

NHH



# TRYG'S ACQUISITION OF ALKA

WHY THE WORLD SHOULD BE MORE ABOUT *INTERVALS* AND  
LESS ABOUT *POINT ESTIMATES*

FRODE STEEN

ACE 2019 COPENHAGEN

14.11.2019





# Tryg and Alka was allowed to merge November 2018

- More than average empirical analysis by the CA (decision=268 pages)
  - Econometric demand estimation
  - Calibration of demand
  - Merger simulation of pre-merger pricing pressure
- Merger allowed with (no structural) remedies
  - Tryg offered commitments, to be effective for 5 consecutive years:
    - Terminate exclusivity clauses in a number of Alka and Tryg partnership-agreements
    - To not charge customers any form of fee or payment related to the termination of insurance policies
    - To donate 5 million DKK annually to “Forsikringsguiden”, an independent insurance and price comparison website



## My focus

1. Merger simulations and econometrics
2. Remedies and Alka's market role
3. Why the world should be more about *intervals* and less about *point estimates*



# How to deal with aggregates and averages

- More elastic in the aggregate (2-3 times)  
seems strange:
  - Noise cancelling?
  - Smoothing?
  - Average of average prices?
- And are average prices in this market representative at all?
  - Customer characteristics decisive for customer price
    - Size of deductible, customer age, region, income, occupation, married or not
    - All of this depending on what the historical statistics in the different insurance companies and regions have been
    - The list is 'endless'

| Agg. level | Agg. code example | Postal codes | # Regions* |
|------------|-------------------|--------------|------------|
| 4-digit    | 1152              | 1152         | 1,028      |
| 3-digit    | 115               | 1150-1159    | 531        |
| 2-digit    | 11                | 1100-1199    | 85         |
| 1-digit    | 1                 | 1000-1999    | 9          |



## How to deal with aggregates in the demand modelling

- If region wise pricing should be viable as instruments:  
*Regions should be different?*
- The aggregation level results suggests that you do not capture some variation in the disaggregated models
- I have not read all the 268 pages, but what is the argument for being more elastic towards the bundle?
- Seems a bit as if the car insurance, literally speaking is '*driving*' your result?  
(which also has the largest cost component – right?)

|                | Price elasticity estimates |
|----------------|----------------------------|
| Average bundle | -[2-3]                     |
| Home/liability | -[0-1]                     |
| Car            | -[2-3]                     |
| House          | -[0-1]                     |
| Accident       | -[0-1]                     |



## How to deal with instruments?

- Prices and market shares, lagged one year, only instrument that *worked*?
  - Worked in the sense of being correlated with prices
- Serial correlation with such aggregated average prices must be very high
  - Did you check
- I think (despite what Gollier and Ivaldi did back in 2009) that lagged endogenous variables are a last resort solution – but not necessarily a very good one
- Besides lagged claims (that also did not work), your other instruments have challenges in terms of endogeneity
  - I suspect that premiums in neighbouring regions mostly differ by a fixed factor from each other – if not disaggregating into regions is important.
  - Interaction between regionspecific HHI and claims is at least *half* endogenous



## Merger simulations and sensitivity

- You end up calibrating the elasticities based on a Lerner assumption ++:

$$\epsilon_{ii} = -\frac{1}{m_j} \quad \longrightarrow \quad \epsilon_{ii} = -\frac{1}{m_i - m_j D_{ij} \frac{p_j}{p_i}}$$

Thus, the calibrated elasticity depends on:

- The **margins** of the two firms ( $m_{i,j}$ )
  - The **diversion** between the two firms ( $D_{ij}$ )
  - The **relative prices** of the two firms ( $p_{i,j}$ )
- Which all pricing tests (GUPPI, UPP, IPR...) depend on.
  - Not to mention the *form of the demand curve*



# Merger simulations and sensitivity

- The calibrations (and later simulations or simple price pressure tests) are determined by strong assumptions and often figures that are hard to pin down properly.
  - **Diversions**
    - Most often survey based – average diversion – and mostly never any sensitivity analysis
    - Market share based – often skewed in local markets
    - Churn numbers – most notably from telecom, but are available in industries as electricity retail, banking, and as in the present case: Insurance
  - **Relative prices**
    - Often assumed equal, if not, hard to agree on which price to compare in differentiated product markets
  - **Margins**
    - Difficult animal, made simple by using accounting figures for ‘variable costs’
    - However, extremely difficult to agree on from case to case



