

# How Cultural Differences Influence Individuals' Predisposition to Loss Aversion

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## ABSTRACT

Loss aversion, the natural human tendency to assign a higher sensitivity to losses than equivalent gains, is a cognitive bias whose potency is governed by a number of cultural variables. In this literature review, we survey the varying significance of individualism, masculinity, uncertainty avoidance and power distance on loss aversion, hypothesizing that they are all independently positively correlated. This review finds individualism to be the most indicative of loss aversion, while the respective effects of the other three factors, while generally agreed to function as posited by our hypothesis, require further research for conclusive results. In order to reduce the prevalence of loss aversion at a societal level, the implementation of social (i.e. collectivist) safety nets – support from dependable networks (whether family or friends) – is helpful. On an individual level, engaging in cognitive reappraisal, namely dismissing subjective emotions for a more detached and objective perspective, is efficacious.

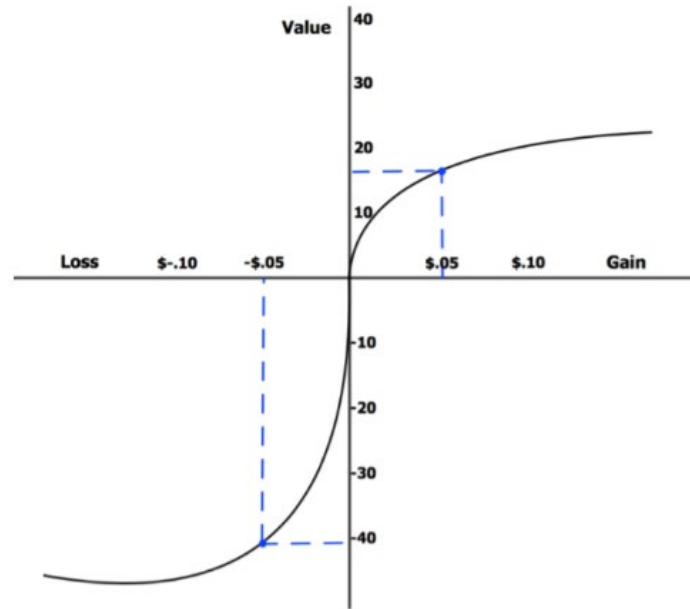
## Introduction

Loss aversion is a cognitive bias that lends individuals a higher sensitivity to losses than equivalent gains - the pain of losing has approximately double the psychological impact as the gratification from winning (Tversky & Kahneman, 2020) (Figure 1). This phenomenon can be explained from an evolutionary standpoint: "when one's survival is at risk, marginal losses prove more critical for reproductive success than marginal gains", (Klaus, 2020). Within this paper, we investigate how loss aversion affects financial decisions across different countries in individualist and collectivist cultures, comparing the effect of their contrasting beliefs and interpersonal relationships. We explore the "cushion hypothesis", emotion regulation and investigate the correlation of masculinity, power distance, and uncertainty avoidance with loss aversion, hypothesizing that they are all, along with individualism, positively correlated. We hypothesize that collectivist cultures are less prone to loss aversion because of stronger social networks and support structures. One reason is that the financial wellbeing of an individual's community is likely to be of greater significance than their own with regard to loss aversion.

