

# Evidence in Oligopoly Settings



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# Outline

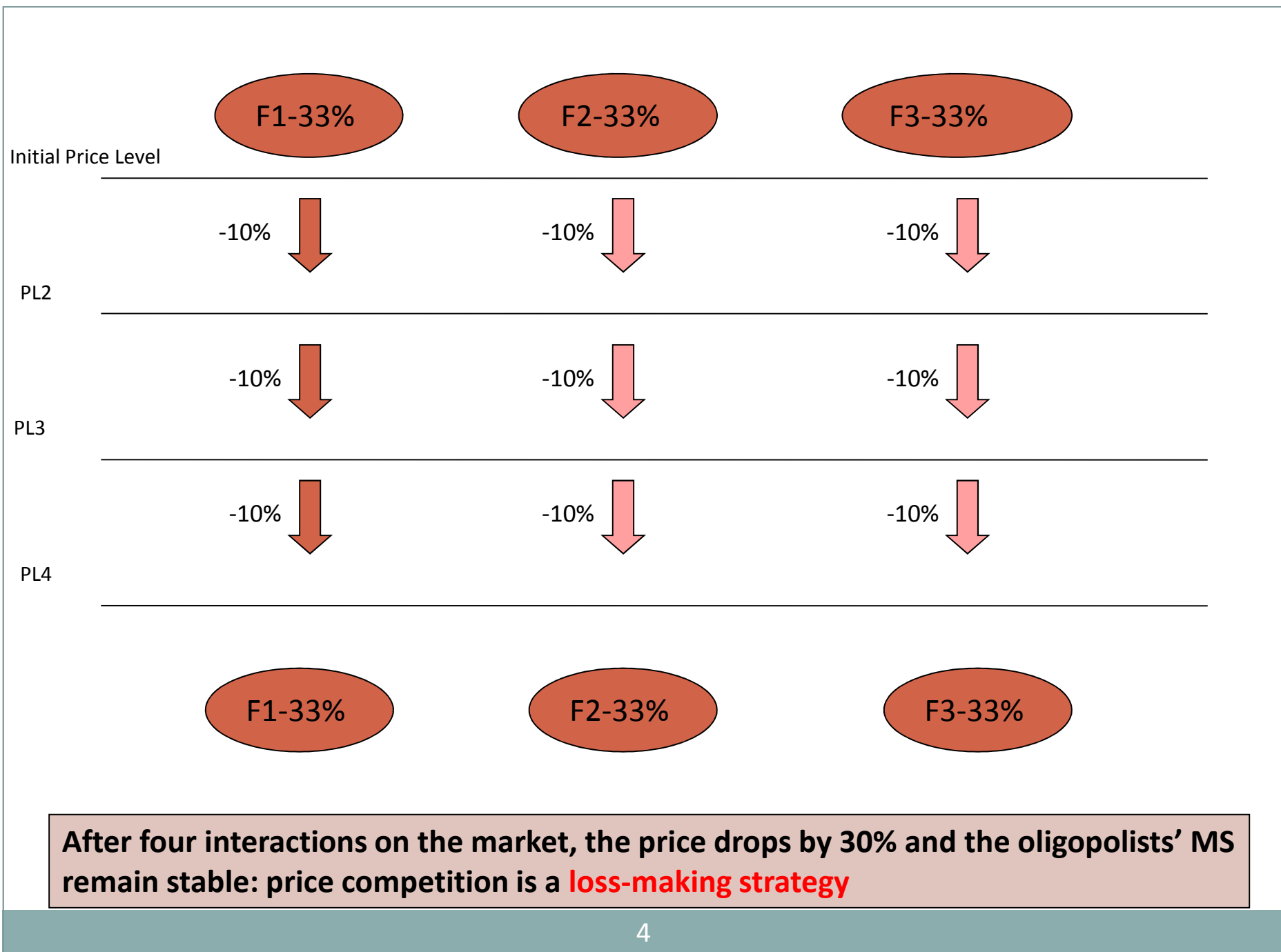
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1. State of play on tacit collusion
2. The problem of proof
3. How economists do it
4. What the lawmakers say

