



Reflections on “The Signal & the Noise” by Nate Silver

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WARNING!
Contains Plot Spoilers!

The Signal & the Noise in a Nutshell

- We are not very good at forecasting.
- This is not because it is not possible to forecast
- It is because we are human and we make human errors
- We also fail to learn from our mistakes
- The books contains 7 chapters illustrating the kind of mistakes we make
- It then gives 6 chapters on how we can do better

7 Chapters of Errors (I)

1) Rating Agencies Risk Valuation of CDOs in 2007

- CDOs were rated as AAA which implied $P(\text{Fail in 5yrs}) = 1 \text{ in } 850$
- By 2009, 28% of CDOs had failed, 200x expectations.
- Reasons include lack of history to model risk, lack of incentives to build quality models, failure to understand multivariate non-linear correlations.
- Essentially failure to appreciate OUT OF SAMPLE modelling risks.
- I had written about precisely this kind of risk in my MSC thesis in 1997.**

2) Political Punditry and predicting 2008 US Presidential Election

- Pundits are either Foxes or Hedgehogs.
- Hedgehogs receive the publicity but Foxes are better forecasters.
- Foxes get better with experience, Hedgehogs get worse with time!
- “Where are the 1-handed statisticians & economists!?”
- I have always been happy to use multiple methods of forecasting.**

7 Chapters of Errors (II)

3) Sport Forecasting (focus on Sabermetrics)

- At the time of “Moneyball” in 2003, sabermetricians were perceived as a threat to traditional scouts.
- Today, both scouts & sabermetricians complement each other.
- Now a realisation that objective data alone is insufficient and that subjective data can enhance forecasts.
- Essentially, definitions of what is objective/subjective changes over time.
- Cocoa hedging strategies experience showed me how easy it is to confuse objective & subjective.**

4) Weather Forecasting & Hurricane Katrina

- Accuracy of weather forecasts has doubled over 25 years.
- However, Utility of forecasts is still an issue e.g. Katrina.
- Public have to make a decision on what to do with such forecasts which exposes them to false positive & false negative risks.
- Food safety decisions based on samples shows risk context is essential.**

7 Chapters of Errors (III)

5) Earthquakes focusing on Aquila 2009 & Lima 1981

- Rare event forecasting with enormous false positive (Lima) and false negative risks (Aquila).
- However, the long run frequency & magnitude of earthquakes is extremely stable. It is the specific predictions that are problematic.
- Prediction models suffer from OVERFITTING.
- Too many overfitted models in my early days!**

6) Economic Forecasts especially GDP

- Over last 18 years, 6 years have seen US GDP growth outside forecaster's 90% Predictions Intervals.
- Economists are overconfident due to failure appreciate 3 issues:
- Correlation is not cause & effect, non-stationarity of effects, errors in input variables and lagging nature of effects.
- Ice Cream Sales & Weather was a perfect example of lagging time series.**

7 Chapters of Errors (IV)

7) Epidemics

- Also looks at Demographic modelling.
- Key forecasting issue is how to EXTRAPOLATE.
- Simulation methods are used here which opens up another box of errors.
- Being able to react to prediction errors as time series unfolds is essential but also knowing when to react and when not to react.**

Nate Silver Told Me Nothing New

- I had either worked out these issues for myself or had experienced these issues personally.
- I like to think I have learned over the years (though I am still haunted by my 2011 West African Cocoa Supply forecast!).
- So why haven't others learnt these lessons?
- What has probably helped me is that I have worked in so many departments and industries and seen myriad forecasts are made and fail.
- Perhaps specialists in certain fields and industries are less able to learn lessons from their failures?