## Cushion Hypothesis

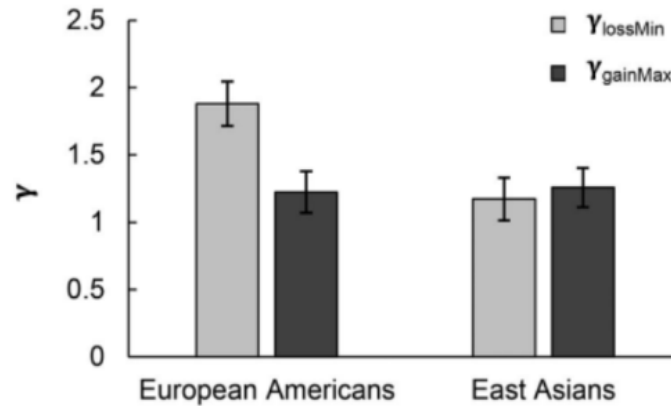
The distinction between collectivistic and individualistic cultures rests in their contrasting outlooks on an individual's responsibility to their community. Within a collectivist society, there is less emphasis on the success of the individual: a strongly cohesive group is valued more highly than any individual achievement. Values important to a collectivist society are "cohesion, harmony, duty, interdependence, achievement of group goals, and conflict avoidance" (Alsayed 2023). The "cushion hypothesis" (Hsee and Weber, 1999) posits that social support within collectivist societies reduces the gravity of possible financial losses for individuals as they are likely to receive help from the collective, thus cushioning the blow and lessening the impact of loss aversion (Figure 2). Hsee and Weber (1999) mention conducting a linear regression analysis to examine the relationship between culture and risk. In the study, they operationalized

“risk appetite” by using a self-reported score for different scenarios. The scores ranged from 1 to 100 (1 perceived no risk and 100 perceived maximum risk). They estimated the population mean “risk appetite” to be lower for Chinese subjects than American subjects, implying that Chinese individuals have lower perceived risk on average. Additionally, they conducted subject specific regression in which each individual was given a set of options of varying risk and asked to associate a price. Because observations were reported clustered “with-in” subjects (each subject given multiple questions), the “between” variation in “culture” is factored out from the inference. Under this analysis, they found the relationship between price and risk perception with-in an individual was not dependent on being Chinese or American.



**Figure 1.** Loss aversion graph. The x-axis represents monetary gains and losses while the y-axis represents the value placed on the amounts. The gradient sharply slopes downward after passing through the origin to the bottom-left quadrant of the graph, meaning incremental losses correspond to significantly greater value differences than the equivalent gain. It can be seen that a gain of \$0.05 dollars is assigned by individuals a value of around 16 whereas the equivalent loss is assigned by individuals a value of around 41. The phenomenon whereby the pain of losing has double (in this case more than double) the psychological impact as the gratification from winning is therefore displayed clearly on this graph. *Source:* Kahneman & Tversky (1979)

In contrast, individualistic cultures prioritize the individual over the group with far less regard to the community as a whole. The absence of a safety net means individualism is positively correlated with loss aversion: the individual is responsible for herself with outside help being far less likely should losses occur. That being said, corporate finance scholars (Li et al., 2013, Ashraf et al., 2016) argue that corporate managers within individualistic cultures are more confident and so take greater risks than managers in collectivist societies, adhering to the "tough guy hypothesis" rather than the "cushion hypothesis". Specifically, Ashraf et al, 2016 analyzed the relationship between four cultural dimensions and bank risk taking across countries using adjusted ordinary least squares regression. They found that countries with higher levels of “individualism” had greater risk-taking within their banks. Nevertheless, Illiashenko (2019), having used regression techniques to understand the cumulative evidence from both streams of literature, indicates that individual risk taking is negatively correlated with individualistic cultures, and thus reinforces the "cushion hypothesis".



**Figure 2.** Bar chart of risky gambling preferences. They conducted an experiment whereby two groups of people, European Americans and East Asians completed this task. The y-axis represents the prevalence of loss minimization (light gray bars) and gain maximization (black bars). Both groups placed roughly the same importance on gain maximization. However, European Americans were significantly more concerned with loss minimization - their level of loss minimization being around 1.8 while the East Asian's were at only 1.2. *Source:* Chen, Ba and Kwak (2020)