# I. State of Play on Tacit Collusion

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- Chamberlin, « Value where sellers are few » (1929) *Quarterly Journal of Economics*, 63
  - In certain oligopolies, price cuts are useless
  - Oligopolists mimic each other's conduct
    - ✦ Prices remain abnormally stable
    - ✦ Prices increase in parallel
  - Outcome similar to collusion / process different (no agreement)
  - « Tacit collusion », « conscious parallelism », « parallel conduct »



# Current Policy Paradigm

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- **Full *ex ante* enforcement system** under the merger rules
- **No *ex post* enforcement** of statutory behavioural provisions
  - Article 101 TFEU is inapplicable
  - Article 102 TFEU is applicable, but (i) scope unclear; and (ii) Commission unwilling to use it
- Application of the EUMR to tacit collusion subject to very little criticism. Practitioners support this approach (Temple Lang, 2000; Hawk and Motta, 2008)
  - Firms know when they will be subject to EUMR proceedings, whereas risk of Article 102 TFEU proceedings is unpredictable
  - Moral hazard? Systematic testing under the EUMR is lucrative?

# Flaws of Current Approach

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## i. Scope issues – EUMR has no grip on:

- Mature oligopolies
- Stable duopolies (where the existence of EUMR actually prevents mergers) => Olympic Airways/Agan?
- Internal growth
- Candid view that ultimate preventive instrument => many other uncovered practices may turn an oligopoly from competitive to tacitly collusive (minority shareholdings, english clauses, etc.)

**Important risk of type II errors**

## ii. Predictive power of tacit collusion theory is low

- Stigler => “*with oligopoly, virtually everything is possible*”
- Shapiro (1996), Scheffman and Coleman (2003), Slade (2004)
- Many “*mixed factors*” => issues of arbitrariness

**Important risk of type I and II errors**

## iii. Systematic scrutiny of coordinated effects under the EUMR is costly, as compared to the allegedly limited occurrence of tacit collusion

# Proposed *Ex Post* Remedies

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- **Many proposals**
  - Regulatory intervention (UK-like MIRs)
  - Sector-specific instrument (telcos, energy, etc.)
  - Deconcentration legislations
  - Government sponsored mavericks (Gal)
  - Price freezes (Bishop)
  - “*Dynamic*” Article 102 TFEU (Petit)

# Proposed approach under 102 TFEU

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- Anti-disruption practices (Petit, 2007)
  - Abuse should catch conduct which artificially protects tacitly collusive outcomes from natural dislocation
    - Entry of a new player
    - External shock (natural disaster, change in tax rates, rise of new technological standard, etc.) => firms must adjust commercial conduct to new circumstances, but cannot conclude an agreement
  - To remove risks of dislocation of tacit collusion, oligopolists may, individually or collectively, adopt
    - **Anti-entry** behaviour
      - Deterrence (pre-entry, non cooperative) => acquisition of excessive capacities
      - Exclusion (post-entry, non cooperative) => price war
      - Induction (post-entry, cooperative) => setting up of JV, minority shareholding
    - **Adaptative** behaviour, which seeks to redefine the tacitly collusive equilibrium, in light of the new circumstances
      - Unilateral signaling on petrol surcharge following 9/11;
      - French mobile communications market following increase of VAT rate;
      - Judicial harassment?



