Limits of volatility

Advanced techniques, and when it does not matter at all. By Mindy Tan

Picking up from our earlier article, where we discussed some of the principles and theories that can be used to measure volatility, the next question probably is: what next?

Before we delve into the nuts and bolts of which measure to use for what, and when, it’s probably wise to highlight that the measures discussed previously are by no means extensive, and are merely meant to shed some light on the various ways volatility can be measured, as well as the different aspects to risk.

So buckle up, because this promises to be a roller-coaster ride.

The wherefores and whens

According to assistant professor Mandy Tham of Nanyang Technological University’s Business School, these measures can be used for almost all equity securities, provided that the securities are actively traded, and the distribution of their underlying returns approximates to a normal distribution.

“If returns are normally distributed, there are only two moments to be concerned about – expected returns and standard deviation of returns,” she says.

“For dynamic trading strategies, commonly employed by hedge funds, that combine options with stocks to generate skewness and kurtosis (defined as the sharpness of the peak of a frequency-distribution curve) in returns distribution, measures such as standard deviation and Sharpe ratio would not be appropriate.”

Traders may also use the dual moving average crossover (DMACO) rule, which is based on two moving averages of the security’s price, says Prof Tham.

Two moving averages are computed – the first is computed over a short-term window (short-term moving average, or STMA) and the second over a long-term window (long-term moving average, or LTMA).

The LTMA will move in the same direction as the STMA, but at a slower rate and because it is averaged over a longer window, the LTMA will also be less volatile.

“As STMA and LTMA move at different rates, the STMA can be adjusted for inflation, the dollar coupons received by the investor would be adjusted for inflation, the dollar coupons paid out to investors will correspondingly be adjusted.”

The favoured method?

“Standard deviation is the easiest, and possibly most relevant to a young investor who holds only a few stocks,” suggests Prof Tham.

“Tracking error is also not that hard to compute. One could also simply just compare the range of movement of the security’s price to the range of movement of the benchmark’s price.”

Associate professor Sundaram Janakiraman, SIM University’s head of programme for finance, however argues that if an investor is planning for long-term investment, volatility should not matter as much.

“If the price increases from $20 today to $35 after five years, we need not know how the price moved in between. It is quite likely that during the five-year period the price would have been highly volatile,” he says.

“The main concern in long-term investment is an increase in the value of investment. For an investor, a positive return is of concern rather than whether the return was adequate for the risk involved, because it is not possible to measure the risk upfront.”

In fact, except for standard deviation, most measures, including beta, alpha, r-squared and Sharpe ratio are based on the Capital asset pricing model, which may not be a correct model for measuring the risk-adjusted return, he says.

“Moreover, all these measures, including standard deviation, are based on the past price data and for an investor, it is important to identify the future volatility, which cannot be measured with certainty.”

That is not to say that volatility can be ignored, since for short-term investors, price fluctuations are an important consideration.

“One can keep track of the price over a six-month period. Typically, a stock sells within a given range – if a stock has been selling in the range of $15 to $20 over the past six months, one can sell if the price reaches $20, and buy when it reaches $15,” he says.

“If the investor is smart, it may be possible to hedge the risk of price decrease by entering into futures – if futures are available – but it could be risky. Unless the investor understands the risk of investing in futures, it is not advisable.”

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