EXPERT SESSION 1: EQUITY BETA (β)

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Basics

- β is a *forecast* of joint returns over some period, e.g., 5 years

- Returns jointly iid $\rightarrow$ β is constant: estimate with as long a time series as possible (and high-frequency data)

- Joint returns distribution stationary but not iid $\rightarrow$ two βs:
  – unconditional (long-run) β: constant, so same as iid case;
  – conditional (current) β: mean-reverting
  (i) if reversion reflects mis-pricing, then estimate with as long a time series as possible (Stein JBus, 1996)
  (ii) if reversion reflects risk pricing, then *may* want to estimate with shorter time series

- Joint returns distribution non-stationary: Help! (but unlikely)

Question 1

For the 2022 instrument, should we continue to use the longest available estimates of beta for our comparator firms to set the equity beta?

- Probably yes.
- Optimal approach depends on the existence, source and *speed* of mean-reversion in β.
- In the absence of robust evidence on these matters, "safety-first" approach is to use longest available time series.
- Implicitly assumes:
  - β is constant; or
  - rate of mean reversion is medium-fast; or
  - mean-reversion doesn't reflect rational pricing factors.
- Shorter time series justified iff reversion is slow and due to rational risk pricing.
- But identifying rational variation in expected returns is the Holy Grail of asset pricing...

Question 2

If the AER moves to a 5-year estimate of the return on equity, does this have implications for the period over which it measures beta? Should the AER place more reliance on estimates of beta from the last 5-years?

- Obviously no implications if "best" approach is to use longest-available time series.
- If that's not the case, it's not as simple as putting more weight on last 5 years–except in the unlikely event that reversion cycle sees history repeat itself every 5 years.
- What matters is the *accuracy* of β estimates — put candidates in a horse race as per recent academic literature, e.g., Levi and Welch (JFQA, 2017), Hollstein (JBF, 2020), Marshall et al. (2021).
- Can't answer this question conceptually — must be data-informed.
- Without that evidence, putting *any* weight on 5-year β estimates is hard to justify.