Downstream Consequences of Explaining Return Formula and Equilibrium Study

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In addition to the existing preregistration plan, we preregister the Downstream Consequences of Explaining Return Formula and Equilibrium Study.

Study parameters

- Sample size wave 1: 3,000 (about 1,500 per treatment)

- Sample size wave 2: We will reinvite all participants one to two days later to a follow-up study, in which they are cross-randomized into two conditions that are orthogonal to the conditions in wave 1. We expect a completion rate of wave 2 between 60% and 80% among those who completed wave 1.

- Sample type: Prolific sample (no quotas except for balance by gender)

- Start of data collection: August 7, 2024 (after preregistration)

- Number of treatments conditions: 4 (2x2 design)

- 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 Survey wave 1 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

- Background characteristics

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

Control long Participants learn how the growth rate of a population is calculated, and in particular how it depends on the difference between (i) the birth rate and (ii) the death rate. On top of this, they learn that and why the growth rate of a population in a stable ecosystem does not depend on the resource richness of the environment.

Explain equilibrium treatment Participants learn how the return of a stock is calculated, and in particular how it depends on the ratio between (i) the sum of the dividend and the future stock price – which we label "future stock revenue" – and (ii) the current stock price. On top of this, they 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 instructions of the two conditions are the same as in the two corresponding treatment arms of the data collection launched one day earlier, on August 6, 2024, preregistered as "Return Formula and Explaining Equilibrium Studies".[1] The instructions for wave 1 can be found in the preregistration of that study.

In comparison to the control condition, the treatment condition familiarizes participants with the return formula and 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 reinvite all participants who completed wave 1 to a follow-up study one to two days later. Wave 2 adopts a between-subject design and relies on real news. Specifically:

- between-subject design: respondents see either good or bad news about the stock of the company Siemens Energy (treatment variation orthogonal to the treatment variation in wave 1)

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[1]In fact, about 950 out of the 3,000 participants in wave 1 of the "Downstream Consequences of Explaining Return Formula and Equilibrium Study" previously participated in the "Return Formula and Explaining Equilibrium Studies" in the relevant two treatment arms, and we re-use this data as wave 1 of the "Downstream Consequences of Explaining Return Formula and Equilibrium Study" for cost efficiency reasons.

- real news: the news is real old news

- quantitative return forecast: respondents make a quantitative return forecast for Siemens Energy stock

- incentivized return forecast: the return forecast is incentivized

- incentivized investment decision: after respondents explain their return forecast, they make an incentivized investment decision where they can invest £100 in either a safe savings bond or the Siemens Energy stock

Wave 2 contains an additional question on respondents' perceived importance of tracking company news for successful stock investment. The instructions for wave 2 are included below.

We plan to winsorize the quantitative return forecasts at $+30\%$ and -30%.

Research question Does explaining the return formula and equilibrium pricing to respondents cause them to adjust return expectations less strongly and to trade less in response to stale news? Does it reduce their tendency to view tracking company news as important for successful stock investment?

We test whether explaining the return formula and consequences of equilibrium on stock markets affects individuals' sensitivity to stale news and their response to our other outcome question.

Wave 2: Good news condition

Siemens Energy AG

On the next page, you will receive information about the exchange-traded company Siemens Energy AG.

Siemens Energy is a German-based global company focused on energy technologies, including the generation and distribution of electricity. The company plays a crucial role in the international energy sector. It offers a diverse range of products and solutions for generating power from both renewable sources like wind and solar, as well as conventional sources like natural gas and coal. Siemens Energy aims to lead the transition towards more sustainable, reliable, and cost-effective energy systems worldwide.

Siemens Energy Announces €1.2 Billion Expansion in Power Grid Business

About one month ago, Siemens Energy made an announcement that received a lot of attention among stock market traders. Here is a summary of the news story.

