

A Percentage Needs a Reference Frame

A percentage depends on its baseline, endpoint, scope and method. Four proposed principles for preserving and inspecting that reference frame.

DRAFT PREVIEW DENNIS HEDEGREEN ANALYSE DRAFT-LOCAL

[HTTPS://HEDEGREENRESEARCH.COM/ARTICLES/A-PERCENTAGE-NEEDS-A-REFERENCE-FRAME/](https://hedegreenresearch.com/articles/a-percentage-needs-a-reference-frame/)

A percentage answers “compared with what?” If the reader cannot see the answer, part of the fact is hidden.

On 17 July 2026, the Philadelphia Semiconductor Index was in a bear market.

It was also up more than 60 percent for the year.

Both statements were true.

Reuters reported that the index had fallen more than 20 percent from its June high while still remaining more than 60 percent higher for 2026.

The underlying market had not changed between those two descriptions.

The starting point had.

That is the first thing to understand about percentages: they do not describe a number by themselves. They describe a relationship between states.

A percentage answers a hidden question:

Compared with what?

If the reader cannot see the answer, part of the fact is hidden.

A percentage is derived

When journalism says something rose 10 percent, fell 20 percent or was reduced by 55 percent, the percentage is the output of a comparison.

At minimum, that comparison has a baseline and an endpoint.

For a market index, the baseline might be yesterday's close, the first trading day of the year or a recent peak.

Those are different questions.

An index can be up over one interval and down over another without contradiction.

The number can be perfectly calculated in every case.

The problem begins when the percentage is published while the comparison that produced it disappears into the background.

The frame is more than a date

Markets make this easy to see because the baseline often has a timestamp.

But the same structure appears elsewhere.

The European Union's headline 2030 climate target is to reduce total net greenhouse-gas emissions by at least 55 percent compared with 1990.

The EU Emissions Trading System has a different 2030 target: emissions under that system are to fall by 62 percent compared with 2005.

A quick reader might see 55 and 62 and treat them as directly comparable measures of ambition.

They are not.

The baseline years differ. More importantly, the scopes differ.

The percentage does not carry that context inside itself.

Health reporting gives another version of the same problem.

Suppose a risk falls from 2 percent to 1 percent.

That is a 50 percent relative reduction.

It is also a reduction of 1 percentage point.

Both descriptions are correct.

They do not create the same intuitive impression.

And sometimes the clearest version is simply:

the risk fell from 2 in 100 to 1 in 100.

This is not merely a theoretical concern. A BMJ study of 343 newspaper stories found that when a medical-journal press release omitted absolute risks, only 9 percent of the associated newspaper stories supplied them. When the press release included absolute risks, 53 percent of the stories did.

The missing frame in health reporting is therefore not necessarily a date.

It may be the baseline risk and denominator.

That is why “starting point” is too narrow.

By **reference frame**, I mean the baseline, endpoint, scope and method that make the percentage true.

A percentage can age without becoming false

Digital journalism should also preserve how current the underlying data was when the number was published.

Imagine a story says:

Brøndby shares are up 18 percent since 1 January.

The final market observation used in the calculation might be from 13:55 while the newsroom's data cutoff is 14:00.

If the price falls later that afternoon, the earlier statement does not become retroactively false.

It becomes historical.

The same issue appears in slower datasets.

Crime statistics may only be complete through a particular month. Climate estimates may be revised. Polling stories use surveys available at a particular moment.

A percentage can remain historically true after it stops being current.

That is why the publication should preserve enough information to reconstruct what the number meant when it was reported.

Framing is unavoidable

It would be easy to turn this argument into a claim that choosing a percentage window is manipulation.

That would be wrong.

Journalism has to choose a frame.

A story about a market sell-off may reasonably measure from a recent peak.

A climate target may be legally defined against a particular base year.

A clinical study may use a predefined comparison group.

There is no baseline-free percentage.

The useful standard is therefore not:

Do not frame.

It is:

Framing is unavoidable. Concealing the frame is the problem.

That also means every article should not display every possible alternative.

A market story does not automatically need one-day, one-month, year-to-date, one-year, five-year, peak and trough returns.

