Review of: "A New Price of the Arithmetic Asian Option: A Simple Formula"

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Potential competing interests: No potential competing interests to declare.

Overall Comments:

The paper proposes a new formula for pricing arithmetic Asian options. The authors claim that this formula is simpler and more efficient than existing methods. While the paper offers an interesting approach, there are some aspects that would benefit from further development.

Strengths:

- The paper clearly states the limitations of current methods for pricing Asian options, namely their reliance on approximations and complex calculations.
- The authors introduce a novel approach based on transforming the arithmetic average into a function of Brownian motion.

Weaknesses:

- The paper lacks a detailed explanation of the derivation of the formula (Equation 3). Key steps are missing, making it difficult to assess the validity of the approach.
- The paper mentions that the volatility parameter v^* can be estimated "similar to other models" but doesn't provide details on the estimation procedure.
- The reference to the impact on statistics (future applications) is vague and needs more specific examples.
- The claim that the industry can avoid the problem of choosing discrete monitoring times by using this formula requires further explanation. There may still be challenges associated with continuous monitoring, such as data collection frequency.

Additional Recommendations:

- The authors should provide a more rigorous derivation of the formula, including any relevant mathematical proofs.
- They should elaborate on the estimation procedure for the volatility parameter v^*.
- Specific examples of how this formula could be applied in statistics or finance would strengthen the paper's impact.
- The authors should address the potential drawbacks of continuous monitoring compared to choosing discrete monitoring times.

Further Research:

- It would be beneficial to compare the accuracy and efficiency of the proposed formula with existing methods on a set of benchmark Asian option pricing problems.
- The authors could explore potential extensions of their approach to pricing more complex Asian option variations.

Overall, the paper presents a potentially useful new approach to pricing Asian options. However, additional development and clarification are required before it can be considered a significant contribution to the field.