

# Why you should visit cemeteries

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Imagine the year is 1942 and you are in the middle of World War II. As General of the Army, you are in a peculiar situation - six of every 10 planes you send into enemy territory are gunned down.

## What is your solution?

You decide to go for more heavily armored planes. But there is a catch - encasing an entire plane in heavy armor would make it heavier and slower. On the other hand, fitting too little armor would make it susceptible to damage from enemy fire.

It turns out that your team has already conducted a detailed study of the locations of bullet holes on the planes that were able to return to base. They looked like this:

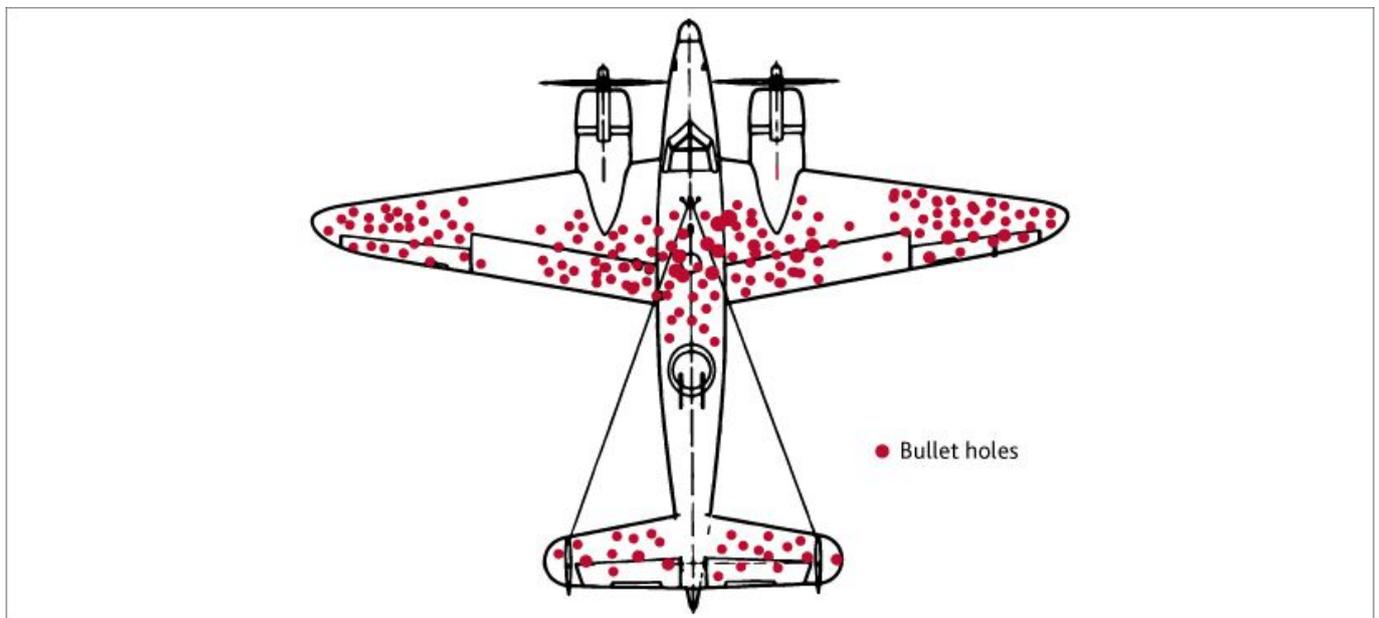


Image source: Wikipedia

As the picture shows, the wings, tail gunner and center of the plane's body were the worst hit. Your advisors suggest that these sections be reinforced with armor.

## What would you do?

Let me give you two options:

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1) Invest in the wings, tail gunner and center

2) Invest in the other parts

Take a minute to select an option.

If you decided to go for the first option, you fell prey to **'survivorship bias'**.

### **How so?**

This particular study was conducted on the aircraft that survived enemy fire and made it back to base. But did these planes represent the entire fleet?

What about the aircraft that crashed? The damage suffered by those that were shot down was not assessed.

The Allied forces faced this situation during WWII and fell prey to survivorship bias. However, consulting with mathematician Abraham Wald, they figured out that the aircraft they studied made it back simply because their wings, tail gunners and body centers were already strong. Therefore, the right thing to do was to reinforce those areas that weren't damaged, because if they were, the plane would crash.

