

Why do we buy insurance?

Loss aversion, explained.

Bias

What is Loss Aversion?

Loss aversion is a cognitive bias that describes why, for individuals, the pain of losing is psychologically twice as powerful as the pleasure of gaining. The loss felt from money, or any other valuable object, can feel worse than gaining that same thing.¹ Loss aversion refers to an individual's tendency to prefer avoiding losses to acquiring equivalent gains. Simply put, it's better not to lose \$20, than to find \$20.

Where this bias occurs

Loss aversion is common in cognitive psychology, decision theory, and behavioral economics. In our everyday lives, loss aversion is especially common when individuals deal with financial decisions and marketing. An individual is less likely to buy a stock if it's seen as risky with the potential for a loss of money, even though the reward potential is high. Notably, loss aversion gets stronger in individuals as the stakes of their choice grow larger.²

Additionally, marketing campaigns such as trial periods and rebates take advantage of an individual's tendency to opt into a presumed free service. As the buyer incorporates that specific software or product into their lives, they are more likely to purchase it, as they want to avoid loss they will feel once they give up the product. This tends to happen because scaling back, whether on software trials, expensive cars, or bigger houses, is an emotionally challenging decision.

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Individual effects



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THIS BIAS OCCURS Loss-aversion is particularly common concerning how we spend and manage our own money. Financial decisions can be particularly impactful to our lives, and if an individual cannot make sound, calculated decisions with their finances, their choices can be detrimental.

Systemic effects

Loss aversion can prevent individuals, corporations, and countries from making riskier decisions to address complex challenges. Though risk-aversion is important, it can also prevent the implementation of innovative, and partially riskier solutions.

Loss aversion can prevent decision-making on innovative ideas, which seem riskier, but could provide unique solutions to unprecedented challenges. Before COVID-19, Brazil was known worldwide for its innovative tactics for solving pandemics. Compared to other more prosperous states, the country faces unique constraints involving poverty and government funding when attempting to contain pandemics. That being said, their solution to Zika, yellow fever, and dengue, all transmitted through mosquitoes, was done through genetically engineering the same species of mosquito, to prevent the spread of the viruses. The mosquitoes were genetically modified to be all-male, not bite, and carry a self-destructive gene that causes them to die along with all their progeny.³ This novel method was an extremely risky operation for Brazil to undertake, one which would have cost the country and its citizens if not successful.

The operation was successful, reducing mosquito larvae by 82% a year after the genetically modified mosquitoes were released, and resulting in a 91% drop in dengue fever.⁴ If the country's epidemiologist and politicians had had a higher level of loss aversion, they might have never taken on this initiative and found this unique solution to a global problem.

Oxitec, a company that provided Brazil with mosquito technology, has created a solution which is both more effective and more eco-friendly than other traditional methods, such as insecticides. Unfortunately, more risk-averse nations, such as European countries, continue to lag in comparison to nations like America and China.⁴ Even though European countries would greatly benefit from similar technologies to address challenges with crop pests, insecticides are still commonly used. Within the agriculture sector, Europe typically has a more conservative approach, with outdated regulations. This conservative nature has led to their lag in the sector, and their hesitation to adopt new technologies. Loss aversion within their decision making bodies has potentially prevented European nations from trying new and emerging technologies, due to the fear of risk and loss⁴.

Why it happens

Loss aversion is caused by a mixture of our neurological makeup, socioeconomic factors, and cultural background.

Our brains

Three specific regions of the human brain become activated in situations involving loss aversion.

The amygdala is the part of our brain which processes fear. For example, the amygdala creates an automated, pre-conscious sense of anxiety when we see a snake. The reaction we experience with loss and this part of our brain is similar to our brain's response to when we react to airplane turbulence or a spider, meaning fear and losses are closely related.⁵



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avoid losses in the future.

Finally, our brain's insula area reacts to disgust and works with the amygdala to make individuals avoid certain types of behavior. Neuroscientists have noted that the insula region lights up when responding to a loss. The higher the prospect of loss, the more activated the insula becomes compared to an equivalent gain.⁷

Though there are many other aspects of the brain that contribute, these three regions are significant when processing a loss and add to how individuals respond to these losses. Depending on the strength of these regions, individuals may be more or less loss averse.⁵

Socio-economic factors

Socio-economic factors also play an essential role in human's and their disposition to loss aversion, with social hierarchy proving to be a good indicator of an individual's level of loss aversion. Ena Inesi, an Associate Professor of Organizational Behavior at the London School of Economics, found that people in power are less loss averse.⁸ This is because powerful individuals are typically in a better position to accept a loss if it should incur, due to their wealth and network⁸. As a result, these individuals give less weight to losses than the average person, as its losses are a less risky endeavor for them. It has also been proven that powerful and wealthy individuals give more value to gains than non-powerful people⁸.

