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Study: Older investors are prone to mental misfires while playing the market (w/ Video)

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Brian Knutson, associate professor of psychology and neuroscience

(PhysOrg.com) -- Brain scans highlight differences between old and young minds focused on investment choices.

Old age traditionally brings with it respect, experience and wisdom. But when it comes to making risky financial investments, an older mind is likely to make more mistakes than a younger one, Stanford psychologists say.

In a paper published this week in the *Journal of Neuroscience*, the researchers show that older investors make more errors when picking stocks compared to younger people playing the market. And that's not because of senility, memory lapses or other cognitive declines often associated with growing older.

Instead, the problem rests with a senior's ability to estimate value.

After having 54 men and women between the ages of 19 and 85 play an investment game while their brains were being scanned, the researchers found that older subjects were more prone to mental misfires while deciding to invest in one of two stocks.

Functional magnetic resonance imaging results showed that greater variability or "noise" in a subcortical region of older people's brains was related to making the investment mistakes. This subcortical region - the nucleus accumbens - is critical for evaluation, while higher cortical circuits are more important for storing symbolic information like numbers and words.

"When we looked at their neural activation we didn't see problems in memory circuits, but we saw a noisier signal in value circuits," said Brian Knutson, associate professor of psychology and neuroscience.

Knutson conducted the research with fellow Stanford psychologists Gregory Samanez-Larkin and Daniel Yoo, along with Camelia Kuhnen, assistant professor of finance at Northwestern University's Kellogg School of Management.

Their subjects played a game in which they repeatedly chose to invest in either stocks or bonds. Some of the stocks performed well and had positive earnings over time, while others performed poorly.

The study showed that older people were just as willing as younger investors to make the riskier choice of buying stocks instead of bonds. But the seniors more frequently picked the stock with worse performance, usually because they made their choices before having a full picture of the stock's ups and downs.

While 20-year-olds made those mistakes 20 percent of the time, 80-year-olds made the errors 30 percent of the time.

The older subjects didn't seem to forget information about a company's gains and losses when it came time for them to pick a stock. Instead, their brain signals seemed to wander more while they were making their decisions.

"We don't know what causes the noise," Knutson said. "The subjects might have been thinking about their grandchildren or something else of value. The problem is that this signal variability may be leaking into the financial risk-taking task at hand."

As life expectancies increase and more seniors play the stock market, the Stanford team's findings could be used to help older investors make the best decisions with their money.

"By identifying the psychological processes that are being disrupted in older people, we may be able to target interventions that improve these brain signals," Samanez-Larkin said.

More information: Journal paper: www.jneurosci.org/cgi/content/full/30/4/1426

Provided by Stanford University

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