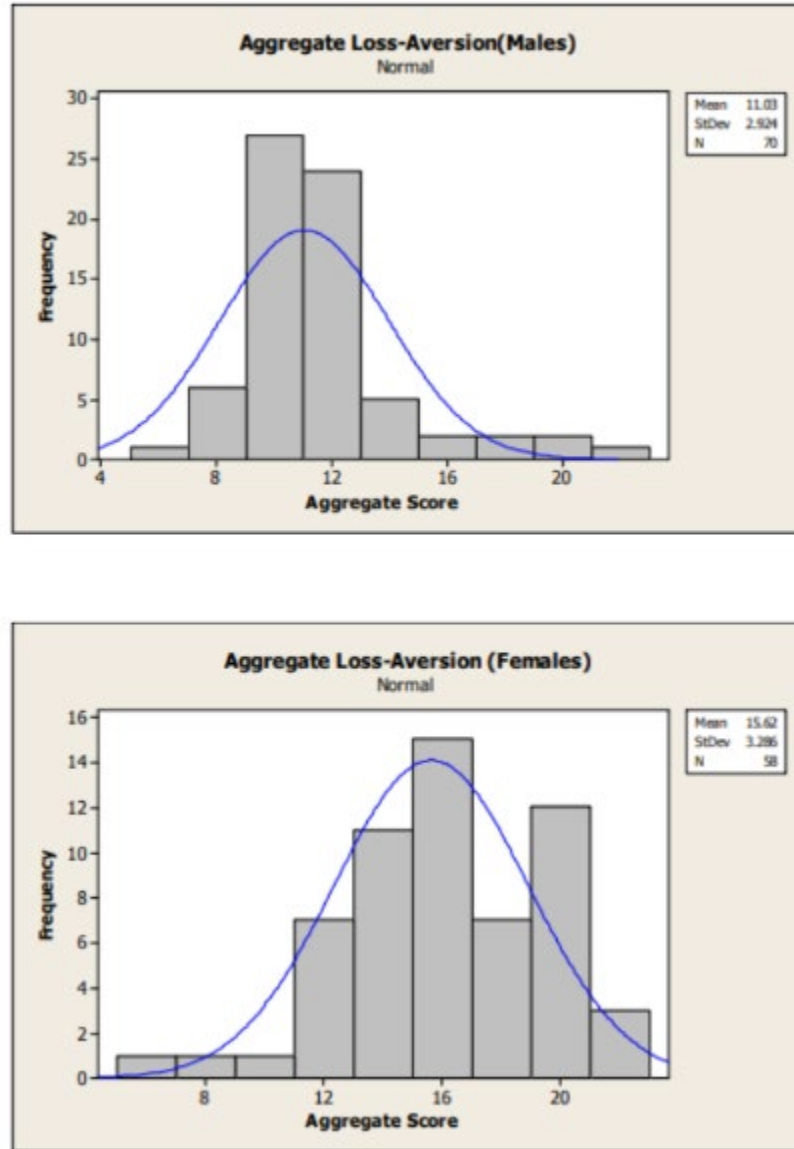
## Masculinity and Emotion Regulation

Emotion is critical to the decision-making process with regard to loss aversion. (De Martino et al., 2010; Sokol-Hessner et al., 2009). Three regions of the brain - the amygdala, striatum and insula which process fear, prediction, and disgust respectively - are activated upon confronting situations inciting loss aversion. Emotion regulation techniques such as cognitive reappraisal (disallowing oneself to be immersed in intense emotions and taking a more detached perspective on a situation) can reduce the relative arousal of these brain regions and consequently reduce loss aversion itself (Peter Sokol-Hessner et al., 2012).

Evidently, different cultures have varying strategies and techniques to regulate their emotions. It therefore follows that the effectiveness of these techniques will have an unmistakable bearing on loss aversion. Countries high in masculinity (MAS), as defined by Wang et al., 2017, place lower value on emotion regulation, and consequently suffer from this cognitive bias. This is because in high MAS cultures more reference is paid to ego goals such as career advancement and wealth (Hofstede 2001). In these cultures with high expectations, there is less inclination to concentrate on reappraisal. Hence, as dictated by the results from Wang et al., 2017, masculinity correlates positively with the prevalence of loss aversion. Notably, they find that it is the country's average level of masculinity that determines sensitivity to loss aversion.<sup>1</sup> Therefore, it is solely the societal value of masculinity rather than an individual's biological gender that prompts behavioral differences, at least when considering the effect of masculinity on loss aversion. Thus, these results do not contradict previous studies evidencing that women are more loss averse than men (Brooks et Zank, 2005; Schmidt et Traub, 2002) (figure 3) but echo the positive correlation between masculinity and loss aversion.

