

TEMPO

STRUCTURED PRODUCTS

AN ALPHA REAL CAPITAL GROUP COMPANY

PROFESSIONAL ADVISER ACADEMY: MODULE 5

**'WHAT ISSUING BANKS MAY (OR MAY NOT) DO
WHEN ARRANGING ('HEDGING') STRUCTURED PRODUCTS'**

**FOR PROFESSIONAL ADVISER USE ONLY
- NOT FOR USE WITH CLIENTS -**



This Module aims to:

- Explain the process that issuing / counterparty banks may employ when arranging ('hedging') structured products
- Highlight that structured products fundamentally differ from 'actively managed' and other types of investments as they equate to 'investing by contract', without the performance / process risk of other types of investment, such as mutual funds
- Explain the different building blocks that issuing / counterparty banks may use in their process of arranging ('hedging') structured products, including zero coupon bonds and call and put options (derivatives)
- Provide some simple background regarding derivatives, their history and to explain the different uses of derivatives today and what types of investor might use them
- Explain the factors that can impact the cost / price of these building blocks
- Explain how the building blocks and pricing of 'capital at risk' structured products differs from protected structured products and structured deposits
- Provide product examples that highlight the use of the building blocks and the process that issuing / counterparty banks may employ when arranging ('hedging') structured products

KEY ALPHA STATISTICS:

(as at 30.06.17)

£2.2bn+

AUM and capital
commitments

80+

Professional team

10

Platforms

5

International
offices

4

Core business
areas

Alpha Real Capital LLP is an international co-investing fund management group.

Established in 2005, and headquartered in London, Alpha comprises an international network of offices in the UK, Europe and Asia. An 80 plus strong professional team, combining experience and expertise with research, analysis and market knowledge, operates through 10 platforms, across diversified investment markets, offering listed and unlisted property vehicles, open and closed-ended property vehicles, and UK and international funds, products and wealth management services. Alpha engages with institutional investors, family offices, wealth managers and professional advisers / IFAs, as well as UHNW, HNW and private investors.

TIME Investments is the authorised wealth management and investment services arm of Alpha. TIME specialises in ground rent and other 'long income' property funds (having acquired the real estate asset management business of Close Brothers Group in 2011), Inheritance Tax Services, including Business Property Relief (BPR), and investment services, including Enterprise Investment Schemes (EIS).

Tempo Structured Products is a new Alpha platform, with four areas of focus: i) Retail: focusing on straightforward, lower risk structured products, for distribution through TIME Investments to UK Professional Advisers (IFAs and wealth managers); ii) Institutions / Pension funds: working with institutions / pension fund consultants, to develop 'smart structured products' (fusing structured, passive and smart beta strategies together); iii) HNW / UHNW / Family Offices: working with Alpha contacts to design bespoke structured product solutions for Family Offices, UHNW and HNW Individuals; iv) Strategic Alliances: partnering with other institutions, offering our expertise and issuer relationships as a specialist structured products unit, for the benefit of their clients and customers.

Many professional advisers and investors are interested in how structured products work, in particular what an issuing / counterparty bank may (or may not) do when creating a structured product

The process that an issuing / counterparty bank may employ when arranging ('hedging') a structured product - i.e. the component building blocks and how they work - is surprisingly straightforward

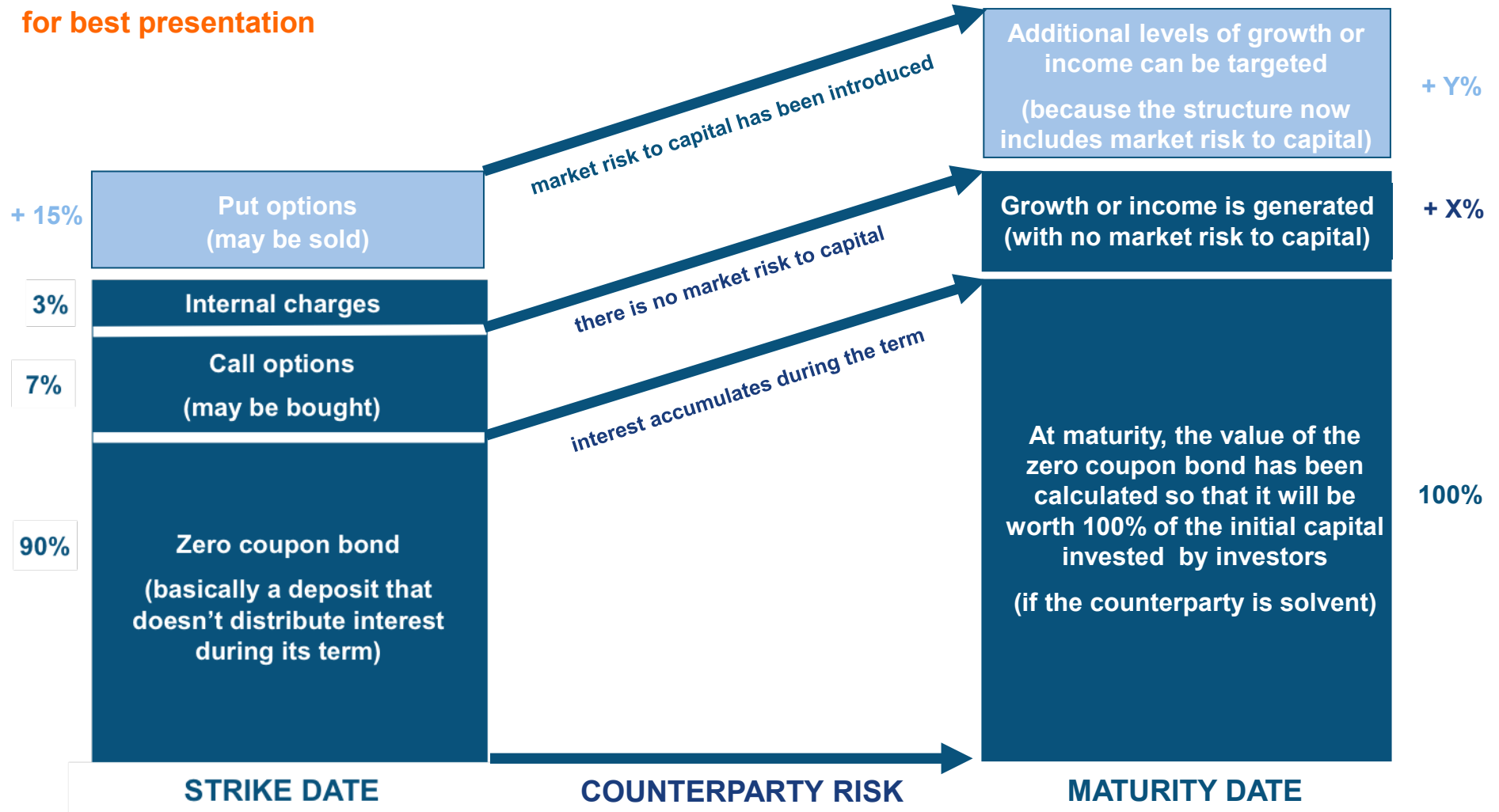
- **It is important to understand that structured products fundamentally differ from other types of investment in how they work:**
 - most notably, they are not 'managed' by a fund manager and do not depend upon fund manager skill (or lack of)
- **Structured products equate to 'investing by contract', with all of the terms of the product (the conditions of any returns that may be generated and the types and levels of any risks that may exist) clearly defined**
- **In fact, what a bank may (or may not) do when creating / arranging a structured product is done in order to hedge itself against the legal obligation that it carries to deliver the terms of the product, including:**
 - repayment of any capital invested in the product, at the maturity date
 - any potential returns offered during the investment term and / or at the maturity date
- **This module seeks to explain the background to the mechanics of structured products and what the counterparty banks issuing them may (or may not) do when creating / arranging them**

Let's start with a high level overview ...

