Introduction

What are structured products? How are they useful? What are the risks associated with them? Structured products can potentially be highly complicated and difficult to understand for the average investor, but its risk mitigating and customised solutions are definitely very useful, especially if you have large investments and need to reduce your risk exposure. Unfortunately, structured products if not fully understood can also be disastrous as demonstrated in the recent financial crisis caused by subprime mortgages and the packaging of them into mortgage-backed securities. It is therefore important to understand these products, and not simply buy in to them because advisors make them sound fool proof.

This article will attempt to explain some popular structured products that is out there for both retail and institutional investors, and hopefully would be useful whether you encounter them as an individual investor or working for a large firm in future.

Structured Product Design

Structured products provide a flexible and tailored approach to investing. The simplest forms of structured products give investors full or partial capital protection, together with a variable degree of leverage and equity-linked enhanced performance. They are a portfolio enhancement tool usually used to increase returns while limiting risks of capital loss.

Equity derivatives can be extensively customized to meet an investor’s risk/return profile and investment objectives, such as capital protection, diversification, yield enhancement, leverage, regular income, tax/regulation optimization, and access to non-traditional asset classes, among others.

Why Use Structured Products

Structured products can be customised to meet the requirements and strategies of any investor. Some strategies include:

- Protection: Through hedging of risks of the investments
- Coupon Income: Benefit from periodic returns with limited risks. This ‘income’ type of structure is built to deliver coupons while protecting capital.
- Enhancement: Increase the portfolio’s return through leveraging while controlling risks.
- Diversification: Diversify with the adjustable risk/return profiles and market cycle optimization capabilities of structured products.
- Growth: Capitalize on market upsides while protecting the downside.

How Do They Work?

The most common structured product (Option plus zero coupon) comprises of two components:

1. A fixed income security such as a zero-coupon bond that is purchased at a discount. This guarantees that the invested principal will be reimbursed at par at maturity, thereby providing capital protection to the investor.
2. An option-like instrument, which provides a payoff in addition to the fixed income payments. This additional payoff is linked to the performance of an underlying asset, taking the form of either regular coupons or a one-off gain at maturity. The option would pay out the performance of the underlying at maturity if it is above the strike price for a call option.

Here is a hypothetical example:

An investor wants to invest SGD 100 over five years with full capital protection and exposure to the STI upside.

If the Singapore Government Securities (SGS) rate is 4.8%, the SGS Bond would be worth SGD79.1 now (Discount Bond). This leaves the structure with SGD20.9 left to purchase an option on the STI including administrative costs and commission. If a five-year STI call option costs SGD23.6, with administrative and commission costs being SGD2, the investor can benefit from an 80% participation in the STI upside, while having his SGD100 capital protected at maturity. 80% is obtained by taking (20.9-2)/23.6.

Optimistic Scenario: if the STI goes up by 40% over the five years, the investor will achieve a return of 32% (80% x 40%) on top of his initial capital. Redemption at maturity = 132% of principal.

Pessimistic Scenario: if the STI is down by 30% after five years, the investor will receive 100% of his capital at maturity.

**Innovative Structured Products**

Besides the simplest option plus zero coupon strategy, there are many new equity derivatives that have evolved over the years in terms of structure (complex combinations, multiple underlying assets and exotic features) and to adapt to new rules and regulations. Volatile equity markets and low interest rates have also resulted in the development of more innovative structured products. These products serve different needs and objectives, and some of them are outlined here.

**Growth Products**

These are positioned as efficient alternatives to standard equity investments, offering maximum market exposure with limited or no downside risks

- **Magic Asian**: The Magic Asian is linked to a basket of underlying securities, with full capital protection at maturity. At maturity, the final payoff is the average of performances, where positive performances are floored at a predetermined level and uncapped, while negative performances are taken at their observed level. This product offers full capital protection plus a minimum return, and is best suited for flat to moderately bullish markets.
  - **Benefits**: This gives easy high return for moderately performing securities, and unlimited potential for no cap positive performances. Further, a fixed coupon is paid on the first year, giving time for the markets to recover if it is down.
- **Risks:** The investors might not be able to realise the full benefit of the positively performing underlying securities, due to the averaging of performances. Also, capital is only protected if the product is held to maturity, lowering liquidity of the product.

- **Himalaya:** A Himalaya is a product with exposure to a diversified basket of several different geographical or asset class underlying securities. At each observation date, the performance of the best performing underlying is locked-in and then permanently removed from the basket. At maturity, the investor receives the average of the locked-in performances. This product is best suited for uncertain markets and offers full capital protection.
  - **Benefits:** The Himalaya gives optimised performance as each year’s best performing security is automatically selected. The lock in feature also gives protection against market downturns. There are also benefits from sector rotation, market cycles and efficient asset class diversification. Risks are also limited as only the best performances are averaged.
  - **Risks:** The investor is not able to benefit from any additional appreciation of the security once its performance is locked-in. Also, capital is only protected if it is held to maturity, lowering its liquidity.

**Income Products**

Structured income products are high-yield alternatives to ordinary fixed income investments. They usually redeem the principal at maturity and offer an equity-linked coupon, which is fixed or conditional, or a mixture of both. The products are designed for investors seeking above-market returns and capital protection during times of market uncertainty. Less risk-averse investors can get enhanced returns in exchange for lower principal protection.