## II. The Problem of Proof

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# The Problem of Proof

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- Common thread to all approaches is to be contingent on **proof of tacit collusion**
- Mezzanote (2009)
  - “proof of tacit collusion requires the Commission to overcome a difficult problem of identification, notably how to distinguish tacit collusion from other very subtle conducts like unconscious parallelism and undetected overt collusion”
  - “Owing to a problem of proof (detection) Article 82 is unenforceable and can neither punish nor deter tacit collusion. This makes a policy of using Article 82 to combat tacit collusion ex post misconceived and suggests that tacit collusion admits only an ex ante legal treatment”.
- Points further elaborated in Mezzanote, “Using Abuse of Collective Dominance in Article 102 TFEU to Fight Tacit Collusion: The Problem of Proof and Inferential Errors”, *World Competition* 33 no 1 (2010): 77-102

# Mezzanote (WoCo, 2010)

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- Agencies faces a complex identification problem
  - Competition (h1)
  - Tacit collusion (h2)
  - Unconscious Parallelism (h3)
  - Undetected overt collusion (h4)
- Disentangling h1 and h2 is possible
- More complex for h2, h3 and h4
- Central claim: *“a detection hurdle, and consequent costly error, renders Article 102 as unfit to fight tacit collusion”*

# First identification problem: $h_2 \neq h_3$

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- Need to disentangle tacit collusion ( $h_2$ ) from unconscious parallelism ( $h_3$ )
- Two examples to explain identification problem
  - Market for Liquid Gas Petroleum in the UK, 4 firms occupying 90% of the market. High prices. UKCC finds that high switching costs restrict competition due to need to remove tank owned by supplier
  - Market for home credit loan in UK, 4 lenders representing 90% of the market (+ a hundred fringe players). High prices. Due to difficulty faced by consumers to compare prices + importance of credit availability over price
- The argument goes that oligopolies can achieve inefficient equilibria absent collusion (tacit or explicit)

# First identification problem: $h_2 \neq h_3$

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- The fact that oligopolies can achieve inefficient equilibria absent collusion (tacit or explicit) is well-known
  - Monopolistic competition
  - Unilateral effects models
  - Edgeworth cycles
- Modernized *Airtours* test entitles to disentangle the two hypothesis  $\Rightarrow C_1, C_2, C_3$  and  $C_4$ 
  - *Airtours* test would fail on LPG market (no retaliation)
  - *Airtours* test would fail on home credit loan market (insufficient transparency )

## Second identification problem: $h_2 \neq h_4$

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- “*Still a chance that the conduct that is observed is an undetected Article 101 violation*”
- Risks of “*misdirecting the investigation and taking wrong remedial actions*” tackling market structure under 102 TFEU and not conduct
- And Commission must prove that “*only cause*” is tacit collusion

## Second identification problem: $h_2 \neq h_4$

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- Risk that can be averted:
  - Modernized *Airtours* condition requires proof of “*common perception*” amongst oligopolists: absence of this condition suggests  $h_4$ ; **AND**
  - Use of investigative powers to uncover direct evidence of  $h_4$  (+ 102 TFEU investigation may trigger 101 TFEU leniency application): absence of such evidence points to  $h_2$  (direct evidence may also uncover  $h_2$ : “*Let’s follow the leader*”)
- False “*silo*” logic => Agencies are free to change the “*subject matter*” of their investigation in the course of their enforcement activities
- Comes the end of the investigation, several possibilities:
  - if explicit collusion, then 101 TFEU violation
  - if tacit collusion then 102 TFEU violation
  - If tacit collusion strengthened by facilitating practices, then 101 TFEU, 102 TFEU and/or advocacy