- Let's start with high level overviews of the process that issuing / counterparty banks may undertake when arranging / hedging structured products, and the underlying building blocks, before going on to explain each of the building blocks and how the terms of structured products are determined in detail ...

A simplified run through of the mechanics of a structured product ... TEMPO STRUCTURED PRODUCTS

View as a slide show for best presentation



[PLEASE NOTE: This page can be viewed as a slide show, for best presentation effect. It should also be understood that this is a simplified version of the basic principles of what a bank may do when arranging / hedging a structured product. Different products may involve differing processes.]

A closer look at what a bank may do to arrange / hedge a product ... **TEMPO** STRUCTURED PRODUCTS

View as a slide show for best presentation

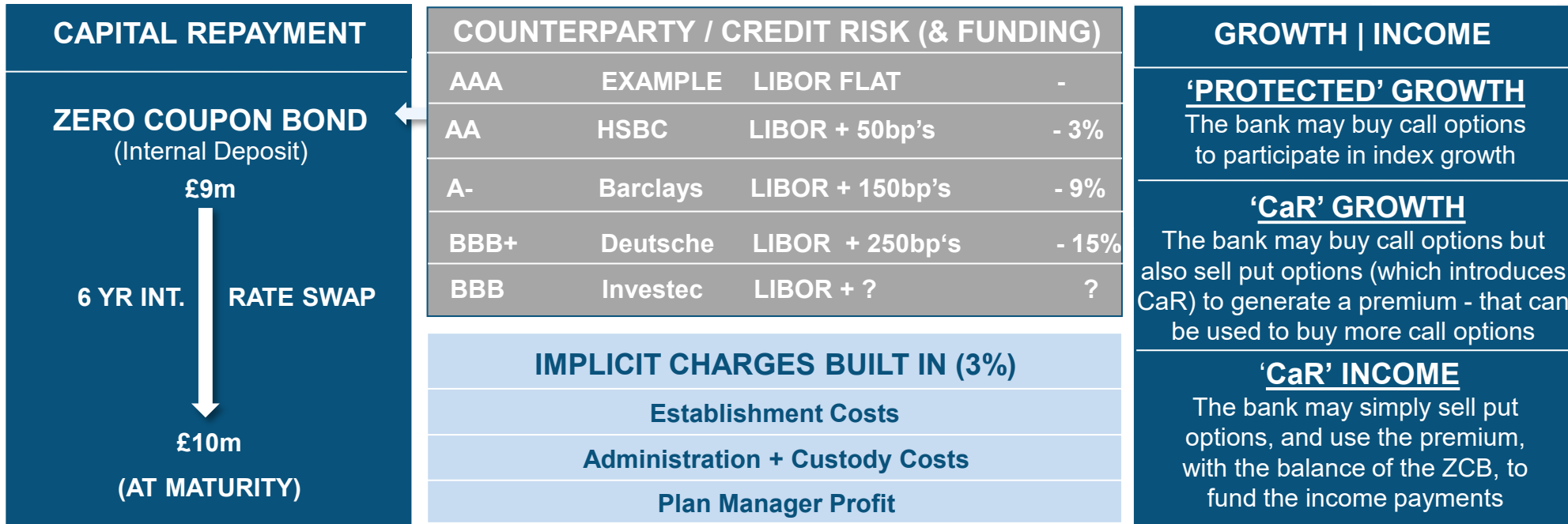
PRODUCT OFFER PERIOD
(typically c.4-8 weeks)
£10M IS RAISED

THE PLAN MANAGER / ADMINISTRATOR SENDS THE FUNDS TO THE ISSUING BANK / COUNTERPARTY, ON THE 'STRIKE' (I.E. START) DATE OF THE INVESTMENT TERM

THE COUNTERPARTY IS LEGALLY OBLIGATED, BY CONTRACT, TO DELIVER THE RETURNS OF THE PRODUCT: BUT WHAT MIGHT THE BANK DO TO ARRANGE THE PRODUCT (AND HEDGE THEIR POSITION), BEHIND THE SCENES

FIRSTLY, THE TREASURY TEAM OF THE BANK MAY USE ABOUT 90% OF THE FUNDS THEY RECEIVE TO CREATE A 'ZERO COUPON BOND', WHICH IS DONE IN ORDER TO HEDGE THE REPAYMENT OF THE INITIAL CAPITAL AT THE MATURITY DATE.

SECONDLY, THE EQUITY DERIVATIVES TEAM OF THE BANK MAY USE ABOUT 7% OF THE FUNDS AND ARRANGE TO BUY CALL OPTIONS, (WHILE ALSO SELLING PUT OPTIONS, IN ORDER TO FUND ADDITIONAL CALL OPTIONS), IN ORDER TO HEDGE THE FIXED OR POTENTIAL GROWTH OR INCOME RETURNS OF THE PRODUCT



[PLEASE NOTE: This page can be viewed as a slide show, for best presentation effect. It should be understood that this is a simplified version of the basic principles of what a bank may do when arranging / hedging a structured product. Different products may involve differing processes. The pricing used, including funding levels, is for indicative / illustrative example purposes only]

- **The main 'building block' of a structured product is a zero coupon bond ('ZCB'): this is the component that provides the repayment of capital for investors at maturity. A ZCB is actually very straightforward:**
 - the treasury team of the bank receives a significant proportion of the notional (total) capital of the structured product, that it will retain 'on deposit' for the life of the product;
 - as with any bank receiving funds on deposit, it will pay interest, but as the structured product has a fixed term it 'swaps' the variable annual interest for fixed 'rolled up' interest (i.e. pays 'zero coupon'), payable at maturity;
 - the calculation of the amount that will be placed on deposit / required for the zero coupon bond is based upon the amount needed in order for the bond to redeem at 100% of the notional capital, at the maturity date, based upon the level of the interest that the counterparty's treasury will provide, i.e. their funding level / rate;
 - a bank's funding level / rate is a function of interest / swap rates and the bank's credit risk and appetite for funds;
 - a ZCB is sometimes thought of or described as a 'discounted cash flow', i.e. the value of the notional capital, discounted by the interest rate / credit spread and time (between the issue date and the maturity date);
 - more simply put, the ZCB is a deposit, which is designed and priced at the strike / start date so that it will be worth 100% of the notional capital at the maturity / end date (unless the counterparty bank defaults / is insolvent).
- **It is not very complicated: most people understand the principles of placing money on deposit, the interest that may be generated and the fact that they don't want the institution to fail / default before it is repaid**

The first building block of a structured product is a 'zero coupon bond'

