

# Optimism Bias

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Optimism bias is the demonstrated systematic tendency for people to be overly optimistic about the outcome of planned actions. This includes over-estimating the likelihood of positive events and under-estimating the likelihood of negative events. Along with the illusion of control and illusory superiority, it is one of the positive illusions to which people are generally susceptible. Excessive optimism can result in cost overruns, benefit shortfalls, and delays when plans are implemented or expensive projects are built. In extreme cases these can result in defeats in military conflicts, ultimate failure of a project or economic bubbles such as market crashes.

### **Experimental demonstration**

Armor and Taylor review a number of studies that have found optimism bias in different kinds of judgment. These include:

Second-year MBA students overestimated the number of job offers they would receive and their starting salary.

Students overestimated the scores they would achieve on exams.

Almost all newlyweds in a US study expected their marriage to last a lifetime, even while aware of the divorce statistics.

Professional financial analysts consistently overestimated corporate earnings.

Most smokers believe they are less at risk of developing smoking-related diseases than others who smoke.

Students in one study rated themselves as much less likely than their peers (students of the same sex at the same college) to experience negative life events such as developing a drinking problem, having a heart attack, being fired from a job, or divorcing a few years after getting married. This effect, called unrealistic personal optimism, has been replicated and extended in between-subject research. This research shows that optimistic bias is more prevalent in people with greater left-prefrontal activation. Optimism bias does not apply universally. For example, people overestimate their chances of experiencing very rare events, including negative events.

### **Possible effects of overconfidence**

#### **Increased risk taking and insufficient preventive care**

Optimism bias can induce people to underinvest in primary and preventive care and other risk-reducing behaviors, such as abstinence from smoking. The overconfident may also inadequately react to legal threats and incentives, undermining the deterrent effect of liability rules.

Increased risk for financial problems

Overconfidence causes many people to grossly underestimate their odds of making a payment late. Statistically, many people are quite likely to make at least one payment late due to the normal

range of difficulties and delays in day-to-day life. Overconfidence bias causes these people to grossly underestimate the odds of this happening and therefore to accept grossly punitive fees and rates (e.g., an interest rate of nearly 30% on a credit card or similar line of credit) as a result of otherwise minor transgressions such as a late payment. Companies have exploited this bias by increasing interest rates to punitive rates for any late payment, even if it is to another creditor. Overconfidence bias makes these terms more acceptable to borrowers than if they were accurately calibrated.

Overconfidence bias also causes many people to substantially underestimate the probability of having serious financial or liquidity problems, such as from a sudden job loss or severe illness. This can cause them to take on excessive debt under the expectation that they will do better than average in the future and be readily able to pay it off.

### **Overconfidence, locus of control, and depression**

Overconfidence bias may cause many people to overestimate their degree of control and their odds of success. This may be protective against depression--since Seligman and Maier's model of depression includes a sense of learned helplessness and loss of predictability and control. Depressives tend to be more accurate and less overconfident in their assessments of the probabilities of good and bad events occurring to others, but they tend to overestimate the probability of bad events happening to them. This has caused some researchers to consider that overconfidence bias may be adaptive or protective in some situations.

### **Optimism bias and planning**

Optimism bias arises in relation to estimates of costs and benefits and duration of tasks. It must be accounted for explicitly in appraisals if these are to be realistic. Optimism bias typically results in cost overruns, benefit shortfalls, and delays when plans are implemented.

The UK government explicitly acknowledges that optimism bias is a problem in planning and budgeting and has developed measures for dealing with optimism bias in government (HM Treasury 2003). The UK Department for Transport requires project planners to use so-called optimism bias uplifts for large transport projects in order to arrive at accurate budgets for planned ventures (Flyvbjerg and Cowi 2004).

In a debate in Harvard Business Review, between Daniel Kahneman, Dan Lovallo, and Bent Flyvbjerg, Flyvbjerg (2003)--while acknowledging the existence of optimism bias--pointed out that what appears to be optimism bias may actually be strategic misrepresentation. Planners may deliberately underestimate costs and overestimate benefits in order to get their projects approved, especially when projects are large and when organizational and political pressures are high.

Kahneman and Lovallo (2003) maintained that optimism bias is the main problem.

### **Optimism bias and reference class forecasting**

Reference class forecasting was developed to eliminate or reduce optimism bias in forecasting, planning, and decision making.

### **Mechanisms**

A brain-imaging study found that, when imagining negative future events, signals in the amygdala, an emotion centre of the brain, are weaker than when remembering past negative events. This weakened consideration of possible negative outcomes is one possible mechanism for optimism bias. The activity of brain regions that are known to malfunction in psychological depression also predict the optimism bias.