That would replace one information problem with clutter.

But when another obvious conventional frame would materially change the reader's impression, hiding it becomes harder to justify.

A fall of more than 20 percent from a recent peak and a gain of more than 60 percent for the year are not minor variations on the same story.

They are two important views of the same dataset.

Make the frame inspectable

Digital publishing can preserve the published frame while letting the reader inspect another one.

A market article might show:

Published frame June high → 17 July: **down more than 20%**

and, separately:

Alternative frame Start of 2026 → same 17 July cutoff: **up more than 60%**

The original claim remains visible.

The reader has simply asked another question of the same observations.

That distinction matters.

An alternative frame is not a correction.

It is not a replacement truth.

It is another calculation over the same underlying data.

The reader may change the question without changing the data.

Preserve the calculation

The visible article does not need to become a statistics dashboard.

But the publication should retain enough information to reproduce the percentage later.

That means preserving the observations and the method.

Method matters because there can be more than one legitimate return series. S&P Dow Jones Indices, for example, distinguishes price-return indices from total-return indices, where dividends are reinvested.

The same dates can therefore describe different return calculations depending on what the methodology includes.

The same principle applies elsewhere: health reporting may distinguish relative risk, absolute risk and percentage-point change; climate reporting may depend on which sectors and removals are included.

A percentage is reproducible only if its observations and its method survive with it.

Most readers do not need that full audit trail in the sentence.

The publication still needs to have it.

Store more than you show.

Four principles for reporting percentages

When a percentage materially matters to a news story:

1. **Name the comparison.** Make clear what the percentage is relative to.
2. **Preserve the calculation.** Keep enough of the underlying observations and method to reproduce the published figure.
3. **Do not hide a materially different conventional frame.** If another obvious comparison would reverse or radically change the reader's impression, surface it or make it immediately inspectable.
4. **Keep alternative frames separate from the published claim.** Interactive or reader-selected comparisons can answer other questions, but they should not silently replace the newsroom's original frame.

This does not remove editorial judgment.

It makes that judgment easier to inspect.

Implementation status at Hedegreen Research

This article proposes a publishing standard and a possible interactive inspection pattern.

The reference-frame widget described here is **not yet deployed** on Hedegreen Research. The current article is therefore a proposal and research position, not a description of an existing reader feature.

The exact reader interface remains subject to testing.

What is still unproven

The structural argument is straightforward.

The interface is not.

We do not yet know when readers benefit from seeing an alternative frame, when it creates unnecessary noise, or which interactive controls help rather than encourage cherry-picking.

Those are empirical questions.

The alternative interface should be allowed to lose.

If it confuses readers, the design should change.

The point is not to defend a widget.

The point is to preserve the information needed to understand and inspect the number.

The first article in this series argued that a monetary fact should survive its currency conversion.

The same separation appears here.

The observations and reference frame are the underlying reporting state.

The percentage is derived from them.

If journalism preserves only the percentage, it may preserve the answer while losing part of the question.

Sources

- Reuters — semiconductor index, 17 July 2026 (<https://www.reuters.com/world/asia-pacific/chipmakers-other-high-flying-stocks-slide-ai-trade-wobbles-2026-07-17/>)
- European Commission — About the EU ETS (https://climate.ec.europa.eu/areas-action/carbon-markets/about-eu-ets_en).
- European Commission — Climate Action Progress Report 2025 (https://climate.ec.europa.eu/eu-action/climate-strategies-targets/progress-climate-action/eu-climate-action-progress-report-2025/chapter-1-climate-action-advances-and-challenges_en).
- Schwartz et al. — BMJ 2012;344:d8164 (<https://www.bmj.com/content/344/bmj.d8164>).
- S&P Dow Jones Indices — Methodology Matters (<https://www.spglobal.com/spdji/en/research-insights/index-literacy/methodology-matters/>).

RELATION MEMORY

NEARBY [A Monetary Fact Should Survive Its Conversion](#) · Previous instalment, Article 001 of Journalism, Reassembled. It separates a reported monetary amount from currency conversion; Article 002 separates observations and reference frame from the derived percentage. Series order is recorded in series and part navigation.