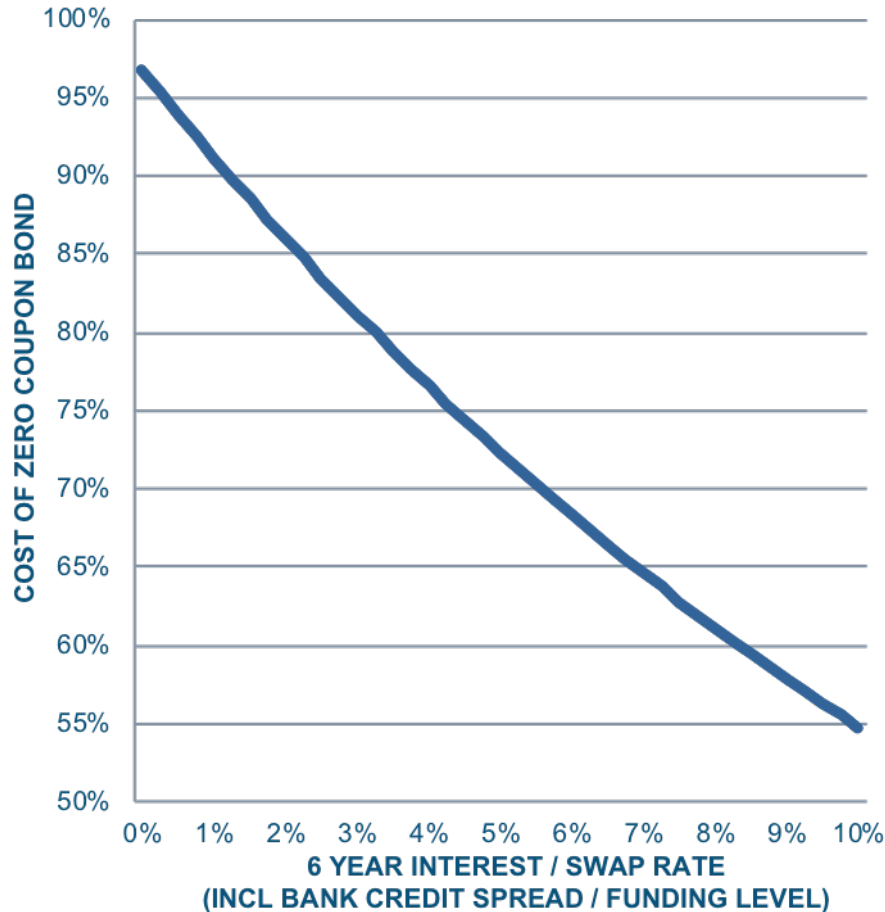
A ZCB is not very complicated: it's basically a deposit that doesn't pay any interest until maturity

- **The price of a zero coupon bond depends on a number of factors, including: interest rates / swap rates; the credit risk of the bank and their need / appetite for funds; and investment term (time) of the product:**
 - **Interest / swap rates:**
 - if interest / swap rates are low, the cost of ZCB is high (in order to 'get back' to 100 at maturity)
 - if interest rates increase, the cost of ZCBs reduces
 - if interest rates decrease, the cost of ZCBs increases
 - **Credit risk / funding levels:**
 - if the counterparty bank is weak and its credit risk high / credit spread wide, the ZCB is cheaper (as the bank will pay a premium over and above base interest rate level to compensate for its credit risk)
 - conversely, if the counterparty is strong and its credit risk low / credit spread tight, the ZCB will cost more (as the premium it will want or need to offer / pay over base interest rate level will be less)
 - **Time:**
 - if there is more time to maturity, the ZCB will usually cost less, as there is more time for interest to accrue

The price of a zero coupon bond depends on a number of factors, including interest rates / swap rates, the credit risk of the bank and their appetite for funds, and the investment term / timeframe of the product

A useful proxy to help estimate the funding level of a bank, i.e. the amount that a bank may be willing or expected to pay over and above base interest / swap rate levels, is the credit default swap (CDS) rate level for the bank (see Academy Module 4: 'Counterparty Due Diligence' for details regarding CDS)

PRICE SENSITIVITY (COST) OF A ZCB



- The price of a ZCB is calculated as:

$$\frac{100\%}{100\% + (\text{interest rate} + \text{issuer CDS})^{\text{No. years}}}$$

- For example: a 6-year term, with interest / swap rates of 0.55% p.a. and issuer CDS of 106 (1.06%) p.a., allows us to calculate the ZCB price as:

$$\frac{100\%}{100\% + (0.55\% + 1.06\%)^6} = 90.86\%$$

- As shown in the chart, the cost of ZCBs falls as interest rates and issuer funding levels (which reflect issuer credit risk) increase

The ‘payoff’: i.e. the potential returns of the product ...

- **As with the repayment of capital at maturity, the ‘payoff’ of a structured product, i.e. its potential growth or income returns, is a legal, contractual obligation upon the issuer, as it has issued ‘debt instruments’, i.e. ‘medium term notes’ (MTN’s), which are a form of bond, that the investment product is based upon:**
 - any failure by the banks to deliver the payoff or repay capital, as per the terms of the product / contract could be deemed a default upon obligations, i.e. a ‘credit event’.
- **The issuing bank MAY choose to ‘hedge itself’ against its legal obligation to deliver the payoff:**
 - in addition to arranging the ZCB, the equity derivatives department of the bank may also use derivatives to arrange / hedge the payoff of the product
 - but it is important to understand that at maturity investors are not directly exposed to or dependent upon what the bank may or may not have done in its hedging process
 - investors have a contract that states precisely what they will receive at maturity, that hinges only upon whether the bank is solvent or not - **not** what the bank may or may not have done in its internal process: if the bank is solvent at maturity then there is no grey area or wriggle room - they must deliver what was contractually stated

The ‘payoff’ of a structured product is a contractual obligation upon the issuer: the bank MAY ‘hedge’ its obligation to deliver the payoff by using derivatives to arrange / hedge the payoff of the product

But at maturity investors are not directly exposed to or dependent upon the bank’s hedging process
- investors have a contract that states precisely what they will receive at maturity, if the bank is solvent -

- **Derivatives are financial instruments that derive their value from an underlying ‘reference asset’ (i.e. they offer exposure to that asset without the need to own the asset directly):**
 - more simply, derivatives are just contracts, between a buyer and seller, in which the parties agree the terms of an arrangement, including the potential price / level and date, to buy / sell an underlying reference asset
- **Derivatives may be thought of as modern instruments of finance, but perhaps surprisingly the use of derivatives can be traced through history, as the concept has existed and been in use for centuries:**
 - for example, in Ancient Greece, one of Aristotle’s more astute students, Thales, predicted a bumper year for olives for the coming year, so he contracted to purchase olive presses ahead of the bountiful harvest
 - this is an example of a ‘forward contract’ i.e. a derivative (if he had only contracted to buy the produce based upon certain conditions it would instead have been an ‘options contract’)
- **The derivatives market was formally established through the creation of the Chicago Board of Trade, in 1848, focusing initially on agricultural commodities:**
 - the exchange provided for standard derivative contracts, that could be bought and sold by anyone (as opposed to private arrangements, which are known as ‘over the counter’ (OTC) arrangements)

Derivatives are financial instruments that derive their value from an underlying ‘reference asset’

More simply put, derivatives are just contracts, between a buyer and seller, in which the parties agree the terms of an arrangement, including the potential price / level and date, to buy / sell an underlying asset

- **Today, derivative markets exist for a wide range of underlying assets, serving many ‘investors’:**
 - governments may use them: for example to manage public debt (perhaps by fixing interest rates)
 - large companies may use them: for example to manage costs (such as airline companies fixing fuel costs)
 - fund managers may use them: for a variety of purposes, for example for hedging / protecting against market risk, speculating / profiting on certain market views, and / or creating specific investment strategies
 - individuals may use them: for example to fix / remove uncertainty when transferring between currencies
- **Derivatives can be used for: speculative reasons (by investors who seek to profit from price movements in an underlying asset, without owning that asset directly - which can be a cost-effective and liquid way to gain exposure to that asset, including assets that are not always readily investible for all investors); and hedging reasons (by investors who already own an asset / have exposure to an asset and want to reduce the risk of loss that might be caused by certain events affecting or caused by the value of that asset)**
- **Criticisms of derivatives sometimes focus on the scale of the derivatives market (with the total value globally reported to be c.\$540tn, according to the Bank for International Settlements (BIS) as at H1, 2017) and the more ‘exotic’ forms of derivatives that can exist, as opposed to recognised merits of derivatives:**
 - regulatory scrutiny following the financial crisis of 2008-09 included focus on the derivatives market and its uses

Derivatives can be used for both speculative and hedging reasons, by all types of investors