<sup>1</sup>Specifically, they used a two level model with clustering at the country level to understand the relationship between culture and loss aversion. Because cultures within a country should be correlated, accounting for this clustering is important to derive unbiased inferences. Operationally, each country has a mean "loss aversion" score from which cultures within a specific country deviate. For example, the United States has an average "loss aversion" score which varies from the overall "loss aversion" score across all countries. Average "loss aversion" score for each culture within the United States deviates from the United States average. Loss aversion scores between cultures within a country are more correlated than loss aversion scores between cultures in different countries.

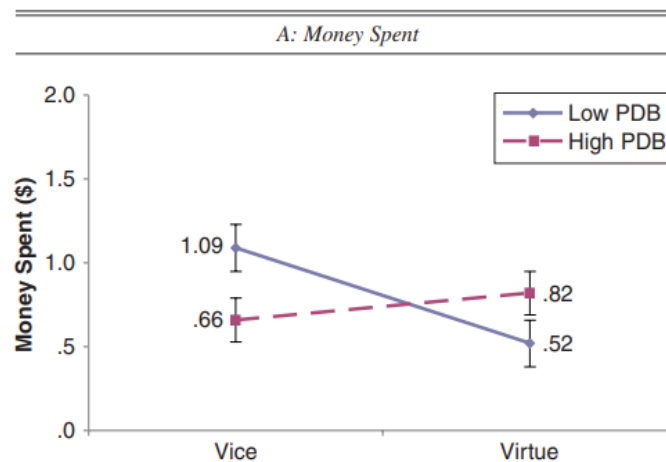
That being said, in direct contradiction to Wang et al. (2017), Yuxin Xie et al. (2018) found that high MAS cultures tended to favor riskier asset classes with higher returns than bonds; they found no empirical evidence for a relationship between loss aversion and masculinity. Therefore, more research needs to be conducted on this topic before a definitive judgment can be made.



**Figure 3.** Questionnaire measuring overconfidence and loss aversion. The graphs display females' stronger disposition to the cognitive bias. The x-axis represents the "score" of loss aversion the participants received while the y-axis represents the frequency at which these scores were given, the score correlating positively with loss aversion. The females mean score was 15.62, the males only 11.03. Therefore, the female graph is effectively a translation of the male graph by around 4 points to the right, illustrating the higher prevalence of loss aversion in females. *Source:* Prasad and Bhati (2012)

## Power distance and Uncertainty Avoidance

Power distance alludes to disparities in power between different social groups based on wealth and social standing. Power distance belief (PDB) is the extent to which society accepts hierarchy and discrepancies in power (Zhang, Winterich, & Mittal, 2010). A country with high PDB would advocate for a rigid social structure and inequality whereas one with low PDB would believe in egalitarianism and push for the exclusion of a hierarchy. Those in a high PDB culture may be despondent as a result of the inequality and bear a defeatist attitude, placing more regard on the consequence of possible losses rather than any possible gains. Therefore, power distance is positively correlated with loss aversion (Wang et al., 2017). In one study conducted by Zhang, Winterich, & Mittal, 2010, the researchers examined whether the relationship between impulsive buying (operationalized by money spent) and products that vary in their immediate and long term utility (dichotomized into vice and virtue products) depended on PDB status (dichotomized into high and low). It was found that subjects of low PDB made more impulsive purchases on products considered to yield short term utility (i.e., vice products) like cigarettes than products that yield long term utility (i.e., virtue products). However, the opposite relationship existed for subjects of high PDB (Figure 4). The restraint illustrated by the graph could be a potential indicator for PDB's positive correlation with loss aversion. Their naturally higher restraint assigns them a higher disposition to loss aversion.



