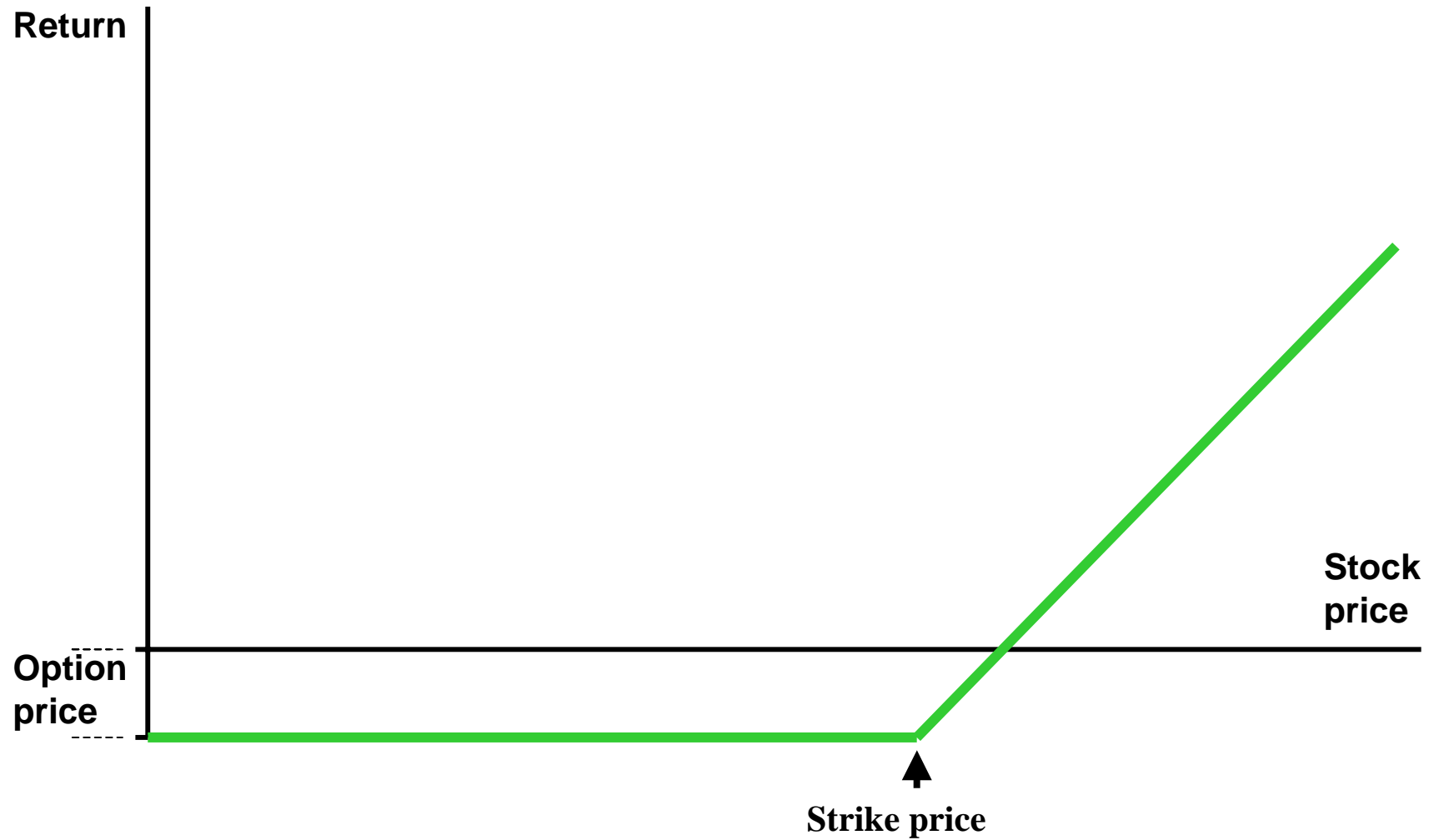
Put option + Stock



