

Preregistration: Mental Models of the Stock Market

Explaining Equilibrium Study

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In addition to the existing preregistration plan, we preregister the Explaining Equilibrium Study.

Study parameters

- Sample size wave 1: 1,000 (about 500 per treatment)
- Sample size wave 2: We will reinvite all participants one to two days later to a follow-up study. We expect a completion rate of around 60% to 80%.
- Sample type: Prolific sample (no quotas)
- Start of data collection: June 13, 2023 (after preregistration)
- Number of treatments: 2
- Randomization method: Computerized via Qualtrics
- We plan to work with all complete responses. In the (typically very rare) case that a respondent submits multiple responses, we only count the first response.
- Respondents can only start with the survey if they pass an attention screener. Moreover, they can only proceed with the survey if they pass a comprehension quiz that tests their understanding of the scenarios (multiple attempts are allowed).

Study design: Wave 1 The survey consists of two parts. The second part is a shorter version of the main descriptive survey for households (see full instructions of the main survey). We only consider the *Nike good news* case and ask the following questions:

- Prediction: In which scenario is the future expected return of an investment in the stock over the next year higher?
- Open-ended explanation of prediction
- Structured question about the reasoning behind respondents' prediction

- Background characteristics

The first part of the survey contains the experimental manipulation. We implement two conditions.

Control Participants learn about the geographical phenomenon of the tidal range and the factors that influence the tidal range.

Treatment Participants learn that and why the expected future success of a company is not a reliable indicator of the future success of an investment in its stock.

The precise instructions of the two conditions are attached below.

In comparison to the control condition, the treatment condition familiarizes participants with the consequences of equilibrium on stock markets. Other features such as text difficulty and length are comparable across the two conditions.

Study design: Wave 2 We will reinvoke all participants who completed wave 1 to a follow-up study one to two days later. The follow-up study is analogous to part 2 of wave 1 but uses the *Amazon good news* scenario so that participants do not face the same scenario twice.

- Prediction: In which scenario is the future expected return of an investment in the stock over the next year higher?
- Open-ended explanation of prediction
- Structured question about the reasoning behind respondents' prediction

Research question Do individuals believe that old news is relevant for future return differences because they do not understand the consequences of equilibrium on stock markets?

We test whether explaining the consequences of equilibrium on stock markets affects individuals' return expectations and the reasoning behind their expectations.

Treatment condition

Part 1

In part 1 of the survey, we explain an important stock market principle to you. We want you to read the explanation carefully so that you can briefly restate and explain the principle in your own words.

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An important stock market principle

Companies usually differ in their expected future business prospects. Some companies are expected to generate high earnings, others are expected to generate low earnings.

What do you think? Which type of stocks are the better investment?

- Stocks of companies that are expected to generate HIGH earnings in the future.
- Stocks of companies that are expected to generate LOW earnings in the future.

The answer might surprise you. *It often does not matter.*

Why? On the next pages, we want to explain to you the following important stock market principle.

Stock market principle

Whether a company is expected to generate high or low future earnings often does not matter for the expected future return of an investment in its stock.

In other words, the expected future success of a *company* is not a reliable indicator of the future success of an *investment in its stock*.

expected future success of company	≠	expected future success of investment in company stock
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Why does the principle hold?

It is actually easy to see why this principle holds. First, let's repeat it once more.

Stock market principle

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The principle holds because expectations for the future are already reflected in today's stock prices.

The stock of a high-earning company is particularly expensive. In fact, it is often so expensive that, from a stock investment perspective, the high expected future earnings are offset by the high stock price today.

Similarly, the stock of a low-earning company is particularly cheap. In fact, it is often so cheap that, from a stock investment perspective, the low expected future earnings are offset by the low stock price today.

Why does the principle hold?

The expected future success of a company is not a reliable indicator of the future success of an investment in its stock. This also becomes clear if we think about what would happen if this principle did not hold.

Suppose that investing in high-earning companies was more lucrative than investing in low-earning companies because of their future expected earnings. This situation is unstable. Why? The answer involves four steps.

