Structured Products

What Affects The Valuation

Explaining to the client the expected returns on a structured product should be relatively easy. But conveying how the investment is priced during its lifetime may not be quite so simple.

Whilst designed to be held to maturity, a client may need to sell their investment beforehand; or quite naturally want to look at the performance of the investment. Most structured products are now valued, and the prices are available on a daily basis. With news on markets and economies available 24 hours a day, the investor is able to be more market-aware than ever before and may need reassurance when the price of the investment isn't always reflecting market movements. It is important to be able to respond to any questions raised regarding that valuation and the investment's performance. Structured products are typically made up of zero-coupon bonds to provide the capital protection element and options to provide the potential return. So, let's look at each of these in order to see what impacts the price.

Zero-Coupon Bonds

A zero-coupon bond is one bought at a price discounted to its face value, as a result of the buyer not receiving the periodic interest payments (coupons). Instead, the bond pays its full value at maturity. This value needs to equate to the level of capital protection being offered.

The discounted purchase price depends on three main factors:

- Prevailing interest rates
- Credit rating of the bond issuer
- Time to maturity

In times of low interest rates, the rate of discount will be lower than when higher rates prevail.

As an example, if an investor wants 100% capital protection over 5 years, and the annual discount rate is 2%, the bond would be purchased at around 90% of its face value. The remaining 10% can then be used to fund other components of the structured product, such as options to provide upside potential.

Intrinsic Value

The intrinsic value of an option represents how much money you would receive if the option was exercised right now.
A call option gives the buyer the right (but not the obligation) to buy an asset at a specific price, known as the strike price.
If the market price of the asset is higher than the strike price, the option is said to be in-the-money, and the intrinsic value is the difference between the two prices. For example: If the market price is £110 and the strike price is £100, the intrinsic value is £10.

- If the market price is less than or equal to the strike price, the option is out-of-the-money, and the intrinsic value is £0 – there's no benefit in using it now.

A put option gives the buyer the right (but not the obligation) to sell an asset at the strike price.

- If the market price of the asset is lower than the strike price, the option is in-the-money, and the intrinsic value is the difference. For example: If the market price is £90 and the strike price is £100, the intrinsic value is £10.
- If the market price is equal to or greater than the strike price, the option is out-of-the-money and has no intrinsic value.

Time Value

In addition to intrinsic value, every option also has what's called time value. The time value reflects the potential for an option to gain value before it expires and is an important component of the total option price (also known as the premium).
The time value exists because, before expiry, there is still uncertainty about how the price of the underlying asset might move. Even if an option is currently out of the money (i.e. has no intrinsic value), it might still become profitable before it expires – and that potential is what gives it time value.

Time value = Option premium – Intrinsic value

So how will the markets affect the price of the option?

- Structured products often contain call and put options on an underlying asset. Changes in the underlying security price will change the value of these options: Call options become more valuable as the underlying asset price rises & Put options become more valuable as the underlying asset price falls.
- Time until expiration, as noted above, affects the time value component of an option's price. Structured products often contain embedded options (like calls or puts), and the time value of those options is a key component of their pricing. Time value reflects the potential for the underlying asset to move in a favourable direction before expiry – the more time remaining, the higher the chance of that happening, and the more valuable the option. As the product approaches maturity, the time value of the embedded options gradually erodes. This phenomenon is known as time decay.
- **Let's look at an example. Take a 6-year capital protected note with a payoff linked to the performance of the S&P 500. If you're halfway through the product term and the index hasn't moved much, the value of the embedded option will decrease because there's less time for the underlying to appreciate – which lowers the product's overall value (assuming it's being marked-to-market).**
- The effect of an underlying security's dividends and current interest rates has a small but measurable effect on option premiums.
- Higher dividends decrease the value of a call option (since dividends reduce the underlying asset price).
- Higher interest rates increase the value of a call option (since it becomes more attractive to defer payment via options).
- The effect of future volatility is the most subjective and perhaps the most difficult factor to quantify, but it can have a significant impact on the time value portion of an option's premium. Volatility is a measure of variability in the price of the option's underlying security. There is a separate document on how volatility affects the pricing, so please refer to this for more information.
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- Additionally, market sentiment plays a role in valuation. While it can vary between institutions, it reflects broader expectations and investor behaviour, which are factored into pricing models to help ensure structured products remain aligned with prevailing market conditions.

It's important to recognise that all these factors – including underlying asset price, time to maturity, volatility, interest rates, and dividends – fluctuate throughout the life of a structured product. These fluctuations influence the intrinsic and time value components of the embedded options, which in turn affect the product's daily valuation.

In volatile markets, these changes can have a particularly significant impact, especially in products with lower levels of capital protection or conditional features such as a European Barrier. In such cases, a smaller portion of the initial investment is allocated to capital protection (bond component), allowing for greater exposure to the options. As a result, the product's valuation becomes more sensitive to changes in the value of those options.

However, it's crucial to note that most structured products are designed to be held until maturity. The headline terms – including capital protection and potential returns – are only guaranteed at maturity, regardless of interim fluctuations. While mark-to-market values may rise or fall during the term, they do not impact the final payout unless the product is sold early. This is why investors are typically encouraged to view structured products as medium to long-term investments and to focus on the defined outcomes at maturity rather than short-term price movements.

What does all that mean in terms of pricing an investment before it reaches its maturity date? Let's recap.

The price for a structured product in the secondary market is determined by the value of the bond and the options used to build the investment. The bond price is relatively stable, designed as it is to have a specific value at maturity. Options are priced on a real-time basis and so reflect the market movements and sentiment on the underlying investments throughout the day. If the markets go up, it may seem reasonable to expect the option price to move the same way. However, if for example the option is "out-of-the-money", it will have no intrinsic value – and if at the same time, maturity is approaching; the fall in time value would serve to compound the effect.

In addition, if the investment is structured with a capital protection barrier, the lower the barrier the higher the exposure to the option element. In these circumstances, the overall value of the investment could be well below par. Of course, the opposite could be true and there will be times where the impact of the markets will give rise to the situation where a profit can be taken, releasing the cash to re-invest.

To finish, just as company share prices may not reflect the true asset value of the organisation, an option will not necessarily reflect its underlying exactly. In pricing options (and stocks) there are identifiable elements to take into account, as well as values based on future expectations.