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Absolute return strategies

Investment banks are making use of their quantitative expertise and client knowledge to innovate algorithmic strategies that rival products typically offered by hedge funds. Shane Edwards, head of pricing & structuring at RBS Global Banking & Markets discusses the rationale and financial engineering behind these so called 'dynamic strategies'

With recent economic turmoil diminishing appetite for traditional long-only equity products, absolute return strategies are rising in popularity. Hedge funds should be seeing large inflows of investments, but many potential investors may have concerns including: large fees, 'black box' trading methods, weak internal controls, lack of regulation, key person risk, large minimum investment sizes and illiquid secondary markets.

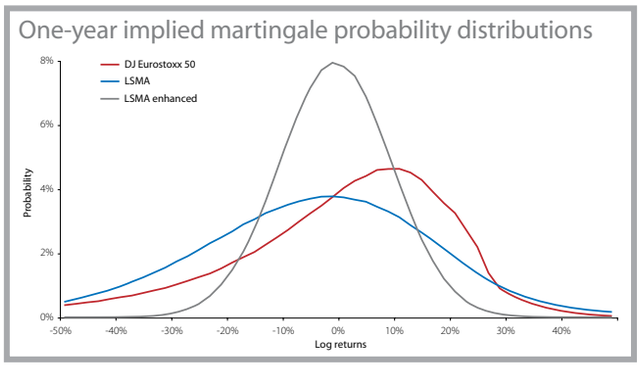
The RBS Equity Derivatives Structuring Team comprises a range of backgrounds: theoretical mathematicians, experimental physicists, hedge fund traders, fundamental equity researchers and hybrid derivative traders. The team combines this experience to innovate dynamic strategies that are transparent and easily investable. Some of the categories developed include: long-short, market timing, derivative and volatility strategies, consensus fundamental analyst ranked portfolios and numerous strategies linked to stock market trends and volatility regimes.

One such strategy, the long-short moving average (LSMA), uses moving averages, a technique used by technical analysts around the world to implement an automated trading rule. Long or short positions are taken in the underlying equity index depending on the prevailing trend observed, which is analysed monthly. Using a substantial amount of historical data, this strategy is analysed for profitability and robustness and is created as an index that is verified and tested by an independent third party. Because the final investment in a structured product linked to such an index is 100% capital-protected, the index is designed with affordability in mind, normally aiming to have full participation, or even leveraged participation, in the index for standard investment tenors.

From a pricing perspective, writing a call option on a dynamic strategy, such as the LSMA, is not a trivial task. To price any option, the distribution of returns for the underlying asset(s) needs to be known and hedgeable. The first element (known mathematically as a 'moment') of any probability distribution is its mean. For a standard call option this is a martingale given by the risk-neutral cost of carry, discerned from interest rates paid and dividends received. However, the LSMA dynamic strategy discussed can be either long or short at any given time, not just long. To estimate the cost of carry, risk-neutral probabilities can be assigned to the expected duration of long and short positions. Alternatively, to avoid this uncertainty, the underlying index can reference a rolling futures contract, which by construction has zero cost of carry, ignoring margins and transaction costs.

The further moments of a probability distribution are its volatility, skewness and kurtosis. These are statistical terms that describe the shape of the probability distribution around its mean. Because the implied volatility surface for equity indexes exhibits a strong negative relationship between volatility and strike level, the implied probability distribution (IPD) for a long-only strategy is negatively skewed. Despite it having the same volatility along any given path outcome, a strategy that can be long or short at different times has a very different IPD to the underlying long-only equity index. The LSMA dynamic strategy will earn positive returns in consistently declining markets and increase in volatility at the same time, based on the dynamic observed in the prevailing implied volatility surface. In order to know the shape of the IPD, a priori, and provide a target level of volatility for investors, dynamic participation is implemented for the LSMA enhanced.

Through innovative financial engineering, the resulting product is simple to hedge and desirable for investors, satisfying both of these objectives. The LSMA enhanced dynamic strategy has exhibited 10% per annum (p.a.) returns and volatility below 10% p.a. in myriad historical market conditions.



Source RBS GBM

The IPDs are constructed with a standard local volatility approach based on RBS implied volatility data. The LSMA is a strategy that uses a moving average on the DJ Eurostoxx 50 to systematically take long or short positions. The LSMA enhanced uses the same moving average strategy linked to the DJ Eurostoxx 50 rolling front-month futures contract and uses dynamic participation to implement a 10% p.a. volatility target.

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