1. Stock traders obviously love lucrative investments. Hence, they would want to hold more of the lucrative high-earning companies and less of the low-earning companies.
2. This would trigger a change in stock prices. The demand for the stock of high-earning companies is so high that their stock prices would rise. The demand for the stock of low-earning companies is so low that their stock prices would fall.
3. Investing in high-earning companies just became less lucrative because their stocks are now more expensive. Investing in low-earning companies just became more lucrative because their stocks are now cheaper.
4. **As long as investments in high-earning companies remain more lucrative, this process will continue. Traders will continue to trade and prices will continue to change until the expected earnings of companies do not matter for stock investments anymore.**

Hence, in the end, we would be back in a situation where higher expected future earnings of a company do not come with a higher future expected return of investing into the company stock.

Participants have to click on a “next” button to reveal points 1–4 step by step.

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Summary

Of course, there are other reasons why some companies might have higher expected stock returns: for example, investments in some companies' stocks are more risky or offer less protection against low economic growth. But importantly, expected future earnings themselves do not matter for stock returns.

Stock market principle

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Your explanation

Now, please describe the principle you just learned about in your own words.



Please explain why this principle holds in the stock market.



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Part 2

In part 2 of the survey, we will ask you to predict the return of stocks in hypothetical scenarios. We start with a short introduction. Please read the introduction carefully.

Control condition

Part 1

In part 1 of the survey, we explain an important phenomenon in geography to you. We want you to read the explanation carefully so that you can briefly restate and explain the phenomenon in your own words.

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The tidal range

Tides are the periodic rise and fall of sea levels caused by the gravitational pull of the moon – and, to a much lesser extent, the sun – on the water. There are two main stages of the tidal movement. The **high tide** denotes when the water reaches its highest point, while the **low tide** denotes when the water reaches its lowest point.

The gravitational force of the moon affects all bodies of water on Earth, not only the oceans. For small bodies of water like a bathtub or the coffee cup on your desk, however, the tides are so small that they are not noticeable.

But even across different regions of the world's oceans, how much the sea level changes with the tides varies quite a lot. The difference in height between high tide and low tide is called the **tidal range**.

The world's largest tidal range of 53.5 ft (16.3 meters) can be found in the Bay of Fundy, Canada, while some of the smallest tidal ranges of less than 1 ft (0.3 meters) can be found in the Mediterranean and the Caribbean Seas.

On the next pages, you will learn which factors influence the tidal ranges of different locations.

What determines the tidal range?

There are several factors that determine the tidal range at a certain time and location.

In general, the closer a region is to the moon, the stronger the gravitational attraction, and the more extreme the tides will be. For this reason, the tides tend to be stronger on the side of the earth that currently faces the moon.

When the sun and moon are aligned, their gravitational forces reinforce each other and bring along even larger tidal ranges. This is also called a **spring tide**.

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How do coastlines affect the tides?

The shape of the coastline can significantly affect the behavior of tides. When the coastline curves inward, the tidal range tends to be larger. When the coastline curves outward, the tidal range tends to be smaller. This is because the shape of the coastline can influence how much water is able to move in and out of a given region.

Geographic features can act as funnels, either channeling or dissipating the effect of the tide. The Bay of Fundy in Canada, where the highest tidal range in the world can be measured, is funnel-shaped in such a way that it greatly amplifies the tides. On the other hand, small islands in the middle of the ocean tend to only experience very small tidal ranges.

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Why does the depth of the ocean matter?

In addition to the shape of the coastline, the depth of the ocean can also play a role in determining the behavior of tides. In areas where the ocean is shallow, the tidal range tends to be larger, while in areas where the ocean is deep, the tidal range tends to be smaller. This is because shallow areas are more affected by the gravitational pull of the moon and the sun, while deeper areas are less affected.

What's the role of a region's climate?

Finally, the local wind and weather patterns of a place can also affect the tides. Strong offshore winds can move water away from coastlines, causing the tide to be lower than normal. Onshore winds may act to pile up water onto the shoreline, causing the tide to be higher than normal. High-pressure systems can depress sea levels, leading to clear sunny days with exceptionally low tides. Conversely, low-pressure systems that contribute to cloudy, rainy conditions typically are associated with exceptionally high tides.

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Summary: The tidal range and its influences

In conclusion, the behavior of tides and the tidal range, that is the height difference between the highest and lowest sea level, depend on various factors.

While the foremost influence is the location of the region in relation to the moon and the sun, geographical features such as the shape of the coastline, the depth of the ocean, and the climate of the region can all influence the behavior of tides in different ways. By understanding these factors, we can gain a better appreciation for the complex and dynamic nature of our oceans and the tides they produce.

Your explanation

Now, please describe in your own words what the tidal range is.



Please explain what determines how large the tidal range is.



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