# And a last enforcement problem

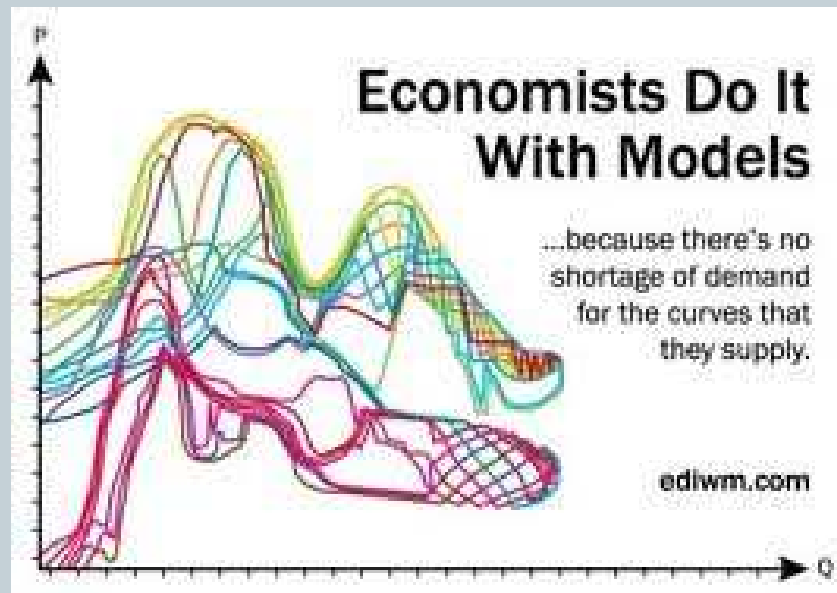
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- Even if this exists, enforcement is “*very complex, time-consuming, costly and unlikely*”
- But Commission managed to find pre-existing tacit collusion in a number of merger cases:
  - *Exxon/Mobil (1999), Grupo Villar Mir/EnBW/Hidroeléctrica del cantabrico (2001), EnBW/EDP/Cajastur/Hidrocantabrico (2002), Bayer/Aventis Crop Science (2002), Wallenius Lines AB/Wilhelmsen ASA/Hyundai Merchant Marine (2002), Dong/Elsam/Energi E2 (2006), ABF/GBI Business (2008), RWE/Essent (2009)*
  - *ABF/GBI Business (2008): “a series of structural and behavioural elements are in place supporting the conclusion that the Spanish compressed yeast market already exhibits some degree of tacit coordination allowing ABF, GBI and Lesaffre to influence prices and/or the levels of sales in individual regions through, inter alia, (de facto) exclusive relations with distributors”*
- Why could not it do it in looser timeframe?
- False “prosecutor-investor” logic => *no investigation if no case at end of line*



### III. How economists do it

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# Empirical studies proving tacit collusion

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- **Ready-mix concrete in Denmark** => Albæk, Møllgaard and Overgaard, “Government-assisted Oligopoly Coordination? A Concrete Case”, (1997) *Journal of Industrial Economics*, 0022- 182 1 Volume XLV
- **Car industry in the US** => Bresnahan, “Competition and Collusion in the American Automobile Industry : The 1955 Price War”, (1987) XXXV 4 *Journal of Industrial Economics*, 457
- **Audit industry in France** => Billard, Ivaldi and Mitrailie, “Evaluation of the Risks of Collective Dominance in the Audit Industry in France” (June 2011), *CEPR Discussion Paper No. DP8417*
- **EU 2G mobile telephony market** => Bekkers, Verspagen and Smits , “Intellectual property rights and standardization: the case of GSM”, (2002) 26 *Telecommunications Policy*, 171–188
- **Electricity markets in the US** => Benjamin, Tacit Collusion in Real-Time U.S. Electricity Auctions (October 4, 2011)
- **London Interbank Offered Rate** => Rosa M. Abrantes-Metz & Albert D. Metz, “How Far Can Screens Go in Distinguishing Explicit from Tacit Collusion? New Evidence From the Libor Setting”, *CPI Antitrust Chronicle* March 2012 (1)

# Method

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- Screens for suspicion
- Tests for verification