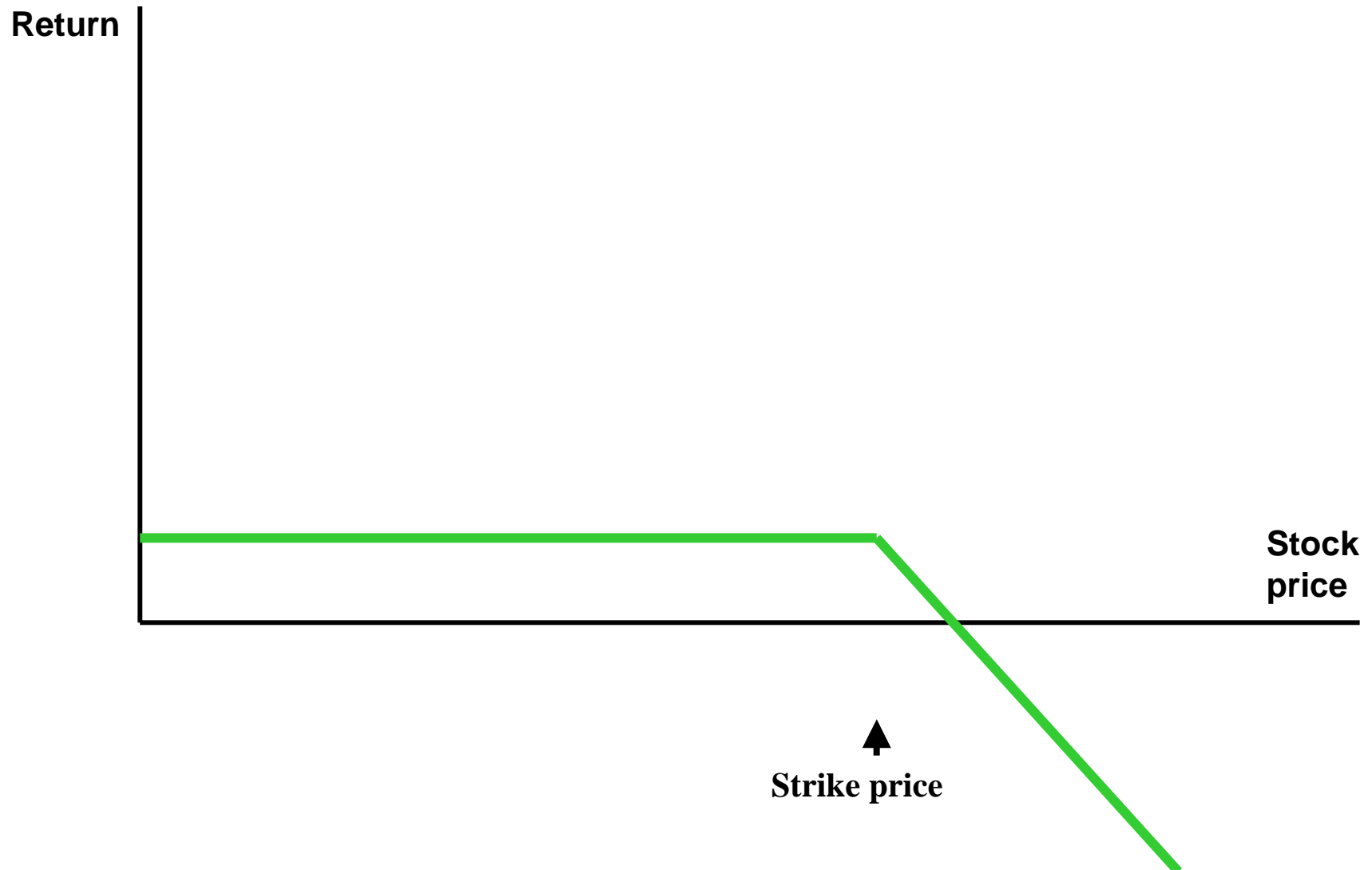
Call options

Used to sell upside equity potential
(surplus)

