Unlocking Arbitrage Potential:
A Deep-Learning Approach in Intraday US Equities

In the pursuit of advancing and refining deep learning techniques for statistical arbitrage in US equities, how can the systematic processes of replication, integration with multivariate GARCH, and exploration of high-frequency data contribute to improving market neutrality, addressing non-normally distributed returns, and optimizing performance, particularly under the constraints of transaction costs and market dynamics?

1. **Replication and Baseline Evaluation**
   - How faithfully does the replicated deep learning-based statistical arbitrage model predict daily movements in US equities, and what performance metrics indicate its effectiveness in comparison to the original study?
   - What insights and limitations emerge during the replication process, setting the stage for subsequent enhancements?
   - In case the replication fails, why does it fail, and what steps might we take to produce a model with the desired results, e.g. do we need different assumptions?

2. **Exploration of High-Frequency Data**
   - In adapting the model for high-frequency intraday data, how effectively does it address the challenges specific to intraday trading, such as transaction costs and market dynamics?
   - What insights are gained into the model's behavior under high-frequency conditions, and how does its performance compare to the daily version in terms of risk-adjusted returns?

3. **Integration of Multivariate GARCH and Copulas**
   - How does the incorporation of multivariate GARCH models and copulas into the deep learning model impact market neutrality and improve predictions of intraday US equity movements?
   - What statistical evidence supports the enhanced model's performance, and how does it compare to the baseline model in terms of risk-adjusted returns?