Wealth, similar to power, also plays a role in an individual's loss aversion. Like powerful people, wealthy people typically have an easier time accepting losses they incur. An interesting caveat regarding wealthy people and their loss aversion levels involves their social environment. A study done in Vietnam revealed that wealthier villages were less loss-averse than poor villages. But, wealthy individuals, who lived in poor environments, were more likely to be loss averse than a poor individual who was to live in an affluent village⁹.

Thus, an individual's socioeconomic status and environment prove to be very influential in regards to their level of loss aversion. Individuals with a higher mean income, situated in wealthier villages, were found to be less loss-averse⁹. Additionally, wealthy individuals or powerful individuals were more willing to take on risk⁸. These socioeconomic combinations of traits all influence an individual's loss aversion, and willingness to take on risk when decision-making.

Culture

Cultural background has been linked to how loss-averse an individual may be. A study conducted by Dr. Mei Wang surveyed groups from 53 different countries to understand how different cultural values affect an individual's perception of losses compared to gains.¹⁰ The group discovered that people from Eastern European countries tended to be the most loss averse, with individuals from African countries being the least loss averse.

One explanation for this variation among cultures and loss aversion can be linked to collectivist vs. individualist cultures. Those from collectivist cultures were more likely to have more and closer social connections, meaning that if they made a poor decision and incurred loss, these individuals would have support from their friends, family, and community.¹¹ This support system helped individuals take risks without feeling losses as intensely. Inversely, those from individualistic cultures didn't have the same social safety net as their collectivist counterparts.

Why it is important



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How to avoid it

Loss aversion is a natural human tendency that exists to keep us from incurring losses. That being said, it's essential to avoid loss aversion and its influence on decisions, especially when making decisions with potential gains.

Framing

The way a transaction is framed can significantly influence an individual's perception of loss aversion. Framing a question as either a loss or a gain can change an individual's response or decision.¹² When faced with a decision that could be influenced by loss aversion, try framing the question differently to highlight and potential gain of a transaction.

Putting Loss into Perspective

A simple way to tackle loss averse is to remind ourselves to ask what the worst outcome would be if the course action was taken. Usually, this helps individuals put loss, and the strong associated feelings of loss into perspective and better rationalize if it's worth making a decision or not.

How it all started

Loss aversion was first identified and studied by cognitive mathematical psychologist Amos Tversky and his associate Daniel Kahneman.¹ The term was first coined in 1979 in a landmark paper on subjective probability, but was more notably described in 1992 when the researchers outlined a critical idea behind the bias: People react differently to negative and positive changes. More specifically, their research demonstrated that losses are twice as powerful compared to their equivalent gains, a foundational concept of prospect theory.¹³

Prospect theory describes how individuals choose between options and how they estimate the perceived likelihood of different options. For example, individuals would instead agree to pay for a likely, smaller cost than a potentially much less likely cost. This is due to loss aversion in an individual's attempt to avoid financial risk.

Example 1 - Insurance

Loss aversion is commonly used by companies and organizations when trying to sell their products. Used to their advantage, loss aversion is used to persuade potential buyers to purchase their products and make certain decisions.

This is seen with insurance companies whose business models rely on individuals' need for security and their desire to avoid losses and risk. On insurance websites, there is typically a long list of unlikely and costly outcomes that individuals may encounter if not insured.¹⁴ The use of common lists that detail unfortunate and unlikely events are used to prime us towards recognizing losses and wanting to avoid them. Additionally, these large insurers want individuals to focus on significant and looming potential losses while forgetting the small and constant payments they would need to commit to in order to get insurance coverage. In this example, loss-aversion can explain the need to commit to insurance plans, even if the losses outlined in the plans are unlikely to occur.



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aversion, it can be assumed that an individual will more heavily weigh potential costs and failures than potential benefits and rewards, especially when it comes to managing their own money.

Regarding making investment decisions, an individual typically focuses on the risk associated with an investment rather than the potential gains. A common philosophy among stock traders is that once you've sold the stock, you shouldn't check up on it anymore. This is often said because many individuals become hyper-focused on investments that lose money while ignoring investment decisions that make money.

Furthermore, this obsession with preventing loss can be seen when an individual is deciding whether to sell their house below the value they purchased it. Even though selling at that moment may be the best option and the largest amount an individual will receive for their purchase, people may be unwilling to make that financial decision as they perceive it as an overall loss.

Another example of loss aversion concerning financial decisions and behavioral economics can be seen in cases of groceries and the price sensitivity of individuals. Dr. Daniel Putler's 1992 study on behavioral economics looked at the price of eggs and demand change. Between July 1981 and July 1983, Putler's team noted that when there was a 10% increase in the price of eggs, the demand for eggs, in turn, dropped 7.8% due to the price increase. In contrast, when there was a 10% decrease in the price of eggs, the rise in demand was only 3.3%. This study exemplifies an individual's price sensitivity regarding their loss aversion, with individuals influenced by potential losses more than potential savings.¹⁴

Summary

What it is

Loss aversion is a cognitive bias, which explains why individuals feel the pain of loss twice as intensively than the equivalent pleasure of gain. As a result of this, individuals tend to try to avoid losses in whatever way possible.