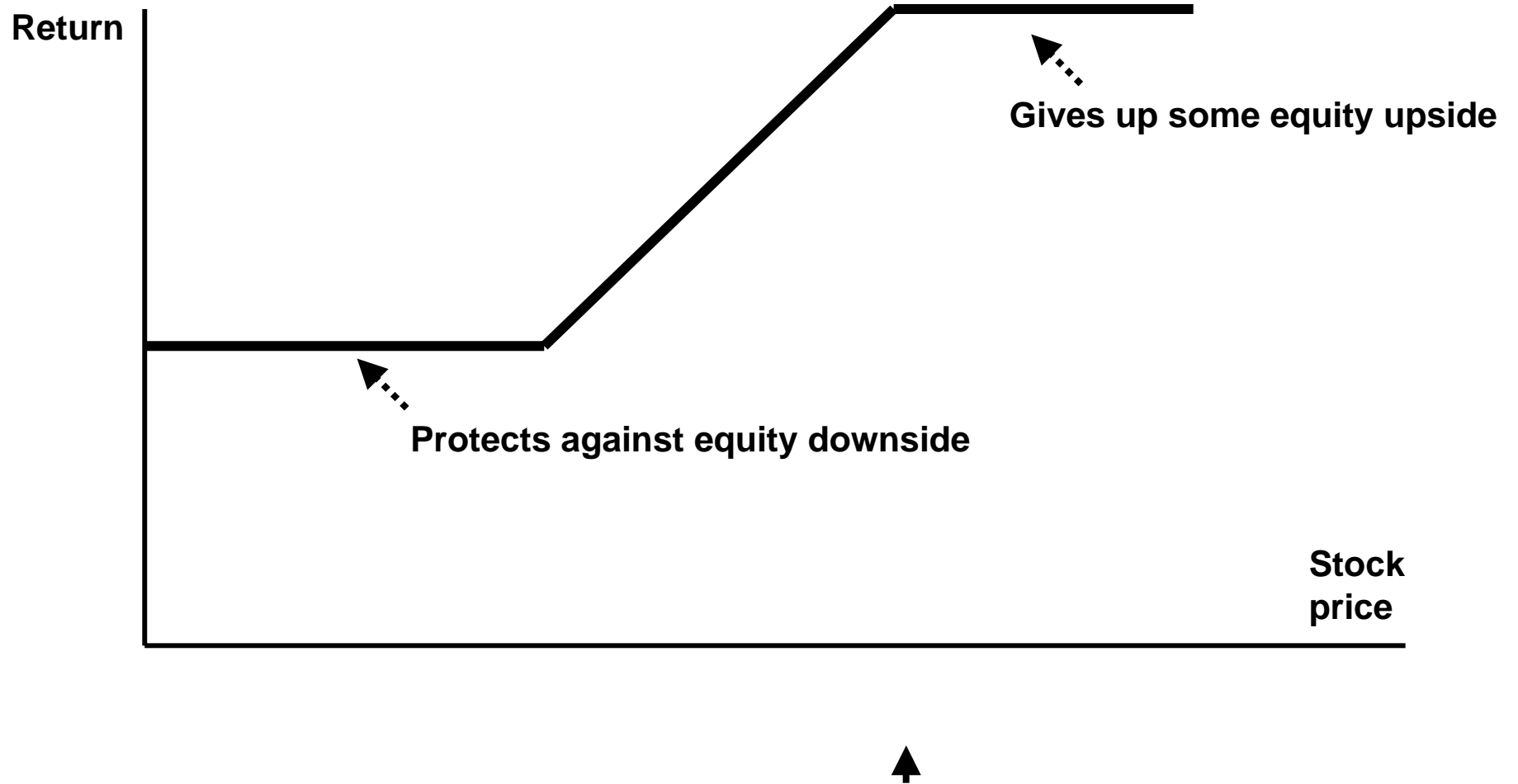
Call option profile



A sold call option



Stock + Put - Call



This option strategy misfired

Cap and collar strategy (bought put, sold call)

Share prices went up steeply (late 1990's)

