"INDIVIDUAL PREFERENCES, MONETARY GAMBLES, AND STOCK MARKET PARTICIPATION" (Authors: N. Barberis, M. Huang, R. Thaler)

The point of this note is to explain the ideas in the above research paper without using any mathematics or technical jargon (the original paper contains both). The intended reader is someone who is interested in economics and finance but who is not an academic researcher. I welcome your comments on the ideas below, whether you agree with them or not; and also on the write-up itself -- for example, please let me know if it is confusing, so that I can rework it.[1]

I'll start with a short summary, and then give the longer version.

SHORT SUMMARY

We argue that a decision-making error known as narrow framing – an error whereby people think about risks *in isolation*, rather than in combination with other risks they are already facing – is more common than previously thought, and that it may play a role both when people think about simple monetary gambles and when they invest in the stock market.

LONGER SUMMARY

Suppose that you are wondering whether you should take on a new risk of some kind – whether you should buy a specific stock, say. The *rational* way to make this decision is this: you imagine combining the new risk with all of the risks you are *already* facing – the risk of any other stocks or financial assets that you are already holding, the risk of a drop in your salary, the risk of a drop in the price of your house, and so on – and then ask yourself whether the combination is an improvement on what you had before. However, in experiments that economists and psychologists have conducted, people often fail to follow this rational prescription: instead, they often seem to evaluate a new risk *in isolation*, separately from other risks they are already facing. This departure from rational behavior is known as "narrow framing".

This paper is about narrow framing. Specifically, Ming Huang, Richard Thaler, and I make two main points:

(1) We argue that narrow framing may be more common than previously realized, and that it may occur in even the simplest of settings. For example, think about whether you would take a 50:50 bet to win $110 or lose $100. Most people turn this bet down. We argue that this is unlikely to be rational; and that the culprit that leads people to make the wrong decision may be narrow framing.

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[1] This is a preliminary draft. Please do not quote or cite.

(2) We argue that people may engage in narrow framing not just when evaluating a simple monetary gamble like the 50:50 bet described above, but also when thinking about whether to invest in a specific stock, or in a stock index.

Let me explain each of these points in a little more detail.

Narrow framing in the context of simple gambles

Most people turn down a 50:50 bet to win $110 or lose $100. It has long been thought that this can be explained by "loss aversion," the idea, due to Daniel Kahneman and Amos Tversky, that people are much more sensitive to losses than to gains of a similar magnitude.

In this paper, Huang, Thaler, and I argue that, while loss aversion probably *is* a factor in why people turn this gamble down, it *cannot*, on its own, explain why the gamble is rejected. Rather, an additional ingredient is needed to explain why people turn the gamble down – and in our view, that additional ingredient is narrow framing.

Why can't loss aversion, on its own, explain why people turn the 110/100 bet down? Here is the basic argument. Most of the people that the 110/100 gamble is offered to are already facing other pre-existing risks. If these people are loss averse, but *do not* engage in narrow framing, they will mix the 110/100 gamble with their pre-existing risks and check whether the combination is better than what they had before. And if they do this, they will see that the combination *is* better than what they had before, because, roughly speaking, the 110/100 bet diversifies their pre-existing risks. As a result, someone who is loss averse would want to *accept* the 110/100 bet. Put differently, loss aversion alone cannot explain why people turn the 110/100 bet down.

An example may be helpful. Let's suppose that you are offered the 110/100 gamble. And let's also suppose that you have some pre-existing risk – e.g. some risk that stems from financial investments – that, in the near future, could lead to a gain of $30,000 with probability 0.5, or a loss of $10,000 with probability 0.5.

Let's now check that loss aversion, on its own, wouldn't lead you to turn the 110/100 gamble down. Suppose that you are loss averse – specifically, that you are twice as sensitive to losses as to gains – but that you do not engage in narrow framing. Since you do not engage in narrow framing, you decide whether to take the 110/100 bet by mixing it with your pre-existing risk and checking if the combination is an improvement on what you had before. If you do mix the two risks together, you face the following possible outcomes:

- $30,110 with probability 0.25
- $29,900 with probability 0.25
- -$9,890 with probability 0.25
- -$10,100 with probability 0.25

To compute the value that you would place on this, let's multiply each outcome by its probability and sum up, while remembering that there is *double* sensitivity to losses:

Total value = 30110*0.25 + 29900*0.25 - 2*9890*0.25 - 2*10100*0.25 = 5007.5

Is this better than what you had before? To figure that out, remember that your pre-existing risk offered the following possible outcomes:

- $30,000 with probability 0.5
- -$10,000 with probability 0.5

And the value of that is:

Total value = 30000*0.5 – 2*10000*0.5 = 5000

We're done! Someone who is loss averse but does not engage in narrow framing will want to *accept* the 110/100 gamble. *Without* the gamble, the value of his position is 5000. But *with* the gamble, the value of his position is 5,007.5, which is better.

While the argument here is fairly simple, the result was a surprise to many people. Most researchers thought that loss aversion alone *could* explain why people turned the 110/100 gamble down. But the calculation we have just done shows that this is wrong. Someone who is loss averse will actually want to take the gamble.

So how do we explain the fact that, in reality, people *don't* take the 110/100 gamble? In our view, loss aversion *is* part of the answer -- but as we've just seen, it can't be the whole answer. We need an additional ingredient. And in our view, the additional ingredient is narrow framing – in other words, that, when people are offered the 110/100 gamble, they evaluate it in isolation, separately from their pre-existing risks.

It's easy to see that the combination of loss aversion *and* narrow framing can explain why people turn the 110/100 gamble down. If you think about the 110/100 gamble in isolation, you face the following future outcomes:

- $110 with probability 0.5
- -$100 with probability 0.5

And the value you attach to this is:

Value = 110*0.5 - 2*100*0.5 = -45

Given the negative value, you turn the gamble down.

In our view, the narrow framing explanation is a plausible one. If you take a second to think about whether *you* would take on a 50:50 bet to win $110 or lose $100, I suspect

that the numbers you find your brain focusing on are $110 and -$100. But that, in itself, suggests that you are engaging in narrow framing.

Narrow framing in financial markets

Huang, Thaler, and I think that narrow framing may be relevant in financial markets. For example, when thinking about whether to invest in the stock market, people may think about the stock market in isolation, rather than in combination with other risks they are already facing. And if they are thinking about whether to invest in a specific stock, they may think about the stock in isolation.

We don't *prove* that narrow framing occurs in financial markets. But we try to convince the reader that it probably occurs more than previously realized. An intriguing piece of evidence – and one that is hard to believe today – is that for much of the 20th century, most U.S. households did not invest any money at all in stocks, whether directly or indirectly.

Huang, Thaler, and I argue that it's hard to understand this without appealing to narrow framing. If you do the rational thing, and think about the stock market in combination with other risks you are already facing, then you will want to invest at least *some* money in the stock market. The reason is that the stock market has a low correlation with other household risks – with the risk of a drop in your salary, say, or with the risk that the value of your house goes down. By adding at least a small position in stock to your portfolio, you therefore add diversification to your portfolio, and that's a good thing.

How, then, can we explain why most households did *not*, historically, allocate any money to the stock market? A natural answer is that they weren't thinking about the stock market in combination with their other household risks, but rather that they were thinking about it in isolation. In other words, they were engaging in narrow framing.