TRADING GROUP UBC

Weekly Educational Topics

Introduction to Value at Risk (VaR)

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VaR has emerged has one of the most risk management metrics since the 2008 Financial Crisis. It has become increasingly important for trading operations to value the risk on their books at any given time, and one method is through VaR. As a definition, VaR provides an estimated maximum loss over a given time horizon, under a specific confidence interval (generally 95%). For example, if The Trading Group had a daily VaR of $870,000 for October 29th, it would mean that to a 95% confidence degree, the maximum The Trading Group should lose on October 29 is $870,000. The calculation for VaR considers the volatilities of each asset on the book, and their corresponding correlations to each other.

While VaR provides a simplistic and logical way to calculate risk, it comes with a lot of underlying limitations. The main one being the inability to account for extreme events, known as 'Black Swan' occurrences, which as we know make up for a large amount of losses in markets. In cohesion with this, VaR also unable to predict the value of losses that do blow through the VaR. By this we mean that a daily VaR for an Oil and Gas Trading Floor could be $750,000, and suddenly an oil rig in Texas has an accident, prompting extreme market volatility in Crude Oil indexes and Energy Equities, leading to a very large loss, that was not indicated in anyway by the VaR calculation of the current book.

A last limitation to focus on in relation to VaR is the fact that it is tied heavily to the Mark to Market (MtM) metric for day over day valuation. The reason why this is a limitation is because Mark to Market is the difference between book value and market value, meaning that if you add volume to the current mix, the MtM would be $0 for the new assets. While this may make sense at the surface level, the connection between the 2 metrics suggests that VaR would be unaffected by an addition of volume, and hence, can't be analyzed as a real-time evaluator of risk.

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Overall, VaR is a useful and organized way of evaluating risk, if and only if the assets in play can be evaluated similarly and with similar methods. When put in more complex settings, VaR can be slow to react and leave a trading operation over exposed to an asset class or market. However, that being said, VaR is a topic that often comes up in trading floor interviews and is still treated as an important part of basic risk theory and logic.