

Predicting financial crises in e-commerce

August 21 2023, by David Bradley



Credit: Pixabay/CC0 Public Domain

A study in the *International Journal of Computational Systems Engineering* has investigated the e-commerce landscape and how it is affected by financial crises. The insights from the study offer a financial accounting crisis early warning system that companies might use to predict and pre-empt economic turmoil.

The global pandemic underscored the vulnerability of businesses and economies, making the need for astute financial foresight more crucial than ever. Xiaoyang Meng of the Accounting Institute at Jiaozuo University in Jiaozuo, China, has looked specifically at the impact on

China and has devised a novel system that melds adaptability and prediction.

The approach uses partial least squares (PLS) analysis, a sophisticated data analysis technique, and integrates it with the backpropagation (BP) neural network. The model can then discern the indicators of impending [financial distress](#) within the e-commerce sector. Meng has demonstrated the model's proficiency on [historical data](#) for 11 financially sound enterprises and nine that were teetering on the brink of financial crisis and shown that the model could reveal the early signs of financial distress with an accuracy surpassing 90% and for some tests an accuracy of 98%.

The implications of this research may well be far-reaching. In an era where economic turbulence threatens the stability of even the most robust business, Meng's PLS-BP model offers a grounded means to identify an imminent crisis and so put in place strategies that might avert it.

Meng acknowledges that the model as it stands has some limitations. While the early detection methodology offers good levels of precision, it is essentially a static approach. To better navigate real-world financial ecosystems, she proposes the integration of the model with system dynamics theory. This could potentially then offer a dynamic [early warning system](#) capable of adapting to the ever-evolving intricacies of e-commerce.

More information: Xiaoyang Meng, Research on e-commerce neural network financial accounting crisis early warning model combined with partial least squares, *International Journal of Computational Systems Engineering* (2023). [DOI: 10.1504/IJCSYSE.2023.132913](https://doi.org/10.1504/IJCSYSE.2023.132913)

Provided by Inderscience

Citation: Predicting financial crises in e-commerce (2023, August 21) retrieved 29 April 2024
from <https://phys.org/news/2023-08-financial-crises-e-commerce.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.