They are used prudently in many investment and asset management scenarios to help a wide range of investors achieve a wide range of desired results / outcomes

- Options are derivative contracts that give the buyer the right to buy or sell an underlying reference market / asset, at a set price, on a set date
- There are two particular types of option:
 - options that offer the right to **buy** the underlying reference market / asset are called **call options**
(investors who expect or hope that the reference market / asset will rise in value buy call options)
 - options that offer the right to **sell** are called **put options**
(investor who expect or fear that the reference market / asset will fall in value buy put options)
- It is important to understand that counterparty banks might arrange to both buy and / or sell both call and / or put options, depending on a particular product's specific features

Options are probably the most common type of derivative that may be used by counterparty banks when arranging a structured product and seeking to hedge themselves against their legal / contractual obligation to repay the capital invested and any payoff promised during the investment term / at maturity

- **An option buyer pays the seller a premium at the start of the contract (remembering that a derivative is nothing more than a contract). For example, imagine an investor buys a call option, offering the right to buy shares in ABC Ltd at a fixed price of 10p per share, in 1 year's time, for a premium of 1p:**
 - if the price of ABC Ltd shares in a year is 12p, the investor will exercise their right under the option to buy the shares at 10p
 - each option cost a premium of 1p, but the investor saved 2p on the share price, meaning they made a net profit of 1p per share
 - however, if the price of ABC Ltd shares in a year was 8p, the investor will **not** exercise rights under the option, as they can buy the shares at a cheaper price in the open market
 - they therefore do not profit from the option, but losses are limited to the premium paid (1p per option)
- **The issuing / counterparty bank process involved in arranging / hedging structured products often includes the bank both buying call options and selling put options, as the following pages explain ...**

- Having created the zero coupon bond, to hedge itself against the obligation it carries to repay investors' capital at maturity, the counterparty bank needs to look at how it can also efficiently and cost effectively arrange / hedge the payoff, i.e. the potential returns of the product that it has promised:
 - the process the bank may use for this is very simple – for a growth product it can buy a call option
- This means that the bank arranges / buys an option that gives it the right to the upside (but not the obligation to the downside) of the underlying reference market / asset, at a set date in the future

Notably, if all that the counterparty bank has done is arrange a ZCB and buy a call option, the structured product will be fully protected at the maturity date, i.e. have no downside market risk:

**-----
This is because the ZCB has been set up to repay the entire notional capital invested, at the maturity date, and the exposure to the underlying reference market / asset is an option to buy the upside only
-----**

If the market has fallen the investor will simply receive the value of the ZCB at maturity

- So why if counterparty banks can arrange structured products without any downside market risk are so many products capital-at-risk type products?

- **No investor takes risk for the sake of it. So why are so many structured products capital-at-risk type products? The basic answer is that structured products are not alchemy:**
 - counterparty banks cannot make market risk disappear and conjure up market-linked returns out of thin air, if the economics of arranging and hedging products and markets do not support this:
 - for example, if interest rates are low, the cost of the ZCB is expensive, leaving little of the notional / initial capital with which to purchase call options to generate positive returns based on potential future market upside; and
 - the cost of buying call options can also increase in certain market environments (particularly when markets are volatile, when the probability of high returns being generated increases, making call options more expensive).

- **Pricing factors basically mean that to create or increase the upside potential of a structured product, a counterparty bank may arrange / hedge the returns of the product based upon also selling a put option:**
 - unlike buying a call option, when the counterparty bank has to **pay the premium** for the option, when selling a put option the counterparty bank will instead **receive the premium** for the option
 - the counterparty bank can then use the premium it receives for selling the put option to purchase more call options, in order to arrange / hedge the higher returns that the product offers
 - it is the sale of the put option, within the process of the bank arranging / hedging the product, that introduces market risk to the product structure, where it did not previously exist (although it should be noted that the risk that is introduced is normally no worse than the risk that inextricably exists in many / most other types of stock market linked investment fund, such as active and passive mutual funds)

It is the use / sale of a put option by the counterparty bank in the process of arranging / hedging a structured product that means a product moves from being fully protected to 'capital-at-risk'

BUT the counterparty bank can use specific types of put option, that are only 'active' if the underlying reference market / asset falls by more than a certain level, i.e. the protection barrier level (which often allows the underlying market / asset to fall by c.40-50% without risk for investors)

- For products that are 'capital-at-risk', different types of put option create different types of protection barrier - and it is possible to set the level of protection, whichever type of put option / barrier is used:
 - it is important for professional advisers to understand the different types and levels, not only from an investor / investment perspective, but also from a manufacturing / pricing perspective

TYPES OF PUT OPTION / PROTECTION BARRIER		
'AMERICAN' BARRIERS		'EUROPEAN' BARRIERS
Monitored continuously (using intra-day prices)	Monitored continuously (using daily closing prices)	Monitored at maturity only
<ul style="list-style-type: none"> - can be breached at any point - intra-day movement can be +/- 10% - introduces greatest risk - not transparent - therefore generates the highest premium for the put, so higher headline rate products are possible (but not necessarily sensible) 	<ul style="list-style-type: none"> - can be breached at any point - excludes intra-day movement - reduces risk - and offers better transparency - therefore generates less premium for the put, so leads to slightly lower headline rate products (but which may be more sensible) 	<ul style="list-style-type: none"> - cannot be breached during the term (the index is not even monitored) - clearly reduces / transforms risk - and very easy to understand - therefore generates the least premium for the put, so lower rate products are inevitable: but risk has been transformed (which may often be eminently sensible)
<p>HIGHER ← POTENTIAL INVESTOR RISK → LOWER</p>		

'Down and In' put 'Knock In' put

Generally, most investors who buy put options want protection against the underlying reference market / asset falling in value - and they want the protection to be 'active' from the prevailing current market / asset level.

However, banks hedging structured product exposure are not buying protection when they sell a put option - they are doing the opposite: they are selling risk.

Issuing banks therefore typically use special types of put option, known as 'Down and In' or 'Knock In' puts. This type of put option is not active unless the underlying reference market / asset has fallen by an agreed / defined level, at which point it 'knocks in' (i.e. becomes active).

Unless the market falls to the protection barrier level and 'knocks in', the put option has no value to the purchaser: which also means that it has no risk for the seller (i.e. the counterparty bank): or, therefore, for the investors in the structured product.

Barrier levels

The level of the barrier is clearly important. A lower barrier provides more protection from market risk ... but less risk means a lower premium for the counterparty bank.

Importantly, it should be noted that the result of a barrier breach by the underlying market / asset is usually no worse than the risk of loss that inextricably exists in many / most stock market linked investments, such as mutual funds, all of time: the product may simply become akin to a passive / tracker mutual fund (albeit based upon the price return not total return of the index, i.e. excluding dividends).

Underlying market / asset

Different underlying markets / assets can significantly change the dynamics of a put option (and therefore a structured product) based upon the risk / volatility of the market / asset and therefore the cost / value of the put option.

For example, an underlying market / asset that is volatile will generate a higher premium than a more stable market / asset - because a more volatile market / asset is more likely to breach the barrier. The higher put option premium can be used to create higher a headline rate product - but there is obviously more potential for capital to be at risk / lost.

Dual or multiple markets / assets

It is also possible to use more than one underlying reference market / asset, and for the terms of the put option and therefore a structured product to state that both markets / assets must be above the barrier level. This type of put option is known as a 'Worst-Of' put option, as it can be breached based on the performance of the worst underlying reference market / asset.

Correlation between markets / assets

If more than one reference market / asset is used, the correlation between them is an important factor. Less correlation presents an increased chance for one of the markets / assets to perform badly at any point in time. It is this increased risk that increases the value of a put option, which allows a counterparty bank to arrange / hedge higher headline rates for a product.

