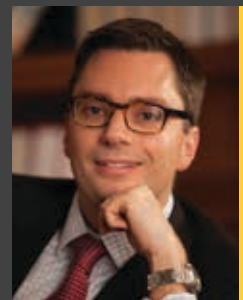


# Nature, nurture, and financial decision-making

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Why are some people so frugal that they bring their lunches to the office every day, while others think nothing of sipping a flat white every morning at an upscale coffee shop? Why do some investors accept the risks of stock investments and putting money in risky emerging markets while others prefer the relative safety of keeping their savings in a bank account or in a money market fund?

My research team and I set out to explain how much of this striking variation in savings and investment behaviour across people can be attributable to our genes, to parenting, and to other environmental factors. In order to assess how much genetic predispositions affect people's financial decision-making behaviour, we analyzed data on more than 50,000 twins from the world's largest twin registry, the Swedish Twin Registry (STR), matched with unusually detailed personal financial data on these individuals' investment portfolios from the Swedish Tax Agency.

The scientific methods we employed to study these questions have previously been used extensively by psychologists to understand to what extent personality traits are genetically determined or a function of the environment. This is an integral part of the so-called "nature versus nurture" debate among social scientists. Our set of studies is among the very first to bring these ideas into research related to finance.

The general approach of twin studies is straightforward. Identical twins share 100% of their genes while pairs of fraternal twins share only 50% of their genes. We may therefore compare the similarities in savings and investment behaviour of identical versus fraternal twins. If the behaviour of identical twins is found to be significantly more similar compared to that of fraternal twins, then there is evidence that the behaviour is at least partially caused by our genes in contrast to environmental factors.

In our first study, we analyzed variation in savings behaviour, i.e., how much people choose to save for the future rather than consume now. Many countries transition away from traditional pension plans to so-called defined contribution plans and private retirement accounts (such as Superannuation Accounts in Australia), so employees are becoming more responsible for their own savings. This worldwide trend is one reason why it is important to better understand the origins of people's savings behaviour.

Among our findings are:

- We are born with a genetic predisposition towards a specific savings behaviour. That is, being frugal or somewhat of a spendthrift is partly determined by our DNA.
- The study controlled for differences in income, education, and a host of other individual characteristics. As a result, the conclusion is that two different people with identical incomes and education behave differently in terms of their personal saving rates because of genetic factors, and not because of other individual factors.
- Parenting does contribute to our savings behaviour when we are young, by parents teaching (or not) their children the benefits of savings. However, as we reach middle-age, parenting no longer has any strong influence and we tend to either fall back on what we are genetically programmed to do or are influenced by other environmental factors than parenting.
- The differences in savings behaviour are partly attributable to genetic differences in self-control. Smokers, and those who are overweight, may have less self-control (or simply value the present more highly than the future), and this trait was found to carry over into people's savings behaviour as well.

In another study, we investigated what we refer to as a list of investment biases. It has long been known that investors display a disposition effect, meaning that they are reluctant to realize losses on their poor stock investments. If you buy a stock for 100 dollars, and it loses 20 dollars in value, you are much less likely to sell it compared to if you have gained 20 dollars on your investment. This behaviour is attributable to a phenomenon psychologists call "loss aversion." This behaviour is so strong that it has also been observed in species related to humans, such as monkeys, a hint that this behaviour may have genetic causes.

Another strong investment bias is the so-called home bias, i.e., Americans tend to invest most of their money in U.S. stocks, Australians tend to invest most of their money in Aussie stocks, and so on. People also tend to be overconfident about the value of any information they have about stocks, resulting in excessive buying and selling of stocks. A final investment bias we analyzed is that people often chase past performance even when there is no indication it will be replicated in the near future.

Our findings show that we, as human beings, are hard-wired with a predisposition to these behaviours. Up to 45% of the variation across people in terms of investment biases can be



explained by various genetic factors. That may explain the prevalent and pervasive nature of such investment biases.

