

Scholar looks to genes to make sense of the dollars you invest

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Credit: AI-generated image ([disclaimer](#))

(Medical Xpress)—Researchers say how much risk you're willing to take in your investments may be linked to genetics. The results may help investors understand how emotions affect their choices.

If you get \$10,000 to invest, where would you put it? Stocks? Bonds? A

savings account?

Your choice may be guided by more than your financial savvy. It could be in your genes.

New research shows a correlation between [genetic variation](#) and [financial risk](#)-taking. Scientists found that at the prospect of a making an investment, people who have a certain combination of anxiety-generating genes worry, and that worry leads to safer choices.

Stanford psychology Associate Professor Brian Knutson studies how emotions influence decisions. In 2005, Knutson and Stanford Graduate School of Business student Camelia Kuhnen mapped out the [brain regions](#) that activated in the face of a [risky decision](#). In 2009, Kuhnen, now an associate professor of finance at Northwestern University, linked financial risk-taking to [two genes](#) that regulate the "feel-good" neurotransmitters serotonin and dopamine.

Kuhnen and Knutson's new paper, co-authored by Gregory Samanez-Larkin of Vanderbilt University and published recently in *PLoS ONE*, explains how a serotonin gene connects to real-life [financial decisions](#). The link, they write, is a person's level of "neuroticism."

Neuroticism, also called "negative affect," is the trait of worriers.

"They tend to always think about the downside of things, always tending to worry about what could go wrong instead of what could go right," Kuhnen said.

The [serotonin](#) gene is called 5-HTTLPR and comes in two varieties: short and long. Everyone has two copies, or alleles, of the gene, and individual combinations of short and long alleles are called genotypes. Those with two short alleles, the researchers found, displayed more

neurotic traits, as measured by an objective psychological assessment.

The researchers asked 60 volunteers from the Bay Area to divvy up \$10,000 among three investment options: stocks, bonds or cash. On average, study participants with two short 5-HTTLPR alleles kept 24 percent more of that money in cash than did the two-long-allele carriers, who put more money in stocks.

Knutson and his colleagues had previously measured participants' financial literacy, cognition and income level, but those factors didn't explain the variation in investment strategy. Could the gene explain the variation?

"We found that it did," Knutson said.

Given neurotic participants' propensity to avoid risk, Kuhnen hypothesized that they would react just as strongly to a negative outcome. In unpublished research, Kuhnen watched how participants' brains reacted during a game in which they learned, by trial-and-error, which of two options carried greater financial risk. Short-allele carriers displayed heightened anxiety before making a decision, but reacted no differently than long-allele carriers when they saw a negative outcome.

"The difference between these people is not about how they react to outcomes," Kuhnen said. "It's about how, before the choice, they think about the decision."

So don't worry so much about the worst possible outcome.

"Take a step back," Kuhnen said. "Ask yourself – really, how bad would it be?"

Not all study participants behaved exactly as their genes would predict.

Don't rush out to determine whether you (or your employees) have short or long 5-HTTLPR [alleles](#), the team said. The only reason to know, Knutson said, is to understand how your emotions affect your decisions.

"You're not a slave to your genotype," he said. "If you understand how it's influencing your behavior, then you have a shot at changing that behavior."

More information: [www.plosone.org/article/info:doi ...
journal.pone.0054632](http://www.plosone.org/article/info:doi/10.1371/journal.pone.0054632)

Provided by Stanford University

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