Big payout on call option

Interest rates dropped, so liability values up

Funding position worse than if no options used

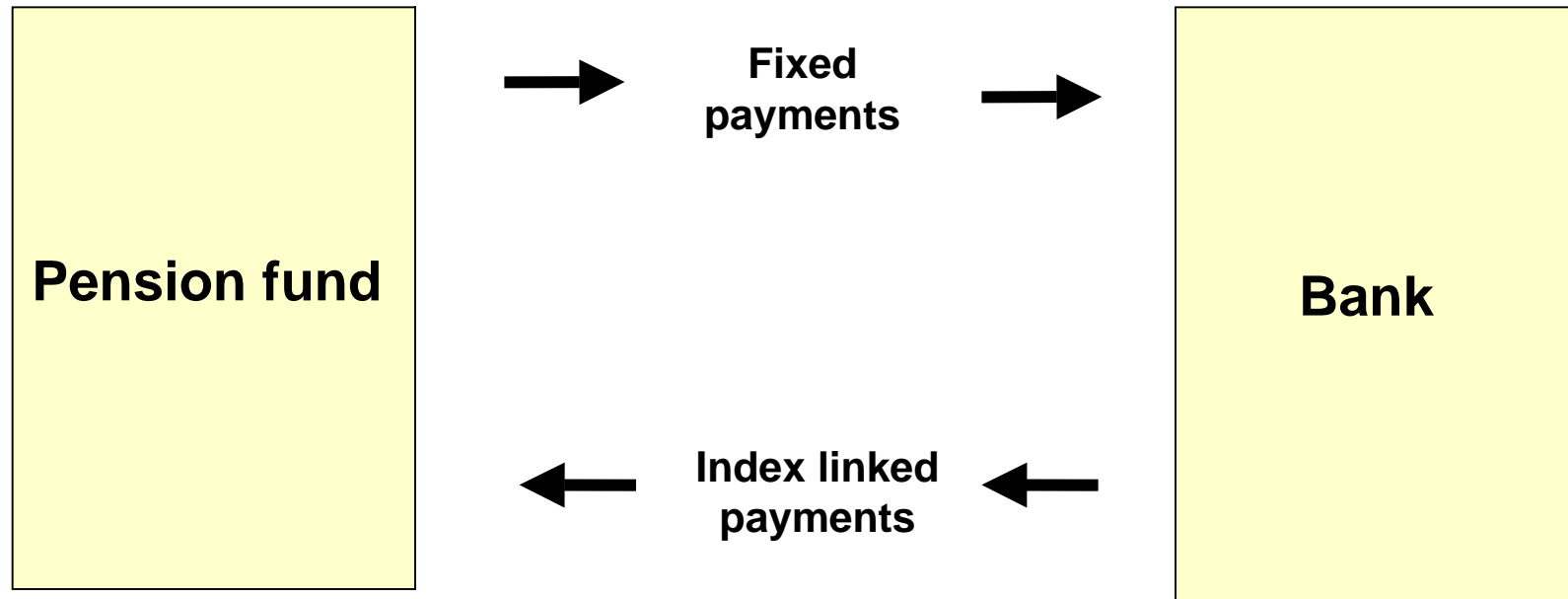
Swaps

Contracts to exchange one
income stream for another

Swaps

UK pensions largely linked to inflation:
inflation swaps used to synthesise
index-linked bonds from fixed interest

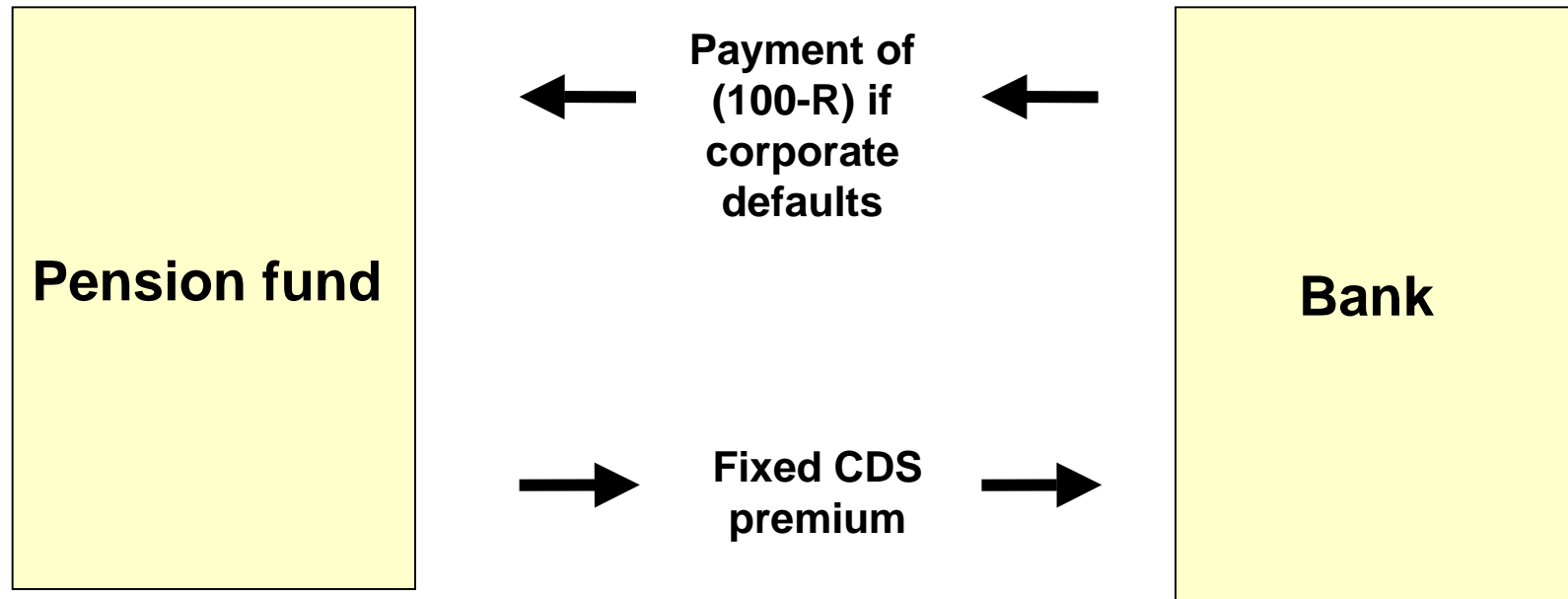
Inflation swaps



Credit derivatives

Contracts that pay out on a specified change of credit status

Credit Derivative Swaps (CDS)



* *R is the bond value in default (recovery value)*

Derivatives for pension funds - summary

- **Various applications – inflation swaps important in UK**
- **Need expertise from investment specialists and actuaries**
- **Watch out for opaque pricing in OTC contracts**
- **Risk of change in pricing basis in short term contracts**