MEDIA RELEASE

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'Smoke and mirrors' strategy costing Mum and Dad investors billions

New University of Newcastle research reveals families are in danger of losing thousands of dollars through incorrect investment advice.

University of Newcastle Laureate Professor Jonathan Borwein called for regulation of the financial industry and said financial advisors were fleecing Mum and Dad investors of hundreds of billions of dollars annually.

"Many financial advisors are incorrectly using a mathematical sounding quantitative financial strategy to give advice to small investors, which is costing them dearly," Professor Borwein said.

The perils of 'backtest overfitting' are analysed in the paper, *Pseudo-Mathematics and Financial Charlatanism: The Effects of Backtest Overfitting on Out-of-Sample Performance* published online in the prestigious American Mathematical Society's journal, NOTICES.

Director of the Priority Research Centre for Computer-Assisted Research Mathematics and its Applications (CARMA) at the University of Newcastle, Professor Borwein said 'backtest overfitting' was being misused in research and was dangerous for uninformed investors.

"Backtest overfitting is a 'smoke and mirrors' confidence trick. Advisors use simulations of historical performance to search for profitable investment – using these backtests to say to investors 'if you had allocated capital in this fund back then you would be positioned here now'," Professor Borwein said.

"Our research shows backtests are often inaccurate. Examining a huge number of past portfolios might seem like a good way to find the best future portfolio. However, if the number of portfolios tested is so large that it is out of balance with the number of years of data in the backtest, the portfolios that look best are actually just those that highlight extremes in the dataset.

"People can be easily misled into investing in strategies that appear to be mathematically sound and supported by an outstanding backtest."

Professor Borwein and his American co-authors, David H. Bailey, Marcos Lopez de Prado, and Qiji Jim Zhu proved high performance is easily achievable after backtesting a relatively small number of alternative strategy configurations. The higher the number of configurations tried, the greater the probability is that the backtest is overfit.

Financial analysts rarely report the number of configurations tried for a given backtest so investors cannot evaluate the degree of overfitting in most investment proposals.

Out-of-sample testing checks how well a strategy performs on data outside the original dataset but few investment companies and researchers do this. The authors also suspect that backtest overfitting is why so many algorithmic or systematic hedge funds do not live up to the elevated expectations generated by their managers.

"It's possible many fund managers unwittingly engage in backtest overfitting without understanding what they are doing, and their lack of knowledge leads them to overstate the promise of their offerings. Whether this is fraudulent is not so clear."

Professor Borwein said many investors, knowingly or not, were also misusing other mathematical techniques like probability theory and statistic and he believed the industry needs to be regulated.

"Regulating the financial industry will not be easy but it must be attempted."

For interviews please contact Professor Borwein on 02 4940 0877 or Kate Carragher, Media and Public Relations on 0410 528 314.

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T 02 4921 5577 **F** 02 4921 6400 **E** media@newcastle.edu.au