# Screens

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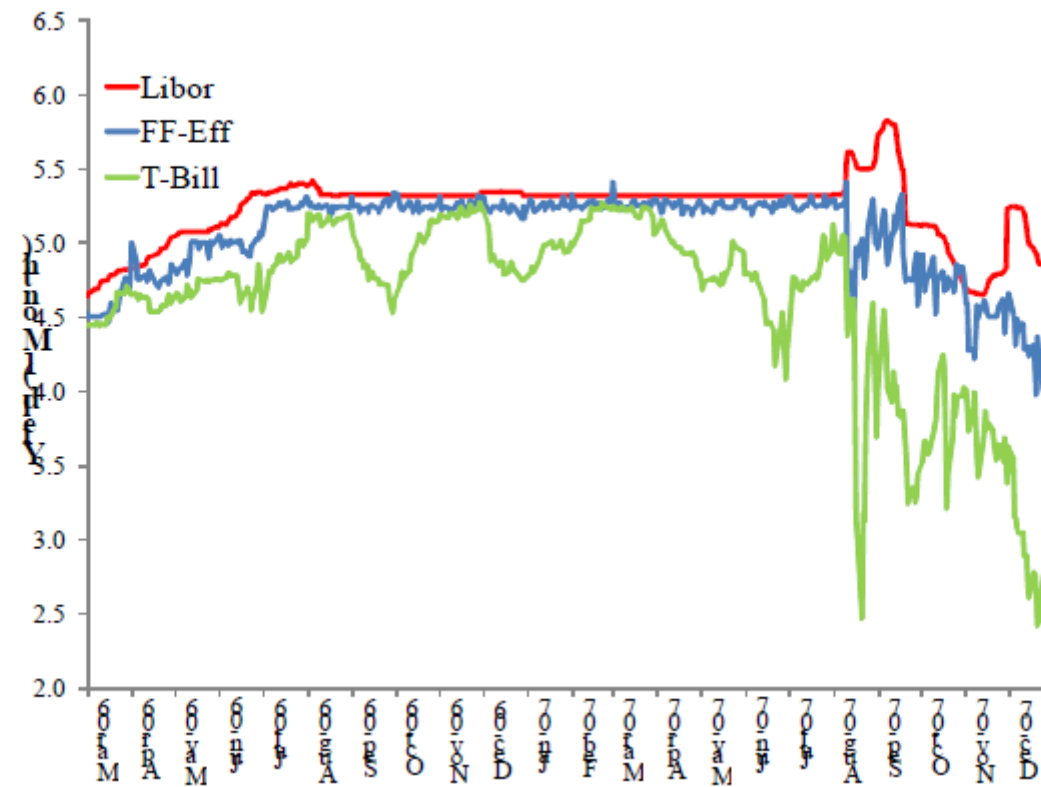
- Screens use market data (price, costs, demand, etc.) “*to identify patterns that are anomalous or highly improbable under ordinary competitive conditions*”
  - Economic model showing that no deviation takes place despite being profitable short term (Scott, Hvidd and Lyons; Piraino)
  - Sustained parallel pricing despite disruptive external shock (Petit)
  - Parallel increase in price not driven by changes in input prices or inflation (Motta)
  - Price parallelism despite changes in costs, technology, demand (OFT Guidance on MIR)
  - Persistent high profits (OFT Guidance on MIR)
  - Anomalous excess in capacity (Osborne and Pitchik)