> One month ago, Siemens Energy unveiled ambitious plans to expand its Grid Technologies division, investing €1.2 billion and creating approximately 10,000 new jobs worldwide in the coming years. Tim Holt, board member for the division, emphasized the unprecedented scale of upcoming global investments in the power grid network, comparing them to the past 150 years combined. The company aims to capitalize on a booming demand for electricity and modernized infrastructure. With orders for Grid Technologies already soaring from €7 billion in 2021 to €15 billion in 2023, and an impressive €12 billion in the first half of 2024 alone, Siemens Energy is poised for substantial growth. The expansion will see significant job creation in Europe, the US, India, and other regions, driving the division's revenue to potentially triple by 2030.

Recall: This news story broke around one month ago and received a lot of attention among stock market traders invested in or observing Siemens Energy's stock.

Quiz

Please select all correct statements in the following list. Do not select any incorrect statements.

Siemens Energy announced a new technical innovation.

Siemens Energy announced plans to expand its power grid division.

The announcement was made about four weeks ago.

The announcement was made earlier today.

The announcement did not receive a lot of attention among stock market traders.

The announcement received a lot of attention among stock market traders.

The announcement is about Siemens Energy's electricity and infrastructure business.

The announcement is about a market expansion of Siemens Energy in Latin America.

Well done! All responses were correct.

Now, you can earn additional money. On the following two pages, you have the opportunity to earn extra money based on your answers. Please respond carefully.

[PAGE BREAK]

Your prediction

Review the news story *(click to open detailed description)*

▶ **Siemens Energy Announces €1.2 Billion Expansion in Power Grid Business**

Consider the following investment.

> Invest $1,000 in Siemens Energy stock today, **one month after the announcement was made.**
> Sell these stocks in twelve months from now.

Your task is to indicate which return you would expect for this investment.

The return of an investment in a stock is the percent change in value that you receive from investing in that stock. It includes both dividend payments and the change in the stock price. For comparison, the DAX—which is the German stock market index that represents the 30 largest companies—had an average annual return of 6% over the last ten years.

You can earn additional money based on your prediction. We will calculate the actual return of the investment in a year from now. If your prediction is at most 0.5 percentage points away from the actual return, we will transfer £2 to your Prolific account in a year from now.

Please predict which return you would expect for the above investment in Siemens Energy stock.

I predict a return of Siemens Energy stock of ...

[_____] %

An investment decision

Review the news story *(click to open detailed description)*

▶ **Siemens Energy Announces €1.2 Billion Expansion in Power Grid Business**

In the following, we ask you to make a decision on how you would invest £100 for the coming 12 months.

You have the **chance to earn additional money** with your answer to this question. Upon completion of the study, we will randomly select ten participants who will receive a payout equal to the value of their investment after 12 months. If you are selected, this payout will depend on your investment decision, so please consider carefully. The payout will be made in 12 months (plus processing time) in the form of a Prolific bonus payment.

Two investment options are available:

- **Investing in a stock of the company *Siemens Energy.*** The return on your investment in Siemens Energy stock will be based on the actual return of this stock over the coming 12 months.
- **Investing in a savings bond that pays 2 percent interest per year for sure.** The return on your investment in the savings bond will be 2 percent for sure.

Please decide. How much of the £100 do you invest in *Siemens Energy* stock and how much in the savings bond?

(Note: The sum of your investments must amount to £100.)

My investment in the stock of *Siemens Energy AG*	£	0
My investment in the savings bond	£	0
Total	£	0

Monitoring news

Please read the following statement carefully. Indicate how much you agree or disagree using the scale provided.

"To successfully invest in the stock market, one needs to spend a lot of time monitoring news about companies."

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree

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When responding to the previous questions, did you look up any information regarding Siemens Energy or the Siemens Energy stock online, e.g., via Google?

Yes

Yes, but I could not find any information

No

Wave 2: Bad news condition

Siemens Energy AG

On the next page, you will receive information about the exchange-traded company Siemens Energy AG.

Siemens Energy is a German-based global company focused on energy technologies, including the generation and distribution of electricity. The company plays a crucial role in the international energy sector. It offers a diverse range of products and solutions for generating power from both renewable sources like wind and solar, as well as conventional sources like natural gas and coal. Siemens Energy aims to lead the transition towards more sustainable, reliable, and cost-effective energy systems worldwide.

