

Facilitator guide: Module 10, Time series and market indices

A teacher-facing companion to Module 10. The module is the full lesson; this guide adds the facilitation layer: a preparation checklist, timing cues, guidance for the discussion questions, and notes on what to emphasize and where students get stuck. Slides and a printable version are below.

At a glance

- **Length:** 90 minutes. A 60 minute and a 120 minute variant are noted under Teaching notes.
- **Level:** advanced undergraduates or graduate students in a time series analysis, applied econometrics, or market research methods course, who have taken or are concurrently taking an introductory statistics or econometrics course.
- **Access:** the no-code sandbox at sandbox.altfndata.com is the primary path, and is all that is needed for the core session. No API key is required. An optional code extension, retrieving the underlying sold-lot records via the production API and reproducing the quarterly bucketing in Python, requires a class API key from info@altfndata.com.
- **Goal:** students leave able to build a quarterly demand index from sold-lot records in the sandbox, state precisely where an index stops being trustworthy because of recency under-ingestion, and describe a two-brand comparison as a methodological exercise in relative pattern rather than a market call.

Before class

- Register your own sandbox account and run all three guided queries end to end, so you have known-good quarterly index charts for two artists or brands on screen.
- Open the coverage browser on the category you plan to demo (fine art, or another category) and confirm how the two artists or brands you will filter on are written in the designer field.
- Prepare a written statement of the recency caveat for the board or a handout, since it needs to be repeated at multiple points in the session.
- Load the slides and confirm the projector or screen share shows the SQL editor and pre-built charts tab clearly, including how to mark a cutoff quarter visually on a line chart.
- Optional: if you plan to run the API extension, request a class API key from info@altfndata.com ahead of time and confirm the Python reproduction of the quarterly bucketing matches the sandbox's SQL result.

Timed agenda with cues

Time	Segment	What to do	Watch for
0 to 15	Introduce the transaction-based index	Contrast a transaction-based index with a listed-price index, and preview the recency caveat as the session's central discipline.	Students assuming "index" means something proprietary or complex. Ground it as a bucketed summary statistic tracked over time.

Time	Segment	What to do	Watch for
15 to 25	Sandbox orientation	Confirm students can open a category table and locate sale_date, usd_price_decimal, and designer in the data dictionary.	Students unclear on which field drives the quarter bucketing. Point at sale_date specifically before running the first query.
25 to 45	Guided demo: single-brand quarterly index	Run query 1, render as a line chart, and state the recency caveat plainly at the final one or two quarters.	Students reading the tail-end dip as a demand signal. Mark the cutoff visually on the chart before moving on.
45 to 60	Guided demo: second brand and overlay	Run query 2, overlay both lines, and discuss what the comparison can and cannot support.	Students concluding one brand is "beating" the other. Redirect firmly to relative pattern over the stable period only.
60 to 75	Small-group exercise	Each group builds a quarterly index for a different brand or category and marks the quarter after which the recency caveat applies.	Groups picking a category with too few sold lots per quarter. Nudge them to check sold-lot count before committing.
75 to 85	Class discussion	Groups present their index shapes and defend where they drew the recency cutoff.	Cutoffs defended only by feel. Ask each group to point to a specific count or pattern that justified their line.
85 to 90	Wrap-up and homework	Restate the one-sentence takeaway and hand out the homework.	Leave real time for homework logistics, not zero.

Guidance for the discussion questions

Use these as the "what to listen for" behind each question in the module. They are talking points, not a graded key.

- 1. What a transaction-based index represents versus a listed-price index.** Listen for: it reflects what buyers actually paid, a realized behavior, rather than what sellers hoped to get. It misses lots that never sold and any information about the gap between what was asked and what was paid.
- 2. Why median price is a more stable statistic than a single sale or a raw average.** Listen for: value in these categories can concentrate heavily in a small number of exceptional lots, so a raw average or a single headline sale can swing a quarter's number dramatically. The median resists that concentration and better represents the typical transaction.
- 3. Where to draw the trust line on an index chart.** Listen for a specific, defensible answer, such as pointing to the quarter where sold-lot count visibly drops relative to prior quarters, and framing the defense around ingestion lag rather than a market judgment.
- 4. The likely explanation when two brands' lines diverge sharply at the tail.** Listen for: the recency caveat makes an ingestion artifact the more likely first explanation, and before ruling it out, you would check whether sold-lot count also dropped for both brands in those same quarters, which would support an ingestion explanation over a real divergence.
- 5. What is lost when an index tracks price alone.** Listen for: a price-only index can look stable or exciting while resting on a tiny, unstable number of transactions. Without sold-lot count or sell-through alongside it, the reader cannot tell whether a quarter's price move is a signal or noise from a thin sample.
- 6. How this session changes a brief on "how a brand's market performed this year."** Listen for: the brief would state the index alongside its supporting volume, explicitly flag the quarters affected by recency

under-ingestion, and frame any recent-quarter observation as tentative rather than concluded.

7. How auction-calendar seasonality complicates a quarter-over-quarter reading. Listen for: concentrated spring and fall sale seasons mean some quarters naturally carry more volume and different price levels regardless of demand, so a straightforward quarter-over-quarter comparison can mistake seasonal rhythm for a trend unless compared against the same quarter in a prior year or considered alongside volume.

8. The difference between comparing historical patterns and forecasting future prices. Listen for: the index describes what happened, method not appreciation, a historical record built for comparison. Using it to forecast requires additional assumptions the exercise does not support, and the session's own recency caveat is itself a warning against extrapolating the trailing shape forward.

Teaching notes

- **Most common misconception:** students read the final quarters of any index as the most important, most current signal. Point at the sold-lot count for those same quarters and show it dropping, then connect that directly to the recency caveat before discussing what the price line shows.
- **Second misconception:** treating the two-brand overlay as a competition with a winner. Redirect firmly to relative pattern over the stable period, and have students practice restating a comparison in the "steadier, not better" framing from the demo.
- **60 minute variant:** run only query 1 and query 3 live, shorten the second guided demo's overlay discussion, and skip the volume-based alternative in the small-group exercise; keep the recency caveat marking exercise intact.
- **120 minute variant:** after the class discussion, add the annual-bucketing extension activity as a class exercise, comparing how the coarser resolution changes both stability and how far back the recency caveat needs to extend.
- **If the sandbox is slow or blocked on the room network:** fall back to the pre-run charts for both brands you captured in preparation, run the recency-caveat marking exercise on printed copies of those charts, and have students execute the guided queries themselves as the first part of homework.

For the full lesson content, queries, and homework, see Module 10. Questions or a class API key: info@altfndata.com.