



IDIOSYNCRATIC RISK: AN APPLICATION OF AUTOMATED MACHINE LEARNING

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WE'VE SEEN...

- Open-source unsupervised learning models can be applied to the manager selection process with coding expertise.

BUT WHAT IF...

- Your team has great finance knowledge, but weak coding skills?
- Your team is small and can't dedicate the human capital to data science?

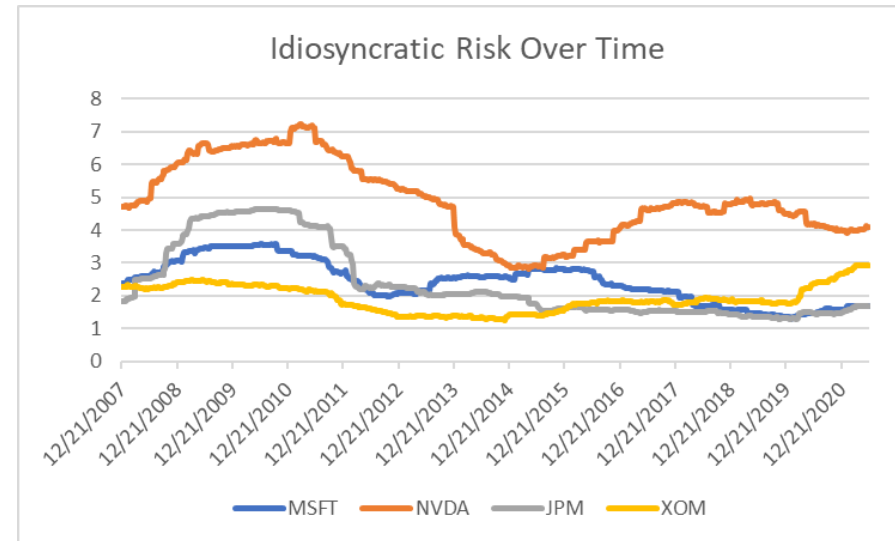
OUR CASE STUDY: IDIOSYNCRATIC RISK

Tracking error can be disaggregated into two components: systematic and idiosyncratic.

(Sapra, Steve; PIMCO “Active Share, Tracking Error, and Management Style,” 2013)

$$TE = \sqrt{b'Wb + AS^2 \frac{2\pi}{N} \underbrace{\sigma_\epsilon^2}_{\text{Idiosyncratic risk}}}$$

Idiosyncratic risk

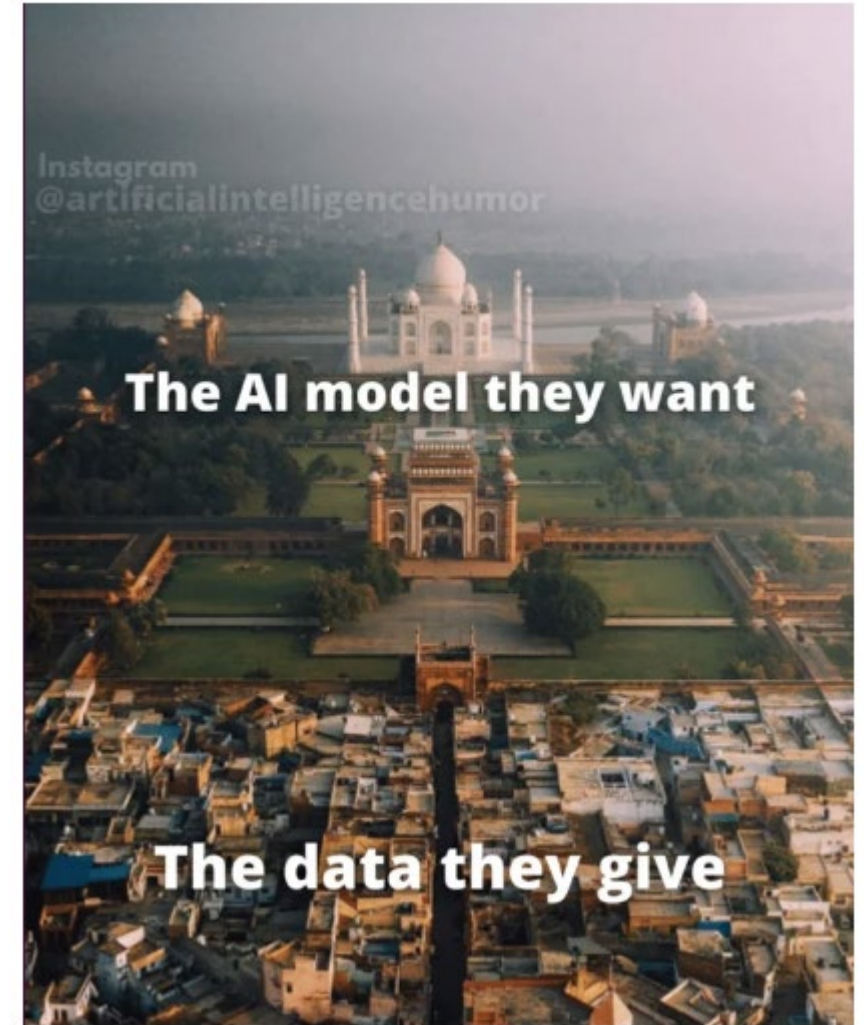


Target variable: Idiosyncratic risk of an individual company

- Uses:
 - Volatility weighting
 - Datapoint for stock selection
 - Risk-adjusted returns optimization
 - Input to another model

FEATURE ENGINEERING

- Huge opportunity to add value as a domain expert.
- Feature types for this model:
 - Fundamental
 - Valuation
 - Outputs from the options market
 - Industry classification
 - Sentiment approximations



Source: Reddit, u/memer_ai, Instagram @artificialintelligencehumor

AUTO ML

“LIKE BOWLING ON THE WII WITH BUMPERS”

Bumpers

- **Heuristics** from leading data scientists are used as a default to prevent overfitting and optimize performance
- Model **preprocessing** is completed according to industry standard
- You won't look as cool doing it, but you'll likely get a higher score. Pros will find it restricting.



Lower physical exertion

- Model-building process automated
- Models trained in parallel
- Models can be deployed with a few clicks, or through an API.

DATA

TARGET

FEATURES

We can move to the model-building process.