As with the types of barrier and barrier levels, there is a sensible line for counterparty banks and structured product providers to tread in using dual or multiple underlying markets / assets with integrity

What factors affect options pricing?

- **The cost of options determines the level of exposure to the underlying reference market / asset the bank can arrange / hedge for a structured product. Several factors affect the price of options:**
 - **Strike price / level:** This is the exercise price, i.e. the level from which any movement in the price / level of the underlying reference market / asset is calculated. The impact on the options pricing depends how close the strike price / level is to the current price / level of the reference market / asset:
 - **At-the-money ('ATM'):** means the strike price / level is equal to the current price / level of the underlying reference market / asset
 - **In-the-money ('ITM'):** means the strike price / level is above the current price / level of the underlying reference market / asset, for a call option, or below for a put option: which makes the option more expensive (as it is already in profit)
 - **Out-of-the-money ('OTM'):** means the strike price / level is below the current price / level of the underlying reference market / asset, for a call option or above the current level for a put option: which makes the option cheaper (as the option might expire without any profit)
 - **Volatility:** This is the anticipated future movement in the price of the underlying reference market / asset. If implied (i.e. anticipated) volatility is high, there is a greater chance that the option will expire ITM (and be profitable): which make the option more expensive (a call option becomes more expensive to buy, while a put option becomes more valuable / generates a higher premium to sell)

cont'd ...

- **Dividends:** This refers to the level of expected dividends or income paid by the underlying reference market / asset. Options are often written on equity indices that are based on the 'price return' not the total return of the constituent stocks that make up the index. This means that option holders do not usually participate in the dividend income that may form part of the total return from the underlying reference market / asset. Higher (potential) dividend income can therefore make options cheaper
- **Time to maturity:** How much time there is until the option expires (matures). The longer dated an option is, the greater its value since there is a greater chance it will move ITM (and be profitable)
- **Interest rates:** The rate of interest that could be earned from the start date of the option until its expiry (maturity). Interest rates impact the present value of the expected payoff of the option.

Let's look at some actual product examples ...

- Lets look at five of the most common types of structured product seen in the UK professional adviser channel, to see what underlying building blocks the issuing / counterparty bank may use in the process of arranging the product and hedging their exposure to deliver the terms during the investment term / at maturity and the factors that determine the terms of the product ...

- **A 'fixed income' structured product typically offers non-conditional income, that is paid regardless of the performance of the underlying market / asset:**
 - however, repayment of capital is often linked to the final, closing level of the underlying market, at maturity

- **This is a very simple product for an issuing / counterparty bank to arrange and hedge:**
 - let's assume that an issuing bank / provider wants to arrange a product that offers fixed annual income for six years and full repayment of capital at maturity unless the value of the FTSE 100 has fallen by more than 40%, measured only at maturity (i.e. using a 'European barrier', as opposed to an 'American barrier')
 - the level of income will be determined by the pricing of the component parts / process of the 'hedging' that the issuing bank may undertake

- **What may the issuing bank do to arrange the product / hedge itself against its legal / contractual exposure to deliver the terms of the product?**
 - **Firstly**, the bank's treasury team may create a ZCB, to hedge the repayment of capital at the maturity date: based on the current level of 6 year interest / swap rates and the bank's funding level (which is driven by its credit risk and appetite for funds) the ZCB will cost 90.86%* of the notional capital;
 - **Secondly**, the bank may arrange to write, i.e. sell, a Down-and-In / Knock-In put option, in order to generate a premium that it will add to the balance of the notional capital remaining after funding the ZCB, in order to provide the funds needed to make the income payments of the product for investors: based on the FTSE 100, a 60% European (only monitored at maturity) Knock-In put will generate a premium of 15.72%*
- **Adding the 15.72% put premium to the 9.14% balance of the notional capital (after the ZCB was funded), and deducting 3% for provider fees, equals 21.86%, which can be used to fund the annual fixed income payments of the product for the 6 year term of the product:**
 - **the fixed income payments of the product will be 3.78%** (slightly higher than simply dividing 21.86 by 6, as there is some time value in arranging the income stream over the six year term)
- *For comparison purposes, a capital protected product would offer annual income of just 1.04%, as the counterparty bank would only have 6.14% (the balance of the ZCB, of 9.14% less the 3% fees) to fund the income (as no put premium would be generated by introducing market risk)*

A summary / breakdown of the pricing of a fixed income product ...

COMPONENT BUILDING BLOCKS / PROCESS	PRICING*
Create a Zero Coupon Bond, with value of 100 at maturity date	90.86
Write / sell a Down-and-In / Knock-In put option on FTSE 100 with a 60% European barrier, to generate a premium	- 15.72
Allocate implicit product fees	+ 3.00
Arrange fixed income stream for 6 years	+ 21.86
Net cost of all component parts / process	100

▪ How might a product with higher income have been produced:

- a weaker bank, would have a cheaper ZCB: but this would create more counterparty risk
- a higher Knock-In put barrier and / or shorter product term could have been used, to increase the value of the put: but this would create more market risk
- a more volatile / riskier underlying market / asset or dual or multiple underlying markets / asset could have been used, to increase the value of the put option: but this creates more market risk

* This is illustrative pricing only. The prices of ZCBs and options can and does change at any time, based on a number of factors, as outlined in this Module.

- **A 'supertracker' growth product typically offers increased participation in any upside performance in an underlying market / asset:**
 - with no return generated if the underlying market / asset does not rise (although 'defensive' products can be arranged that do generate positive returns even if the underlying market / asset is below its starting level)
 - and / or repayment of capital at maturity linked to the final, closing level of the underlying market / asset, at the maturity date

- **This is also a very simple product for a counterparty bank to arrange and hedge:**
 - let's assume that an issuing bank / provider wants to arrange a product that provides increased and uncapped participation in any rise in the FTSE 100, from a 90% starting level (i.e. that generates a positive return even if the FTSE 100 has fallen by up to 10%), over a six year term, with full repayment of capital at maturity unless the value of the FTSE 100 has fallen by more than 40%, measured only at maturity (i.e. using a 'European barrier', as opposed to an 'American barrier')
 - the participation rate will be determined by the pricing of the component parts / process of 'hedging' that the issuing bank may undertake

Example 2: a supertracker product - pricing the component parts ... TEMPO STRUCTURED PRODUCTS

- **What may the issuing bank do to arrange the product / hedge itself against its contractual exposure to deliver the terms of the product?**
 - **Firstly**, the bank's treasury team may create a ZCB, to hedge the repayment of capital at the maturity date: using the same example as previously, based on the current level of 6 year interest / swap rates and the bank's funding level (which is driven by its credit risk and appetite for funds) the ZCB will cost 90.86%* of the notional capital;
 - **Secondly**, the bank may arrange to write, i.e. sell, a Down-and-In / Knock-In put option, in order to generate a premium that it will add to the balance of the notional capital remaining after funding the ZCB, in order to be able to buy more call options, so that the participation rate of the product can be increased for investors: again, based on the FTSE 100, a 60% European (only monitored at maturity) Knock-In put will generate a premium of 15.72%*
 - **Thirdly**, the bank may arrange to buy call options, in order to get the upside participation in any rise in the FTSE 100 required. These call options will have a strike price / level of 90% (i.e. participate in any increase in the value of the FTSE 100 from 90% of its starting level). The price for such a call option is 14.57%*

- **Adding the 15.72% put premium to the 9.14% balance of the notional capital (after the ZCB was funded), and deducting 3% for provider fees, equals 21.86%, which can be used to fund the purchase of the call options to provide the upside participation rate of the product:**
 - a single call option, based on the terms wanted, costs 14.57%*
 - **the participation rate of the product will be 150%** (as 21.86% is sufficient to purchase 1.5 call options)
- *For comparison purposes, a capital protected product would only offer a 42% participation rate, as the counterparty bank would only have 6.14% (the balance of the ZCB of 9.14% less the 3% fees) to fund the purchase of the call options (as no put premium would be generated by introducing market risk)*

A summary / breakdown of the pricing of a supertracker product ...