### **A study of cats**

In 1987, the Journal of the American Veterinary Medical Association reported on a study of 132 cats brought to an emergency veterinary clinic. They came across an interesting fact: cats that had fallen from fewer than six stories had more injuries than those who had fallen from higher elevations!

The researchers believed that this happened because cats reach terminal velocity after falling about seven stories, after which they stop accelerating. Their relaxed body posture allows for better distribution of the impact, resulting in less severe injuries.

Some experts believe, however, that the researchers who conducted the study may have fallen prey to survivorship bias.

### **How so?**

It is likely that only those cats who did not die after a fall were taken to the emergency veterinary clinic. The cats that died on impact were not included in the study.

### **Survivorship bias in everyday life**

If you plan to open a restaurant near your residence or office just because there are so many successful restaurants nearby, then as Nicholas Taleb writes in 'The Black Swan: The Impact of the Highly Improbable', you are falling prey to survivorship bias by ignoring the fact that only successful restaurants survive.

*"In daily life, because triumph is made more visible than failure, you systematically overestimate your chances of succeeding" - Rolf Dobelli*

If you aspire to become the next YouTube sensation by creating your own YouTube channel because everywhere you look, you see successful YouTubers making millions of dollars every year, then in the words of Dobelli, you are 'succumbing to an illusion, and you mistake how minuscule the probability of success really is'.

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*“The media is not interested in digging around in the graveyards of the unsuccessful. Nor is this its job. To elude the survivorship bias, you must do the digging yourself” -Rolf Dobelli*

## **Survivorship bias when making investment decisions**

### **GoPro, Inc.: The early bird catches the worm**

We often come across survivorship bias when making investment decisions; for instance, you come across a start-up with a revolutionary product and charismatic leader, and you decide to invest in it, thinking it could be the next Google or Facebook. Before you go ahead with that investment, ask yourself whether you are falling prey to survivorship bias. As Rolf Dobelli writes about start-ups, ‘the most likely scenario is that a start-up will not even make it off the starting line. The second most likely outcome is that it will go bankrupt within three years. Of the companies that survive these first three years, most never grow to more than 10 employees’.

What is the probability of success of a start-up with a sensational product, first-mover advantage (the early bird), strong leadership and huge market share?

A few years ago, GoPro, Inc., the American action camera manufacturer was a sensation. It had both - a revolutionary product offering it first-mover advantage and charismatic leadership. It was one of the most successful tech IPOs of 2014. Fast forward four years, GoPro is on the verge of bankruptcy, as the action camera market has become thoroughly commoditized, with competitors offering action cameras at one-third the price of GoPro devices. GoPro currently trades at USD4.8, down 95% from its all-time high of USD98.

*“The early bird may get the worm, but often it’s the second mouse who gets the cheese because the first one gets smushed in the mouse trap!”*

### **Mutual fund graveyards**

A Vanguard Group study found that ‘**performance evaluations using fund-category averages are often biased upward**’ because if a mutual fund underperforms a category and is subsequently shut down, it will take its poor record to the mutual fund graveyard. It will be excluded from category averages. As a result, final results will overstate the average performance of the remaining funds in the category.

### **How can we avoid survivorship bias when making investment decisions?**

To avoid falling prey to cognitive biases when making investment decisions, such as investing in stock markets, one may follow rule-based investing strategies such as the smart beta strategy. Checking the authenticity of data through rigorous back-testing also helps to keep biases at bay.

*“Behind every popular author you can find 100 other writers whose books will never sell. Behind them are another 100 who haven’t found publishers. Behind them are yet another 100 whose unfinished manuscripts gather dust in drawers. And behind each one of these are 100 people who dream of - one day - writing a book” - Rolf Dobelli*

### **Sources:**

- 1.The Art of Thinking Clearly by Rolf Dobelli
  - 2.Science Focus, “What is the maximum height a cat can fall from and survive?”
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3.Vanguard, “The mutual fund graveyard: An analysis of dead funds”

4.Vanguard, “What is ‘survivorship bias’ and why does it matter?”

5.The Economic Times, “Metaphorically speaking about business and investing”

#### About Acuity Knowledge Partners

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