

The business brain

October 2 2013, by Christopher Niesche



Dr Elise Payzan-LeNestour. Credit: Grant Turner/ Mediakoo

Research in the field of neurofinance is showing that how our brains are wired may predetermine our financial success.

The key to survival is the ability to adapt and nowhere is this more critical than in the world of [finance](#). But why do some people cope better than others?

Rob Taubman, Executive Director of Equity Sales at investment bank UBS, advises analysts at large international funds on their investment choices.

"There's always something going on that's changing why you should be buying or selling something," he says.

In June, media giant News Corp split into a publishing arm (New News Corp) and an entertainment arm (Twenty- First Century Fox), and the two entities began trading on the Australian stock exchange. The publishing arm hit the market at around \$15, much lower than forecast by analysts and brokers.

At the close of business, New News Corp had traded up "completely outside of all the boundaries, all the realms, all the expectations", Taubman says. Yet most financial advisers simply took in the unexpected development and adjusted their behaviour accordingly.

For Dr Elise Payzan-LeNestour, a researcher and senior lecturer in finance at the Australian School of Business (ASB), such dynamic adaptability is not surprising.

Her work in the relatively new field of neurofinance has shown people are actually much better at learning from change than previously thought.

Different from behavioural economics – which examines factors other than the rational in economic [decision-making](#) – neurofinance seeks to understand the cognitive processes at work and combines research methods from neuroscience, experimental and behavioural economics and cognitive psychology.

To show how adaptable people are, Payzan-LeNestour devised a simple board game in which her subjects – all university students – were asked to allocate money to assets at six locations. Each of the assets produced a different return: a profit, a loss or nothing at all. Importantly, the returns were subject to rapid change.

"The players were pretty sophisticated in their learning abilities, which is at odds with the common belief in behavioural finance," she says.

Payzan-LeNestour suggests the reason her subjects did so well – while those in other cognitive tests traditionally did not – was financial incentive. Her participants could earn up to \$180 in half an hour – an attractive sum for a student.

"This is particularly relevant for realworld finance," she says.

Next, the researchers studied the machinery of the brain that allows people to detect regime shifts and adapt behaviour.

The brain findings are reported in the paper, *The Neural Representation of Unexpected Uncertainty During Value-Based Decision Making*, which Payzan-LeNestour wrote with colleagues Simon Dunne, Peter Bossaerts and John O'Doherty, from the California Institute of Technology.

Through brain imaging, the researchers found that a major neurotransmitter called norepinephrine signals to the brain that the world has changed and that relearning and adjustment is required.

"For survival, it's very important that the brain signals this to you," Payzan- LeNestour says. "This is the first real piece of evidence for this particular mechanism."

The part of the brain targeted is the prefrontal cortex – the region that initiates appropriate behaviour and controls impulses. Bursts of norepinephrine make us more attentive to the environment around us.

The findings are good news for practitioners. "For business decision makers who have to cope with unstable conditions all the time, it's good

to know our [brain](#) is geared to adapt," she says.

ASB colleague Professor Michael Aitken describes the research as "ahead of its time".

"If you can measure these things, you've got another way of beginning to work out what sorts of products [can be offered] to certain sorts of people," he says. "It could unlock a lot of secrets."

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