**Figure 4.** Estimated average (\$) spent on vice and virtue goods by low PDB and high PDB status. The x-axis represents the product type, vice being products bringing short-term satisfaction but long-term harm (Snickers bar, potato chips and regular cola) and healthier virtue products - granola bar, apple and orange juice. The y-axis represents the amount of money spent on each type. Individuals with high PDB (power distance belief) spent more on virtue products compared to low PDB subjects. The error bars correspond to a 95% confidence interval around the respective estimated mean. *Source:* Zhang et al. (2010)

Be that as it may, Yuxin Xie et al. (2018) again found no empirical evidence for a causal relationship between power distance and loss aversion. By contrast to masculinity however, in this case there was a study done by Jessie Wang, Ashok Lalwani and Devon DelVecchio (2022) that provides evidence in support of Wang et al. (2017). They found that high PDB consumers preferred widely used brands over niche ones on account of their increased risk aversion. Furthermore, an offering of an extended money-back guarantee would increase willingness to buy at niche brands in high PDB cultures but not in low PDB cultures, illustrating a relationship between power distance and loss aversion.

Uncertainty avoidance (UAI) refers to the amount of tolerance cultures have on ambiguous and unpredictable situations. Those living in a high UAI culture are lacking in ability to subsist through volatile circumstances. Intuitively, one would expect these individuals to be less willing to take risks and more vulnerable to prospective losses. This supposition was validated by both Wang et al. (2017) and Marc Rieger, (2020). Wang found that country average uncertainty avoidance increased loss aversion while Rieger established UAI would "[influence] loss aversion that itself [influences] the decision to enter the stock market."

## Discussion

Of late, divergences from expected utility theory have been explained by loss aversion, with the magnitude of the bias influenced by a plethora of different variables. In this paper, we have focused mainly on the cultural aspects that influence loss aversion. MAS level in cultures is the attribute that is most subject to debate, with limited research available on the topic. Likewise, there have been disputes on the relative effects of uncertainty avoidance and power distance on loss aversion, though the majority seem to concur on their significance.

Emotion regulation along with the level of individualism in the culture are the most pivotal characteristics, as outlined in our literature review. Individualist cultures encourage introspection, foregrounding self-improvement, and ego goals, placing emphasis on constant happiness as a life goal. On the other hand, within collectivistic cultures, a balance of positive and negative emotions is expected more than sustained contentment (Miyamoto & Ma, 2011; Miyamoto, Ma, & Petermann, 2014). Consequently, the West endeavors to avoid losses wherever possible while the East is prepared to undertake further risks. In order to minimize the effect of loss aversion, the ability to engage in cognitive reappraisal appears to be critical. The principal skill is being able to regard an event within a wider context. One must attempt to minimize subjective influence in favor of an objective, deliberated perspective. Nonetheless, loss aversion is ubiquitous and will undoubtedly continue to govern our financial decisions to some extent.

## Conclusion

Loss aversion, the natural human tendency to assign a higher sensitivity to losses than equivalent gains, is a cognitive bias whose potency is governed by a number of cultural variables. In this literature review, we found that the most significant factor was the individualism of the culture, with higher individualism correlating to higher loss aversion. High levels of power distance, uncertainty avoidance and masculinity also appear to elicit stronger loss averse behavior. That being said, experimental results for all three factors, especially the latter one, are inconclusive and bear testament to the need for further research. In order to diminish the effect of loss aversion, emotion regulation is shown to be a fruitful counter-measure.

## Limitations

Cultural variances as explanations, while credible, tend to be undermined by historical, economic and political differences (Wang et al., 2017). It is a demanding task to differentiate between numerous societal factors to ascertain the one truly responsible for the difference between two societies. For this reason, we have referred throughout this paper to Wang et al. (2017), whose meta-analysis should have allowed them a competent degree of accuracy in controlling for specific nuances between individual cultures. Nonetheless, this limitation should be made explicit.

## Acknowledgements

Thank you to John Anagnost – Ph.D. student at UCLA - for his continual support in writing this paper. His help in analyzing technical areas of studies along with his general feedback were critical in guiding me to the completion of my first research paper.

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