If these investment biases are genetically induced from birth, it is an interesting question whether these innate tendencies are reduced by certain circumstances. We therefore studied the role of education, meaning the number of years of schooling, but did not find that education reduces genetic predispositions to investment biases. That is, a medical doctor is as prone to genetic investment biases as your plumber. What does reduce genetic predispositions to investment biases, however, is professional work experience in the area of finance.

Because we are hard-wired with these investment biases, some of which may lead to less than rational investment behaviours, does that mean that we are “doomed” in the sense that we cannot do anything about it? This is not the right perspective and to understand why, it may be useful to think about eyesight and eyeglasses as a parallel: Eyesight is highly genetic but that does not mean that someone with poor eyesight is “doomed” – it may be corrected by prescription eyeglasses.

In the investment domain, people exhibit these investment biases so any policy initiatives should assume that people behave in this less than rational manner. Take the example of performance chasing. People tend to display extrapolation bias and therefore perceive good past returns to continue in the future. Our findings suggest that this behaviour cannot be easily eradicated by education. So a concrete policy implication is to make past performance of different investment alternatives less salient if a policy maker wants to avoid such performance chasing tendencies to influence people’s portfolio choices.

As is always the case, there is another side of the same coin. Fund managers who want to attract flows of money may choose to highlight superior past performance because people will inevitably pay attention to it, even if it comes with the standard caveat that “past performance does not guarantee future returns.” It should therefore come as no surprise to us that so much advertising among mutual fund managers emphasize past track record, an attribute that clients are hard wired to pay attention to.

In our most recent study, we examine the notion of “value” versus “growth” investing, which has a long history in the finance industry. In fact, financial data provider Morningstar.com report that there are some 2,050 different value funds to choose from, while 3,200 funds carry a growth label. So why, then, do some people prefer value funds, but others like growth funds?

There exists plenty of case-based evidence on this issue. Some have speculated that Benjamin Graham became the “father of value investing” because he grew up very poor, his father passing away when he was young, and his mother losing all the family’s savings in the Panic of 1907. Among his brothers, Benjamin was tasked with bargain hunting at different grocery stores, and perhaps applied the same principles later in life when picking stocks. Famous value investors like Warren Buffet have also speculated that value versus growth investing is something you are either born with or not. Another billionaire value investor, Seth Klarman, suggested in an interview with Charlie Rose in 2011 that “I actually think there’s just a gene for this stuff, whether it’s a value investing gene or a contrarian gene.”

Among the findings:

- An investor’s value or growth style is determined by both genetic and environmental factors.
- Those who grew up during the Great Depression show significantly more value-orientation in their stock portfolios several decades later in life.
- Those who entered the job market for the first time during an economic downturn are more likely to be value-oriented investors later in life.
- Those who grew up with a lower socio-economic status have a stronger value orientation later in life.

Following the recent global financial crisis, many young individuals have experienced tough economic times. Our results suggest that this generation will be coloured by these experiences and have more of a value-oriented investment style. This may actually not be all that bad because value investing has in the past produced superior returns compared to growth investing.

These studies summarized in this article have been published in leading scientific journals for research in economics and finance and are available for download:

“The Origins of Savings Behaviour” by Henrik Cronqvist and Stephan Siegel, 2015, published in *Journal of Political Economy* 123, pp. 123-169.

[www.ssrn.com/abstract=1649790](http://www.ssrn.com/abstract=1649790)

“The Genetics of Investment Biases” by Henrik Cronqvist and Stephan Siegel, 2014, published in *Journal of Financial Economics* 113, pp. 215-234.

[www.ssrn.com/abstract=2009094](http://www.ssrn.com/abstract=2009094)

“Value versus Growth Investing: Why Do Different Investors Have Different Styles”, by Henrik Cronqvist, Stephan Siegel, and Frank Yu, 2015, accepted for publication in *Journal of Financial Economics*.

[www.ssrn.com/abstract=2351123](http://www.ssrn.com/abstract=2351123)