



SDI Review Form 1.6

1.

Journal Name:	<u>British Journal of Mathematics & Computer Science</u>
Manuscript Number:	Ms_BJMCS_19002
Title of the Manuscript:	A Simulation Analysis of Distortion Operators Of Wang, NIG And Cauchy: A Comparative Approach.
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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2. PART 1: Review Comments

3.	4. Reviewer's comment	5. Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
6. Compulsory REVISION comments	The authors need to address lots of points to make this paper work: Abstract: 1. What are you trying to do/show? It's not made plainly clear what exactly the authors want to show/demonstrate/proof in this paper over previous work. Please make it clear in the abstract (and introduction) what you are trying to do and why anyone should care about it. 2. It says "... further compare the wang distortion." – without any previous reference / explanation of Wang distortion is. Please explain first (if necessary in a simplified 1 sentence) and give a reference. Introduction (or what I suppose is the introduction): 1. The paper starts in a confusing way – I think the authors forgot to label it "1.0 Introduction" or may have completely removed the introduction from the paper. It starts right off with "The NIG distribution ..." and has no motivation/introduction to the problem whatsoever. Before you tell people about the NIG distribution, you have to tell them why they should care about it. Please write a clear non-math / non-stats introduction on what problem you are trying to solve and why the reader should care.	1. The abstract reflects clearly the objective of the work. 2. Noted 3. All corrections are effected.



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	2. Equations on p2 have no numbering at all. Please add some or include them inline (if you dont reference them anyways). 3. First equation on p2 (due to lack of numbering) has an $r^2 = \dots$ in it. What is r? I didnt see it anywhere before! 4. If $\beta = 0$, it is symmetric; please state that. 5. The authors write $NIG(x, \dots)$ for the cdf of the nig density. I understand the logic of how they chose 'nig' and 'NIG' for $f()$ and $F()$ (pdf and cdf), but still it is non-standard notation and should be stated. Besides there is no point in writing $NIG(x, \dots) = \text{integral of } nig(y, \dots) \dots$ unless you have a closed form solution of $NIG(x, \dots)$. We know that $F(x) = \int_{-\infty}^x f(y) dy$ in general. No need to write that. Same for the survival fct. 6. P4 needs more paragraphs explaining/guiding the reader. Its hard to read a page of one equation – 1 sentence – one equation – 1 sentence – ... w/o any motivation for presenting these equations and why the matter for what you are trying to show (moreover, it just confuses the reader more because even until p4 it s not clear why we should care about all these formulas). 7. The entire p3 and p4 could summarized in one or two sentences with a references to papers showing these expectations, variances, pdfs, cdfs, ... or put it in the appendix – but not in the main text. 8. Provide a reference for equation (3) and eq (4). Section 2.0 Wang: 1. most integrals on the page are missing a closing	2. Noted and corrections are effected. 3. Noted. 4. Not necessary. 6. The introduction takes care of what the reviewer is asking for. However, the equations in the work are mathematically sound and do not need any more interpretation. 7. We don't quite agreed, it can be stated in that manner. 8. What the reviewer is demanding for is not necessary , otherwise, we should have provided all the references for every equation written. Section 2. 1. Is taken care of.
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	parenthesis. E.g, eq (5) should be $g(S(x)) dx$; now it is only $g(S(x) dx$. Please add a reference for where this formula for the 'preimum' comes from. - Eq(7) starts after a full stop. Sentences can't start with an equation, they must be incorporated in the sentence; please fix (also in other places equations are not made a natural part of the sentences, e.g., "For a random variable Z we have; [equation here]" – why do you put a ';'? this should just be a natural following: "... Z we have [equation here] .") - eq(8) has missing closing parenthesis for phi() 3.0 Cauchy: - the cauchy distribution is defined on (-infty, infty) not (-1, 1). also put references for these formulas. - Please put all these derivations in an appendix and only keep the relevant information for the reader of why this matters and how it relates to previous and future sections. - The auhtors mention "behave like risk-neutral prices" w/o references or what this actually means. You can assume that readers of your paper understand risk neutral prices and change of measures, but you still have to provide referneces and write a simple sentence introducing how this matters. - Eq(9) – references - before eq (10): you need to put references in parenthesis if they are not part of the sentence ("... we need to have (Schoutens, 2003) [equation].") - Please provide figures (plots) of your results	2. Is taken care of Section 3. See [11] and [14] 6. Are tables no longer relevant in journal articles? Other comments are taken care of in the manuscript.
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	rather than tables. Humans are not good at reading / understanding and getting the relevant information from tables that are more than 2 x 2. Let alone your 8 (!) tables that are each with at least 20 cells. Nobody can get any useful information out of this unless they spend several minutes/hours trying to follow whats going on – and even then readers would have to put it into a computer and plot these results to really see whats going on. Also note that you just put the tables there w/o any explanations! Either remove the table entirely or write at least 1 paragraph per table explaining why readers should care about them. As recommendation I suggest to use a ggplot() or lattice() like plot for all these tables. You can easily include all the information in your 8 tables in one plot (with different colors for different distributions; different facets for different strike prices; and different line types for different pricing models). See e.g., http://www.ats.ucla.edu/stat/r/faq/growth.htm or http://codealamode.blogspot.com/2012/02/trelis-graphs-in-ggplot2.html 1. You show plots of 3 samples of a Wang, Cauchy, Normal distribution. It is not clear to me what they should show us (again, you provide no explanation whatsoever). Besides these processes seem very (!) similar and w/o telling the reader it would not be obvious that there are any differences – they might as well be 3 samples	
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	from a Normal (or a Cauchy or a Wang). If that is the point of the figures (that the sample path look similar), then you need to emphasize/explain that. If they should be actually different then you need to provide better visuals (maybe simulate 1000 of each and show summary statistics that show how they are different (histograms/density plots of mean, variance, kurtosis, skewness, quantile ranges, ... for each). 4.0 Summary 1. "we observe in real capital markets". References! 2. "... fully established in the literature ...". References! General: 1. this paper is about simulations, yet the authors dont describe any simulation setup (number of samples, parameters, ...), software used, timings, etc. Also it would be helpful to include the code as a package (in Matlab or R or ...) so others can reproduce their results. 2. Can the same analysis be quickly simulated (without all the math / financial calculus derivations) for another heavy-tailed distribution? What would a reader have to know/havce other than a random number generator of his/her favorite distribution to simulate the distortion operators associated with them? 3. Also the simulations are based on 1 sample alone. You can't do statistics or meaningful comparisons on one sample. Please do a feasible	
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	simulation study with many samples (at least 100 each).	
7. <u>Minor</u> REVISION comments 8.		
9. <u>Optional/General</u> comments 10.		