

**To:** Joichi Ito [REDACTED]  
**From:** jeevacation@gmail.com  
**Sent:** Mon 1/13/2014 3:24:39 AM  
**Subject:** Re: Deceptive viruses and collapse in biological and financial networks

May is martins buddy. It does not understand , the effect of accounting changes, biology cannot be effected by the way we describe it .

Sorry for all the typos .Sent from my iPhone

On Jan 12, 2014, at 8:29 PM, Joichi Ito [REDACTED] wrote:

Begin forwarded message:

**From:** James Woodward Weis [REDACTED]  
**Subject:** Deceptive viruses and collapse in biological and financial networks  
**Date:** January 12, 2014 16:10:13 -0500  
**To:** Joichi Ito [REDACTED]

Dear Joi,

Thanks for taking the time to speak with me yesterday; your thoughts on the importance of recognizing and modeling deception were interesting—and, as always, I enjoyed diving into the philosophical and systems-level implications of evolution.

Regarding deception, I've attached the seminal paper on the CRISPR/Cas system—in which viruses invade bacteria by masquerading as endogenous DNA, the bacteria then endeavor to identify and remember these viruses, and the viruses respond in turn by 'shuffling' their DNA to again deceive the cell.

I've also attached a Nature paper that draws analogies between biological systems and financial networks. In the second section, they find that increasing homogeneity in banks (and species) minimizes risks for individuals, but increases the probability of a system-wide collapse—in agreement with your intuition. [Here](#) is a BBC Radio talk on the findings.

Thanks again for your time—would love to continue these discussions sometime in the future.

James

<barrangou-science-07.pdf>

<nature09659.pdf>

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Tips for mastering email overload - pls read -  
<http://hbswk.hbs.edu/archive/4438.html>

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