Why it happens

Loss aversion is a natural human cognitive bias, and is a result of many factors, including, but not limited to: an individual's neurological makeup, their socioeconomic status, and their cultural background.

Example 1 – Insurance companies use loss aversion as a business model

Insurance companies try to attract new customers by demonstrating the many potential and costly losses an individual can incur in their life. To avoid these losses, an individual would rather pay a small and consistent fee, seen in most insurance companies and their business models.

Example 2 – Why loss aversion prevents us from taking financial risks

Loss aversion is common in many instances of financial decision-making. When making investment decisions, selling assets, or purchasing groceries, loss aversion influences individuals and their fear of losing money.

How to avoid it

Loss aversion can be avoided by re-framing the question of loss when making decisions, identifying worst-case scenarios, and rationalizing those decisions.



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This article describes research on loss aversion, and its use in reducing plastic bags in the environment. The study conducted in the article tested the theory of loss aversion by assessing whether charging a tax had a more significant impact on plastic bag reduction than offering a bonus of the same amount. Plastic bag sales declined by 42% after the tax was implemented but did not change with bonus treatment, consistent with the loss aversion model.

Loss aversion and Carbon Pricing

This article outlines consumer responses and attitudes towards carbon pricing policies, and the role of loss aversion in framing experiments focused on carbon pricing policy. It was found that framing consumer tax reimbursements as an incentive increased the positive feelings towards the policy.

Sources

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1. Kahneman, D., & Tversky, A. (1977). Prospect Theory. An Analysis of Decision Making Under Risk. doi:10.21236/ada045771
2. Tay, Shu Wen; Ryan, Paul; Ryan, C Anthony (2016-10-18). "Systems 1 and 2 thinking processes and cognitive reflection testing in medical students". *Canadian Medical Education Journal*. 7 (2): e97–e103. ISSN 1923-1202. PMC 5344059. PMID 28344696.
3. Stein, R. (2016, March 25). How Could Releasing More Mosquitoes Help Fight Zika? Retrieved from <https://www.npr.org/sections/goatsandsoda/2016/03/25/471304974/how-could-releasing-more-mosquitoes-help-fight-zika>
4. Fernández, C. R. (2019, September 02). New Results Show GM Mosquitoes Keep Dengue and Zika at Bay in Brazil. Retrieved July 20, 2020, from <https://www.labiotech.eu/medical/oxitec-dengue-zika-brazil/>
5. Hendricks, K. (2018, September 14). What causes loss aversion? Retrieved July 20, 2020, from <https://kenthendricks.com/loss-aversion/>
6. Canessa, N., Crespi, C., Baud-Bovy, G., Dodich, A., Falini, A., Antonellis, G., & Cappa, S. F. (2017). Neural markers of loss aversion in resting-state brain activity. *NeuroImage*, 146, 257-265. doi:10.1016/j.neuroimage.2016.11.050
7. Canessa, N., Crespi, C., Motterlini, M., Baud-Bovy, G., Chierchia, G., Pantaleo, G., . . . Cappa, S. F. (2013). The Functional and Structural Neural Basis of Individual Differences in Loss aversion. *Journal of Neuroscience*, 33(36), 14307-14317. doi:10.1523/jneurosci.0497-13.2013
8. Inesi, M. (2010). "Power and Loss aversion." *Organizational Behavior and Human Decision Processes*, 112, 58–69
9. Tanaka, T., Camerer, C., and Nguyen, Q. (2010). "Risk and time preferences: Linking experimental and household survey data from Vietnam." *American Economic Review*, 100 (1), 557–71.
10. Wang, M., Rieger, M. O., & Hens, T. (2016). The Impact of Culture on Loss aversion. *Journal of Behavioral Decision Making*, 30(2), 270-281. doi:10.1002/bdm.1941
11. Bontempo, R. N., Bottom, W. P., & Weber, E. U. (1997). "Cross-cultural differences in risk perception: A model-based approach." *Risk Analysis*, 17(4), 479–488.
12. Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All Frames Are Not Created Equal: A Typology and Critical Analysis of Framing Effects. *Organizational Behavior and Human Decision Processes*, 76(2), 149-188. doi:10.1006/obhd.1998.2804
13. Tversky, A., & Kahneman, D. (2000). Advances in Prospect Theory: Cumulative Representation of Uncertainty. *Choices, Values, and Frames*, 44-66. doi:10.1017/cbo9780511803475.004
14. Putler, D. S. (1992). Incorporating Reference Price Effects into a Theory of Consumer Choice. *Marketing Science*, 11(3), 287-309. doi:10.1287/mksc.11.3.287



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