COMPONENT BUILDING BLOCK / PROCESS	PRICING*
Create a Zero Coupon Bond, with value of 100 at maturity date	90.86
Write / sell a Down-and-In / Knock-In put option on FTSE 100 with a 60% European barrier, to generate a premium	- 15.72
Allocate implicit product fees	+ 3.00
Arrange to buy 'In the Money' (with a strike price / level of 90%) call options (each costing 14.57)	+ 14.57 (x 1.5)
Net cost of all component parts / process	100

- **How might a product with higher participation rate have been produced:**
 - a weaker bank would have a cheaper ZCB: but this would create more counterparty risk
 - a higher Knock-In put barrier could have been used, to increase the value of the put: but this would create more market risk
 - the volatility of the underlying market / asset is interesting, as a more volatile market / asset could have been used to increase the value of the put option: but this would also increase the cost of the call options

* This is illustrative pricing only. The prices of ZCBs and options can and does change at any time, based on a number of factors as outlined in this presentation.

- **A capped 'supertracker' growth product typically offers increased / accelerated participation in any upside performance in an underlying market / asset (which may or may not be capped):**
 - with no return generated if the underlying market / asset does not rise (although 'defensive' products can be arranged that do generate positive returns even if the underlying market / asset is below its starting level)
 - and / or repayment of capital at maturity linked to the final, closing level of the underlying market / asset, at the maturity date

- **This is a relatively simple product for an issuing bank to arrange and hedge:**
 - let's assume that an issuing bank / provider wants to arrange a product that provides increased participation in any rise in the FTSE 100, from a 90% starting level (i.e. that generates a positive return even if the FTSE 100 has fallen by up to 10%), over a six year term. The issuing bank / provider is happy to cap the maximum return that can be generated by the product (noting that the product strategy has been designed with a defensive feature, so is not wholly driven by maximising upside potential). The product will also offer full repayment of capital at maturity unless the value of the FTSE 100 has fallen by more than 40%, measured only at maturity (i.e. using a 'European barrier', as opposed to an 'American barrier')
 - the participation rate and the level of the cap (i.e. maximum return that can be generated) will be determined by the pricing of the component parts / process of 'hedging' that the counterparty bank may undertake

- **What may the issuing bank do to arrange the product / hedge itself against its contractual exposure to deliver the terms of the product?**
 - **Firstly**, the bank's treasury team may create a ZCB, to hedge the repayment of capital at the maturity date: using the same example as previously, based on the current level of 6 year interest / swap rates and the bank's funding level (which is driven by its credit risk and appetite for funds) the ZCB will cost 90.86%* of the notional capital;
 - **Secondly**, the bank may arrange to write, i.e. sell, a Down-and-In / Knock-In put option, in order to generate a premium that it will add to the balance of the notional capital remaining after funding the ZCB, in order to be able to buy more call options, so that the participation rate of the product can be increased for investors: again, based on the FTSE 100, a 60% European (only monitored at maturity) Knock-In put will generate a premium of 15.72%*
 - **Thirdly**, the bank may arrange to buy call options, in order to get the upside participation in any rise in the FTSE 100 required. These call options will have a strike price / level of 90% (i.e. participate in any increase in the value of the FTSE 100 from 90% of its starting level). The price for such a call option is 14.57%*
 - **Fourthly**, the bank may also arrange to sell call options, with a strike price at 120%. It is this step that introduces the cap on the returns - as any growth above the cap has now been 'sold away'. However, the premium that is received for selling this call option can be used to buy more call options and increase the participation rate, up to the cap. The premium received for selling such a call option is 6.16%*

- **Buying a call and selling a call option on the same underlying market / asset for the same period is often referred to as a 'call spread'. The counterparty bank arranges to:**
 - buy a call option at one strike / price level
 - *and, at the same time*
 - sell a call option with a higher (i.e. 'out-the-money') strike / price level

- **There are three possible outcomes of this combined strategy, when the options / product matures:**
 - **If the underlying market / asset falls in value, and closes below the strike level of the call option that has been bought (the 'long' position: jargon for the position that has been 'bought'):** both the options (i.e. both the call options that have been bought *and* sold) will be / expire worthless, and the product will not generate a return for investors
 - **If the underlying market / asset rises in value, and closes between the strike level of the call option that has been bought (the 'long' position) and the strike level of the out-of-the money (OTM) call option that has been sold (i.e. the 'short' position: jargon for the position that has been 'sold'):** the call options that have been bought will have value and will generate a return for investors, and the call option that has been sold will expire worthless, i.e. the return that is generated will not be affected or limited by the cap
 - **If the underlying market / asset rises in value, and closes above the strike level of the call option that has been sold:** both of the options will have value - the call option that has been bought (the long position) will have value and generate a return for investors, but the call option that has been sold (the short position) will cap the maximum return of the product in respect of any performance above the OTM call option level

Example 3: A capped supertracker - pricing the component parts ...

- Adding the 15.72% put premium to the 9.14% balance of the notional capital (after the ZCB was funded), and deducting 3% for provider fees, equals 21.86%, which can be used to fund the purchase of the call options to provide the upside participation rate of the product:
 - a single call option with a strike of 90%, based on the terms wanted, costs 14.57%*
 - a single call option with a strike of 120%, based on the terms wanted, generates a premium of 6.16%*
 - the 'net' cost of the call spread between 90 - 120% is therefore 8.41* (i.e. 14.57 – 6.16)
 - **the participation rate of the product will be 260%** (as 21.86% is sufficient to purchase 2.6 call options)

A summary / breakdown of the pricing of a capped supertracker ...

COMPONENT BUILDING BLOCK / PROCESS	PRICING*
Create a Zero Coupon Bond, with value of 100 at maturity date	90.86
Write / sell a Down-and-In / Knock-In put option on FTSE 100 with a 60% European barrier, to generate a premium	- 15.72
Allocate implicit product fees	+ 3.00
Arrange to buy 'In-the-Money' (with a strike price / level of 90%) call options (each costing 14.57)	+ 14.57 (x 2.6)
Arrange to sell 'Out-of-the-Money' (with a strike price / level of 120%) call options (each costing 6.16)	- 6.16 (x 2.6)
Net cost of all component parts / process	100

- **How might a product with higher participation rate have been produced:**
 - a weaker bank would have a cheaper ZCB: but this would create more counterparty risk
 - a higher Knock-In put barrier could have been used, to increase the value of the put: but this would create more market risk
 - the volatility of the underlying market / asset is interesting, as a more volatile market / asset could have been used to increase the value of the put option: but this would also increase the cost of the call options
 - a lower strike for the OTM call option could have been used: but this would limit the maximum return available

* This is illustrative pricing only. The prices of ZCBs and options can and does change at any time, based on a number of factors, as outlined in this Module.

