

Reply to Referee report 1

First of all, I would like to thank the referee for providing useful comments to improve my paper. I am happy to address those points and will revise the paper as necessary. My responses to comments are as follows.

1. The last sentence on page 4 begins with the word “Obviously”. I’m not wholly convinced that it is always more convenient to work with conditions that involve the density rather than the CDFs. It’s true that the subsequent development does bear out the conclusion, but I didn’t find it “obvious” on a first reading.

Reply: I agree that the word “obviously” cannot express my idea accurately. Actually, the density $f(x)$ and two transformation functions $m(x)$ and $n(x)$ are known conditions in the Alleged Theorem 5 and the CDFs $F_m(x)$ and $F_n(x)$ of $m(X)$ and $n(X)$ are unknown. If we want to determine the FSD relation of $m(X)$ and $n(X)$ with the condition $F_m(x) \leq F_n(x)$, we have to first compute $F_m(x) = P\{m(x) \leq x\}$ and $F_n(x) = P\{n(x) \leq x\}$. In my opinion, it is more convenient to verify the FSD relation with the condition $\{m(x) - n(x)\}f(x) \geq 0$.

In order to better express the opinion above, I will delete the word “obviously” in that sentence and revise it as follows:

As far as the transformations are concerned, it is much more convenient to verify the dominance relations by condition (1) and condition (2) than by the framework of CDFs which needs to justify

$$F_m(x) \leq F_n(x) \text{ and } \int_{-\infty}^x F_m(t)dt \leq \int_{-\infty}^x F_n(t)dt .$$

2. In the second last line of section 2, on page 5, I’m not sure what is meant by “inevitable”. Should the word perhaps be “necessary”?

Reply: I agree with your opinion and I will replace the word “inevitable” with “necessary”.

3. Starting on page 7, the text refers to the concept of increasing risk. I think that a formal definition of this concept is needed here, or else readers will either not follow the discussion or else have to go off to consult some rather old references.

Reply: I agree with your opinion and the formal definition of “increasing risk” will be added in the revised manuscript.

4. In the section on option strategy, the authors frequently use the term “striking price”, but I have never heard it so called; rather it is normally “strike price” or just “strike”.

Reply: I agree with your opinion and I will replace the word “**striking price**” with “**strike price**”.

5. I wonder if Appendix C, with its explicit proof of Theorem 3, is really necessary. I would be tempted just to say that the proof is very similar to that of Theorem 2. If there are a few crucial differences, they could be mentioned without having a full-blown proof.

Reply: Just as you have said, the proof of Theorem 3 is very similar to that of Theorem 2, so it will be deleted in the revised manuscript.