Siemens Energy to Slash Thousands of Jobs at Troubled Wind Power Unit

About two months ago, Siemens Energy made an announcement that received a lot of attention among stock market traders. Here is a summary of the news story.

> Two months ago, following years of severe challenges and financial losses, Siemens Energy announced plans to slash thousands of jobs at its beleaguered wind power subsidiary, Gamesa. In an internal letter, the subsidiary's CEO Jochen Eickholt revealed that thousands of jobs would be eliminated across Europe, including Germany, Denmark, and Spain. The drastic reductions come as the subsidiary battles persistent quality issues and mounting losses that have severely impacted Siemens Energy's finances. The relentless downsizing paints a grim picture of the subsidiary's ongoing turmoil and underscores the deep-seated troubles plaguing the division. This wave of job cuts adds to the severe problems and huge losses Siemens Energy faced over the last years, which had already necessitated a government bailout.

Recall: This news story broke around two months ago and received a lot of attention among stock market traders invested in or observing Siemens Energy's stock.

Quiz

Please select all correct statements in the following list. Do not select any incorrect statements.

Siemens Energy announced a lawsuit against a former CEO.

Siemens Energy announced job cuts in its wind power business.

The announcement was made about two months ago.

The announcement was made earlier today.

The announcement did not receive a lot of attention among stock market traders.

The announcement received a lot of attention among stock market traders.

The announcement is about Siemens Energy's wind energy business.

The announcement is about a market expansion of Siemens Energy in Latin America.

Well done! All responses were correct.

Now, you can earn additional money. On the following two pages, you have the opportunity to earn extra money based on your answers. Please respond carefully.

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Your prediction

Review the news story *(click to open detailed description)*

▶ **Siemens Energy to Slash Thousands of Jobs at Troubled Wind Power Unit**

Consider the following investment.

> Invest $1,000 in Siemens Energy stock today, **two months after the announcement was made.**
> Sell these stocks in twelve months from now.

Your task is to indicate which return you would expect for this investment.

The return of an investment in a stock is the percent change in value that you receive from investing in that stock. It includes both dividend payments and the change in the stock price. For comparison, the DAX -- which is the German stock market index that represents the 30 largest companies -- had an average annual return of 6% over the last ten years.

You can earn additional money based on your prediction. We will calculate the actual return of the investment in a year from now. If your prediction is at most 0.5 percentage points away from the actual return, we will transfer £2 to your Prolific account in a year from now.

Please predict which return you would expect for the above investment in Siemens Energy stock.

I predict a return of Siemens Energy stock of ...

[＿＿＿＿＿] %

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An investment decision

▶ **Siemens Energy to Slash Thousands of Jobs at Troubled Wind Power Unit**

In the following, we ask you to make a decision on how you would invest £100 for the coming 12 months.

You have the **chance to earn additional money** with your answer to this question. Upon completion of the study, we will randomly select ten participants who will receive a payout equal to the value of their investment after 12 months. If you are selected, this payout will depend on your investment decision, so please consider carefully. The payout will be made in 12 months (plus processing time) in the form of a Prolific bonus payment.

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- **Investing in a stock of the company *Siemens Energy.*** The return on your investment in Siemens Energy stock will be based on the actual return of this stock over the coming 12 months.
- **Investing in a savings bond that pays 2 percent interest per year for sure.** The return on your investment in the savings bond will be 2 percent for sure.

Please decide. How much of the £100 do you invest in *Siemens Energy* stock and how much in the savings bond?

(Note: The sum of your investments must amount to £100.)

My investment in the stock of *Siemens Energy AG*	£	0
My investment in the savings bond	£	0
Total	£	0

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Monitoring news

Please read the following statement carefully. Indicate how much you agree or disagree using the scale provided.

"To successfully invest in the stock market, one needs to spend a lot of time monitoring news about companies."

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree

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When responding to the previous questions, did you look up any information regarding Siemens Energy or the Siemens Energy stock online, e.g., via Google?

Yes

Yes, but I could not find any information

No