- **A 'digital' growth product typically offers a fixed return if an underlying market / asset is at or above a certain level, and no return if it is below that level on a set date:**
 - the strategy / potential outcome is sometimes thought of as 'binary', as there is a black and / or white possibility of either getting the fixed return or getting no return at all

- **Repayment of capital at maturity may also be linked to the final, closing level of the underlying market / asset at the maturity date**

- **This is also a relatively simple product for an issuing bank to arrange and hedge, in a very similar way to a capped supertracker product:**
 - let's assume that an issuing bank / provider wants to arrange a product that provides a fixed return if the FTSE 100 is at or above 90% of its start level at the end of a 6 year term (i.e. it generates a positive return even if the FTSE 100 has fallen by up to 10%). The product will also offer full repayment of capital at maturity unless the value of the FTSE 100 has fallen by more than 40%, measured only at maturity (i.e. using a 'European barrier', as opposed to an 'American barrier')
 - the potential fixed return will be determined by the pricing of the component parts / process of 'hedging' that the counterparty bank may undertake

Example 4: a digital growth product - pricing the component parts ... TEMPO STRUCTURED PRODUCTS

- **What may the counterparty bank do to arrange the product / hedge itself against its contractual exposure to deliver the terms of the product?**
 - **Firstly**, the bank's treasury team may arrange a ZCB, to hedge the repayment of capital at the maturity date: using the same example as previously, based on the current level of 6 year interest / swap rates and the bank's funding level (which is driven by its credit risk and appetite for funds) the ZCB will cost 90.86%* of the notional capital;
 - **Secondly**, the bank may arrange to write, i.e. sell, a Down-and-In / Knock-In put option, in order to generate a premium that it will add to the balance of the notional capital remaining after funding the ZCB, in order to be able to buy more call options, so that the participation rate of the product can be increased for investors: again, based on the FTSE 100, a 60% European (only monitored at maturity) Knock-In put will generate a premium of 15.72%*
 - **Thirdly**, the bank may arrange a call spread (similar to that described for a capped 'supertracker'), however this time the strike price / level of the call options that are sold will only be marginally higher than the strike price / level of the call options that are bought. For example, the bank may arrange to **buy call options** with a strike price / level of 90%, i.e. participate in any increase in the value of the FTSE100 from 90% of its starting level - the price for such a call option is 14.57%* - and to **sell call options** with a strike price / level of 90.1%, i.e. cancel out the call option that was bought if the FTSE 100 rises above 90.1%% - as with the call spread, this introduces a cap on the returns as any growth above the cap has now been 'sold away', but the premium received for selling this call option can be used to buy more call options to create the digital return. The premium received for selling such a call option is 14.54%* (which is obviously nearly as much as the 14.57% cost of buying the call options)

- **We introduced the concept of a 'call spread' for capped supertrackers, where a counterparty bank may:**
 - buy a call option at one strike / price level
 - *and, at the same time*
 - sell a call option with a higher (i.e. 'out-the-money') strike / price level
- **With a digital growth product, the strike price / levels of the bought and sold call options are very close together:**
 - this is often referred to as a 'tight' call spread
- **The overall effect of the strike prices / levels of the bought and sold call options being almost identical is that no return is generated if the underlying market / asset closes below the strike price / level and only a minor return generated if the underlying market / asset closes at or above the strike price / level: however because the net cost of buying the tight call spread is extremely low the resultant participation rate can be very high (as will be seen on the following 'pricing the component parts' page)**

Example 4: a digital growth product - pricing the component parts ... TEMPO STRUCTURED PRODUCTS

- **Adding the 15.72% put premium to the 9.14% balance of the notional capital (after the ZCB was funded), and deducting 3% for provider fees, equals 21.86%, which can be used to fund the purchase of the call options to provide the upside participation rate of the product:**
 - a single call option with a strike of 90%, based on the terms wanted, costs 14.57%*
 - a single call option with a strike of 90.1%, based on the terms wanted, generates a premium of 14.54%*
(so, the net cost of the call spread is 0.03%)
 - **the potential digital growth return of the product is 72.9%*** (as there is enough funding to purchase 729 call options, i.e. 21.86% divided by 0.03)

(the fixed return is calculated the same way that the maximum return is calculated for a capped supertracker, i.e. the difference between the strike levels of the call options that have been bought (the long position) and the call options that have been sold (the short position), multiplied by the participation rate (i.e. the number of call options bought: the calculation is: $(90.1 - 90) \times 729 = 72.9\%$)

A summary / breakdown of the pricing of a digital growth product...

COMPONENT BUILDING BLOCK / PROCESS	PRICING*
Create a Zero Coupon Bond, with value of 100 at maturity date	90.86
Write / sell a Down-and-In / Knock-In put option on FTSE 100 with a 60% European barrier, to generate a premium	- 15.72
Allocate implicit product fees	+ 3.00
Arrange to buy 'In-the-Money' (with a strike price / level of 90%) call options (each costing 14.57)	+ 14.57 (x 729)
Arrange to sell 'Out-of-the-Money' (with a strike price / level of 120%) call options (each costing 14.54)	-14.534 (x 729)
Net cost of all component parts / process	100

- **How might a product with higher participation rate have been produced:**
 - a weaker bank would have a cheaper ZCB: but this would create more counterparty risk
 - a higher Knock-In put barrier could have been used, to increase the value of the put: but this would create more market risk
 - the volatility of the underlying market / asset is interesting, as a more volatile market / asset could have been used to increase the value of the put option: but this would also increase the cost of the call options

* This is illustrative pricing only. The prices of ZCBs and options can and does change at any time, based on a number of factors, as outlined in this Module.

- **And finally let's look at one of the most popular structured product strategies: the 'kick-out' product**
- **A 'kick-out' product typically offers a fixed annual return, that accumulates for each year that the product runs, and automatic maturity (i.e. 'kick-out') if the underlying market / asset is at or above a certain level on any one of a series of potential kick-out / maturity dates during the investment term:**
 - with no return generated if the underlying market / asset is below the level required on all of the potential kick-out dates
 - and / or repayment of capital at maturity linked to the final, closing level of the underlying market / asset, at the maturity date
- **Like most of the retail products that are typically seen in the UK professional adviser channel, this is also a relatively simple product for an issuing bank to arrange and hedge, in a very similar way to a digital growth product:**
 - let's assume that an issuing bank / provider wants to arrange a product that provides the potential for a fixed kick-out return, at one of the pre-set kick-out dates during the investment term, if the FTSE 100 is at or above 90% of its start level (i.e. it generates a positive return even if the FTSE 100 has fallen by up to 10%). The product will also offer full repayment of capital at maturity unless the value of the FTSE 100 has fallen by more than 40%, measured only at maturity (i.e. using a 'European barrier', as opposed to an 'American barrier')
 - the potential kick-out return available on the set dates will be determined by the pricing of the component parts / process of 'hedging' that the issuing bank may undertake

- **What may the issuing bank do to arrange the product / hedge itself against its contractual exposure to deliver the terms of the product?**
 - **Firstly**, the bank's treasury team may arrange a ZCB, to hedge the repayment of capital at the maturity date: using the same example as previously, based on the current level of 6 year interest / swap rates and the bank's funding level (which is driven by its credit risk and appetite for funds) the ZCB will cost 90.86%* of the notional capital;
 - **Secondly**, the bank may arrange to write, i.e. sell, a Down-and-In / Knock-In put option, in order to generate a premium that it will add to the balance of the notional capital remaining after funding the ZCB, in order to be able to buy more call options, so that the participation rate of the product can be increased for investors: again, based on the FTSE 100, a 60% European (only monitored at maturity) Knock-In put will generate a premium of 15.72%*
 - **Thirdly**, the bank may buy tight call spreads (i.e. the 'digital' strategy), for each potential kick-out date that the potential return is available on. So, **for each potential kick-out date**, the bank may:
 - arrange to buy call options with a strike price / level of 90%: the price of each call option will depend on the expiry date; and
 - arrange to sell call options with a strike price / level of 90.1%: the premium received for each call option will depend on the expiry date
 - importantly, the call spreads will include a 'Knock-In' feature, meaning that they only become active if the call spread from the previous year expired worthless (i.e. the product did not kick-out)

* This is illustrative pricing only. The prices of ZCBs and options can and does change at any time, based on a number of factors, as outlined in this Module.