## Let us look at one of these animals often used in merger cases – the *GUPPI* test

- Measures upward price pressure in percentage
- Moresi (2010), with linear demand, the price increase for product 1 after the merger is:

$$\Delta P_1 = D_{12} \cdot (P_2 - C_2) \cdot \frac{P_2}{P_1}$$

Where  $D_{12}$  is the diversion rate from product 1 to product 2,  $P_i$  is price for product  $i$ ,  $i = 1, 2$ , and  $C_2$  is the marginal cost for product 2.

**Hence:** Assumed equal prices – GUPPI is *entirely determined* by **diversion** and **margins**

**AND:** The higher both of them are, the higher is the upward price pressure



## Merger simulations and sensitivity – variable (*marginal*) costs

- Accounting numbers for relevant product(s) from local branches often used.
- Challenges – *whereof several also discussed in the Tryg – Alka merger*
  - Is all capital fixed?  
In airline markets labor is more fixed than capital
  - Is all wage variable?  
What about workers that are hired in to meet demand peaks?
  - What is the representative cost?  
The local branch in the local market, the average branch...
  - What time perspective should we apply?

If we believe E. Hjelmeng and L. Sørgard (2016, p 694-695): “*An acquisition is a long run decision, with potential for adapting the capacity. This suggest that one should choose a long run perspective when the relevant margins are to be determined.*” [My translation]



## *GUPPI* and the choice of time perspective

- The time perspective used **when evaluating mergers** are not concluded neither in practice nor in ‘theory’.
  - The diversion rate is an indirect measure for the cross price effect (elasticity) that is typical higher in a longer time perspective
  - The Price-Cost margin varies with the time perspective: In a year more cost items are variable than in three months

|                        | Short run | Long run |
|------------------------|-----------|----------|
| Cross price elasticity | low       | high     |
| Price-Cost margin      | high      | low      |



## Remedies and Alka's role in the Danish market

- Reading the press release and the decision: *Alka priced consistently lower than the other firms, and had organic growth in market share.*
- Was Alka the Danish insurance *maverick*?
  - Does 5 million in annual support to the Danish insurance pricing portal indeed *resettle* the pre merger competitive situation
  - Loosing a maverick can be costly
  - And pricing transparency is even a two-edged sword, price transparency might be good to consumers, but is certainly helpful for competitors too