- **Reverse convertible:** This is a short-term investment combining a high coupon with exposure to equity. The reverse convertible offers a guaranteed coupon and conditionally returns the principal, based on the performance of the underlying equity. The principal is 100% protected down to a pre-determined barrier.
  - **Benefits:** The reverse convertible has short maturities ranging from three months to two years making it a short term investment. There is a guaranteed high coupon paid periodically to ensure stable income flows. There is also contingent capital protection up to a pre-determined barrier.
  - **Risks:** Because of the predetermined barrier, there is limited capital protection. If the price of the underlying asset decreases below the barrier over the term of the product, the capital returned may be less than the original amount invested.

- **Predator:** This structure pays a fixed annual coupon during the first X years and then a variable annual coupon for the remaining number of years. At the end of each variable coupon year, each asset whose performance is better or equal to its initial level is locked in at a fixed performance until the end of the investment. The variable coupon is then calculated as the average of both the locked-in and the other performances. This product offers full capital protection, and is best suited for flat to moderately bullish markets.
o **Benefits:** The locking in mechanism locks-in any rise in the underlying asset until the investment terminates. As long as the performance does not go down compared to its initial level, the performance is locked-in.

o **Risks:** The locking-in mechanism prevents the investor from benefitting from the whole rise of the underlying asset, and capital is only protected if it is held until maturity, lowering liquidity.

*Commodity – Linked Products*

Commodity-linked products can be adapted to specific risk profiles and offer full or partial principle protection. There are generally two types of products. The first range of products offer full commodities exposure and are designed for investors seeking to participate in the growth of the commodity markets with no limited downside risks, receive regular commodity-linked returns and to make a quick profit on the commodity markets.

- **Wedding Cake:** A wedding cake pays a high fixed coupon at maturity, if the underlying commodity has been trading within a pre-determined range of prices during the term of the investment. A moderately high coupon is paid at maturity if the underlying commodity traded out of the first range, but is within another larger range. The capital is fully protected at maturity. This product is best used in flat markets where the direction is uncertain, and offers full capital protection.
  
  o **Benefits:** The wedding cake is a market-neutral product, meaning it allows the investor to benefit from any market trend, be it bullish or bearish, with limited risk. It pays a high coupon in flat markets, therefore allowing the investor to over perform the underlying in that situation.

  o **Risks:** In the event that there is high volatility of the underlying commodity, the coupon paid will be very low. Also, the capital is protected only if the product is held to maturity, lowering its liquidity.

- **Commola:** Commolas are linked to a basket of commodities and equities. At maturity, well-performing assets are over-weighted and poor-performing assets are under weighted. They can also include an Asian feature and pay at maturity the average performance of the basket of commodities during the whole or part of the term of the investment with full capital protection.

  o **Benefits:** The commola surely over performs the basket, because of the different weightage for good and bad performers. The condition for over weighting a share is generally for it to perform better than its initial level, while negative performances are under weighted. There is also risk diversification since it is based on both commodities and equities.

  o **Risks:** Capital is only protected if held to maturity, reducing the liquidity of the asset.

*Hybrid Products*

Hybrid structures are derivatives based on multiple and distinct asset classes, such as interest rates, exchange rates, real estate, hedge funds, commodity prices and inflation, along with equities. Bonds and equities are usually the primary underlying asset for hybrids, and their returns are boosted, hedged, diversified or triggered by the other types of assets. By using exposure to multiple asset classes, it allows investors to diversify directional risk,
enhance yield, play specific investment views across different classes, protecting portfolio at lower cost and against inflation and exchange risk, and take advantage of return differentials among various asset classes and conduct arbitrage.

- **Profiler:** For the profiler structure, three portfolios of different risk profiles are composed from a set of different asset classes. An aggressive, balance, and conservative portfolio. The aggressive portfolio is comprised mainly of equities and commodities, completed with less risky assets like bonds, rates, real estate, etc. A balanced portfolio will have an equal composition of different kinds of assets, and conservative portfolios emphasize on the less risky assets. At maturity, it pays the best average performance between the three different portfolios, with full capital protection. This product is best used in uncertain, volatile markets.
  - **Benefits:** It ensures optimum market exposure. Whichever the market fluctuation, investors would benefit from the best performing management strategy at term. Further, market cycles are optimised. Lastly, the averaging of performances smooth out the changes in portfolio value in times of market reversals.
  - **Risks:** Investors may not benefit from the whole rise of the best performing asset, because of the averaging of the performances. Further, capital is protected only if the product is held to maturity.

- **Orion:** The Orion structure is a combined strategy hybrid product. It periodically pays a fixed coupon, provided short-term interest rates stay below a certain level, and switches to an equity-linked payoff once this level is breached. The Orion structure also exists with a commodity underlying instead of short-term interest rates. The conditional fixed coupon is paid as long as the commodity does not breach a down barrier and switches to an equity-linked payoff once this barrier is breached. Capital is fully protected at maturity. This is best suited for uncertain markets.
  - **Benefits:** The investor receives an income in excess of the money markets unless the underlying breaches the barrier. The investment switches to equities when short-term rates reflect positive growth prospects in equity markets. In this way, the investor benefits from a rally in equities at the earliest stage. For a commodity-linked Orion, it switches to equities when commodities, assets traditionally negatively correlated with equities, are following a downward direction, i.e. when equities should be going up, therefore taking advantage of the upward trend in equities. Even in adverse equity markets, the investment continues earning fixed-interest returns.
  - **Risk:** Capital is protected only if the product is held to maturity.

**Conclusion**

In conclusion, it can be seen that structured products definitely bring a level of sophistication and benefits to investors, and are not as bad as the financial crisis makes it out to be. There are still many other different categories of products which were not covered such as market-neutral products, fund-linked products, strategy and systematic strategies, and many products within each category were not mentioned as well. Such products offer different strategies according to the preferences of the investor, such that the products can be truly customised to their needs.