- **Because of the number of different options with different expiry dates, showing the process for arranging / hedging a kick-out product is lengthier (but not actually more complicated) than the products detailed so far:**
 - however, based on indicative pricing as of the date of this presentation, the kick-out product described in this example would price with a potential kick-out return of 5.75% p.a.

A summary / breakdown of the pricing of a kick-out product...

COMPONENT BUILDING BLOCK / PROCESS	PRICING*
Create a Zero Coupon Bond, with value of 100 at maturity date	90.86
Write / sell a Down-and-In / Knock-In put option on FTSE 100 with a 60% European barrier, to generate a premium	- 15.72
Allocate implicit product fees	+ 3.00
Net cost of call spreads expiring on each potential kick-out date during the investment term	+ 21.86
Net cost of all component parts / process	100

■ How might a product with higher kick-out return have been produced:

- a weaker bank would have a cheaper ZCB: but this would create more counterparty risk
- a higher knock-In put barrier could have been used, to increase the value of the put: but this would create more market risk
- the volatility of the underlying market / asset is interesting, as a more volatile market / asset could have been used to increase the value of the put option: but this would also increase the cost of the call options
- a higher strike for the call spreads and therefore the market level required for kick-out could have been used: but this would create more market risk

- **Despite having gone into the mechanics of structured products and what issuing / counterparty banks may or may not do when arranging / hedging them, THE most important point for professional advisers and investors to understand is that structured products equate to investing by contract.**
- **If you look under the bonnet of a typical mutual fund you will find a complicated ‘investment engine’, with an asset management company, layers of people and process (fund managers, analysts, risk management, executive management, etc.) - and a marketing document setting out the aims / ‘hopes’ of the fund:**
 - a mutual fund can fail to deliver on its aims / what investors expect for a multitude of reasons, from macro economic events, to specific market events, to corporate changes, down to simple human error / lack of skill
 - the aims / ‘hopes’ of a mutual fund certainly do not create legal, contractual obligations upon the asset manager (regardless of how much investors might wish that this was the case), although the return of whatever the value of the underlying assets is does not depend upon fund manager solvency
- **If you look under the bonnet of a typical structured product you will find ‘a contract’, with the terms of the product clearly detailed as a legal obligation upon the issuer of the securities that the product is based upon, that the investor can rely upon, if the issuing institution is solvent - regardless of any / all factors:**
 - the ‘process and performance risk’ of what the issuing / counterparty bank may or may not do, and whether it gets anything / everything that it does right or wrong, is a risk that the bank carries: not investors
 - for many investors, the opportunity to effectively abdicate from and devolve themselves of the investment process and performance risk, legally and contractually passing this up the food chain to the global institution responsible for the product, weighed up against the counterparty risk created, is a highly attractive way to invest (particularly as part of a balanced and diversified portfolio that also includes other types of investments)

- **Let's prove this contract point - and make it absolutely easy to understand: in the process, let's also deal with a 'fashion' re structured products, which is the suggestion that they are 'complex' products:**

- this comment is usually made with regard to the use of derivatives: but this is misguided / poorly understood ...
- firstly, fundamentally, there is nothing wrong with derivatives (they, themselves, are simply contracts)
- secondly, as is being explained, investors in structured products are NOT investing directly into the process of products or into derivatives: even if the issuing bank may use them in their arrangements / hedging process

- **Proving structured products equate to investing by contract - and that the derivatives point is a red herring:**

- imagine that on the first day of a 5-year structured product the treasury team of the issuing bank goes on holiday: and no 'zero coupon bond' is put in place. Nothing! Nada! Rien!
- imagine also, that on the same day, the equity derivatives team of the issuing bank goes on the same holiday: and no derivatives are arranged. Nothing! Nada! Rien!
- and, just for good measure, the risk management of the bank is also on the holiday: and is not there to check that the treasury team and equity derivatives team are at work: precisely nothing is therefore done, by anybody

(alternatively, imagine the opposite: the bank does everything it could ... but royally messes it all up!)

QUESTION: what can investors expect from the structured product, when it matures?

ANSWER: everything they were told to expect, at the outset ... because the investment is 'defined by contract'

- **Having been explicit in explaining that structured products equate to investing by contract and that the contracts afford the issuer / counterparty no 'wiggle room' with regard to delivering precisely what is stated at maturity, if the issuer / counterparty is solvent, it is pertinent to highlight that the contract may also detail that the terms of a product may need to be varied in certain circumstances:**
 - circumstances under which such changes might occur would usually be extreme events, such as 'market disruption', that might, for example, mean that an underlying market / asset index is discontinued and the bank is unable to continue with a product as per the original terms, etc.
 - in circumstances where a bank may need to alter the terms of a contract, aside from regulatory and legal protection the derivatives industry also has its own association: ISDA (International Swaps and Derivatives Association), that establishes and enforces sector practices

- **As should now be clear, structured products are neither complex nor alchemy:**
 - the building blocks and process of how structured products are potentially arranged and priced by issuing / counterparty banks is transparent, logical / mathematical and straightforward
- **What an issuing / counterparty bank may (or may not) do when arranging a structured product is done in order for the bank to hedge itself against its legal / contractual obligation to deliver the terms of the product at maturity:**
 - investors are taking on the credit risk of the contract issuer, i.e. the counterparty risk
 - if the bank is solvent at maturity it doesn't matter what they may have done / or not done: it is legally obligated to deliver the terms of the securities / bonds that it has issued, that the product is based upon

(it is worth noting, however, that the secondary market price of the product during the investment term may be determined by the value of the underlying component parts of the product, i.e. the ZCB and any options)

- **The most important aspect of structured products for professional advisers and investors to understand - and value - is that structured products equate to investing by contract:**
 - and this is fundamentally different to other types of investment, such as actively managed mutual funds, where the fund manager's process and performance risk (rather than counterparty risk) is borne by investors
- **Investing 'by contract' is a major benefit and advantage of structured products, for many investors, as part of a balanced and diversified portfolio that also includes other types of investments**

Following completion of Module 5, you should now:

- Understand the process that issuing / counterparty banks may employ when arranging / hedging structured products
- Understand that structured products differ from 'actively managed' and other types of investments as they equate to 'investing by contract', without the performance / process risk of other types of investment, such as mutual funds
- Understand the different building blocks that issuing / counterparty banks may use in their process of arranging / hedging structured products, including zero coupon bonds and call and put options (derivatives)
- Have some understanding regarding derivatives, their history and the different uses of derivatives today
- Have some understanding of the factors that can impact the cost / price of these building blocks
- Understand how the building blocks and pricing of 'capital at risk' structured products differs from protected structured products and structured deposits
- Have an insight into the process and the building blocks that issuing / counterparty banks may employ when arranging / hedging structured products, based on examples of five common types of structured product

If you would like to test your knowledge, please access the online Module test ...

- **It should always be understood that:**
 - structured products are not suitable for everyone
 - past performance is not a reliable indicator of or guide to future performance and should not be relied upon, particularly in isolation
 - the value of investments and the income from them can go down as well as up
 - the value of structured products may be affected by the price of their underlying investments
 - capital is at risk and investors could lose some or all of their capital
- **The ‘Important risks’ section of our website highlight the key and other risks of structured products, in addition to explaining important information for Professional Advisers who wish to access the current products area of our website and who may use our structured product plans with their clients:**
 - www.tempo-sp.com/important-risks
- **Professional Advisers should access and read the relevant plan documents relating to any structured product plan of interest, in particular: the plan brochure; plan application pack, including, the terms and conditions of the plan; and the issuer’s securities prospectus, final terms sheet and key information document (KID), before making a recommendation to their clients.**
- **Professional advisers should not invest in, or advise their clients to invest in, any investment product unless they and their clients understand them, in particular the relevant risks**

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