### **A Danish reminder:**

*“Government-Assisted Oligopoly Coordination? A Concrete Case”*

Svend Albæk, Peter Møllgaard and Per B. Overgaard, JIE, 1997, 45(4), pp. 429-443

# Statistical uncertainty:

## How relevant are averages and point estimates?

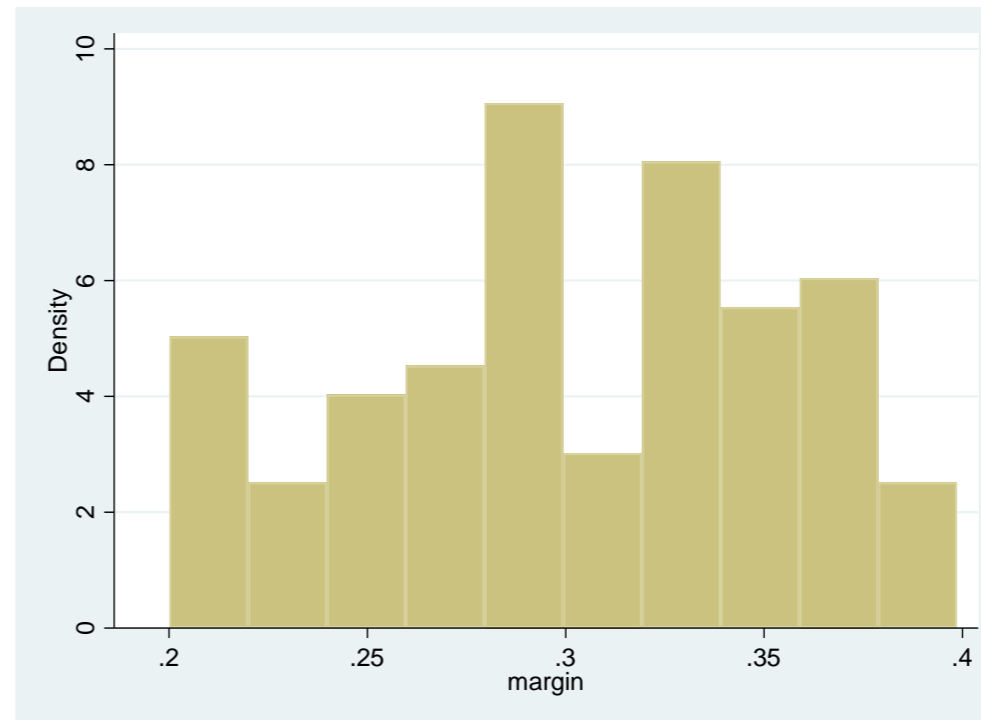
- **Ex: Diversion:**

- Average from a survey of 300 answers = 35%, Standard error = 2.8%
- The 95% confidence interval is [29.6%, 40.4%]

- **Ex: Margin**

- Average based on 100 branches = 30%, Standard error = 0.5%
- The 95% confidence interval is [29.2%, 31.2%]

But is the average even relevant here?





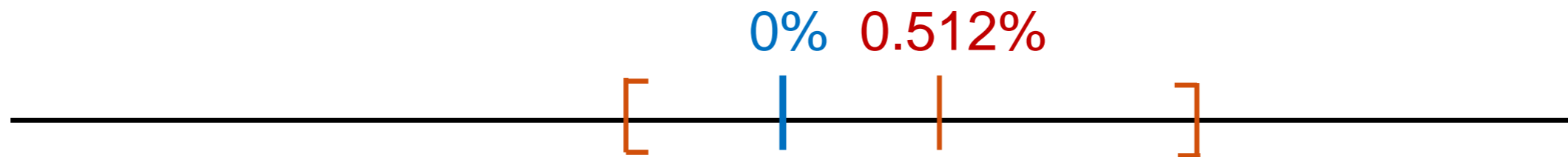
## Back to the Tryg-Alka merger simulation (Table 5.7 p. 142)

|                              | Tryg   |                  | Alka   |                  | Markedet |                  |
|------------------------------|--------|------------------|--------|------------------|----------|------------------|
|                              | Lineær | Iso-<br>elastisk | Lineær | Iso-<br>elastisk | Lineær   | Iso-<br>elastisk |
| <b>Main scenario</b>         | [2-3]  | [6-7]            | [2-3]  | [6-7]            | [0-1]    | [1-2]            |
| <b>Sensitivity scenarios</b> |        |                  |        |                  |          |                  |
| No efficiency                | [2-3]  | [6-7]            | [2-9]  | [9-10]           | [0-1]    | [2-3]            |
| Lower gross margins          | [1-2]  | [3-4]            | [1-2]  | [3-4]            | [0-1]    | [1-2]            |
| Different relative prices    | [1-2]  | [5-6]            | [2-3]  | [8-9]            | [0-1]    | [1-2]            |
| Outside good share (larger)  | [2-3]  | [6-7]            | [2-3]  | [6-7]            | [0-1]    | [1-2]            |

- *Small changes* – but then – little is said about the size of the changes in eg., gross margin
- More interesting: We are back to ***point estimates, no intervals, no statistical tests*** (the brackets are there only to hide the precise numbers)

# Why the world should be more about *intervals* and less about *point estimates*

- *Numbers are magic* – and if we provide three decimals they are *even more magical*
- *BUT:* The economic science, econometrics and all we learn our students are about *intervals*.



Is 0.512% higher than 0%?

*We simply do not know*, unless we also know the *standard error, and thus the confidence interval!*



## And people are worried

Scmalensee (2009): “In the presence of differentiation, it is important not to avoid rigid, formulaic use of any quantitative screening device.

But, in practice, the GUPPI has a checkered history, to put it charitably. The agencies have been unable to come up with consistent statements about how the GUPPI is to be used in practice. Given data availability, computation of the GUPPI often is at variance with the requirements of the economic model underlying the concept of upward pricing pressure, reducing the GUPPI to nothing more than a convoluted restatement of the simplistic structural presumption it was designed to replace. Paul T. Denis (2016)