# Screens

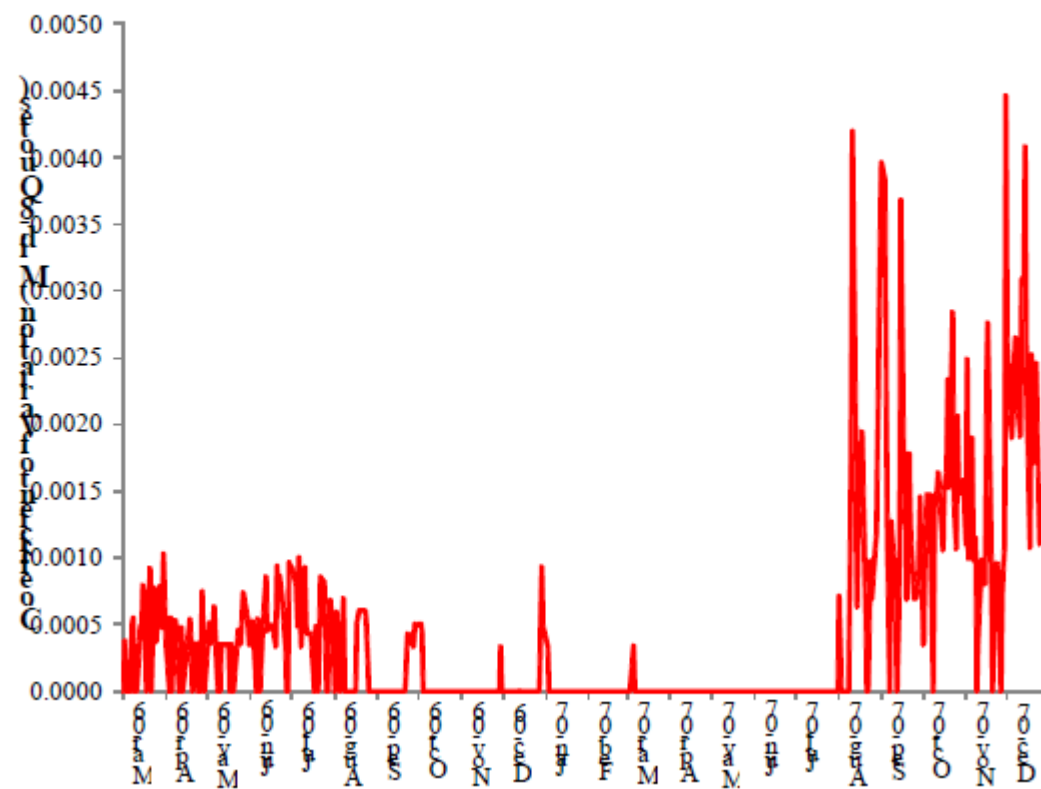
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- Rosa M. Abrantes-Metz & Albert D. Metz, “How Far Can Screens Go in Distinguishing Explicit from Tacit Collusion? New Evidence From the Libor Setting”, *CPI Antitrust Chronicle* March 2012 (1)
- Two anomalies
  - For a period of nearly a year, the Libor was essentially constant
  - Virtual unanimity of individual quotes submitted by the 16 member banks

Figure 1: The One-Month Libor is Nearly Constant from August 2006 to August 2007



**Figure 2: There is Almost No Variation Across the Middle Eight Quotes from August 2006 Through August 2007**



# Screens

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- Question whether screens can move one step further and distinguish illegal (explicit) from legal (tacit) collusion.
  - Identical quotes inconsistent with non cooperative outcome (similar quotes)
  - Abrupt fall in quotes inconsistent with tacit collusion where “learning effects” and transition periods occur
  - **Inference of express collusion**



# Tests

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- Albæk, Møllgaard and Overgaard, “Government-assisted Oligopoly Coordination? A Concrete Case”, (1997) *Journal of Industrial Economics*, 0022- 182 1 Volume XLV

# Facts

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- In October 1993, the Danish Competition Commission (“CC”) decided to gather and regularly publish statistics on transactions prices of firms for two grades of ready-mixed concrete in three regions of Denmark => transparency will promote competition
- Following initial publication, average prices of the reported grades of concrete increased by 15-20 % within less than a year as compared to annual inflation rates of a mere 1-2 % (screen)

# Question?

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- Are these phenomena be due to a business upturn and/or capacity constraints in the concrete industry, or other possible causes
- Or? Change in information structure allowed firms to increased prices.
  - $CR_4 \Rightarrow 57\%$
  - Local oligopolies  $\Rightarrow$  20 kms radius from production site

# Data set

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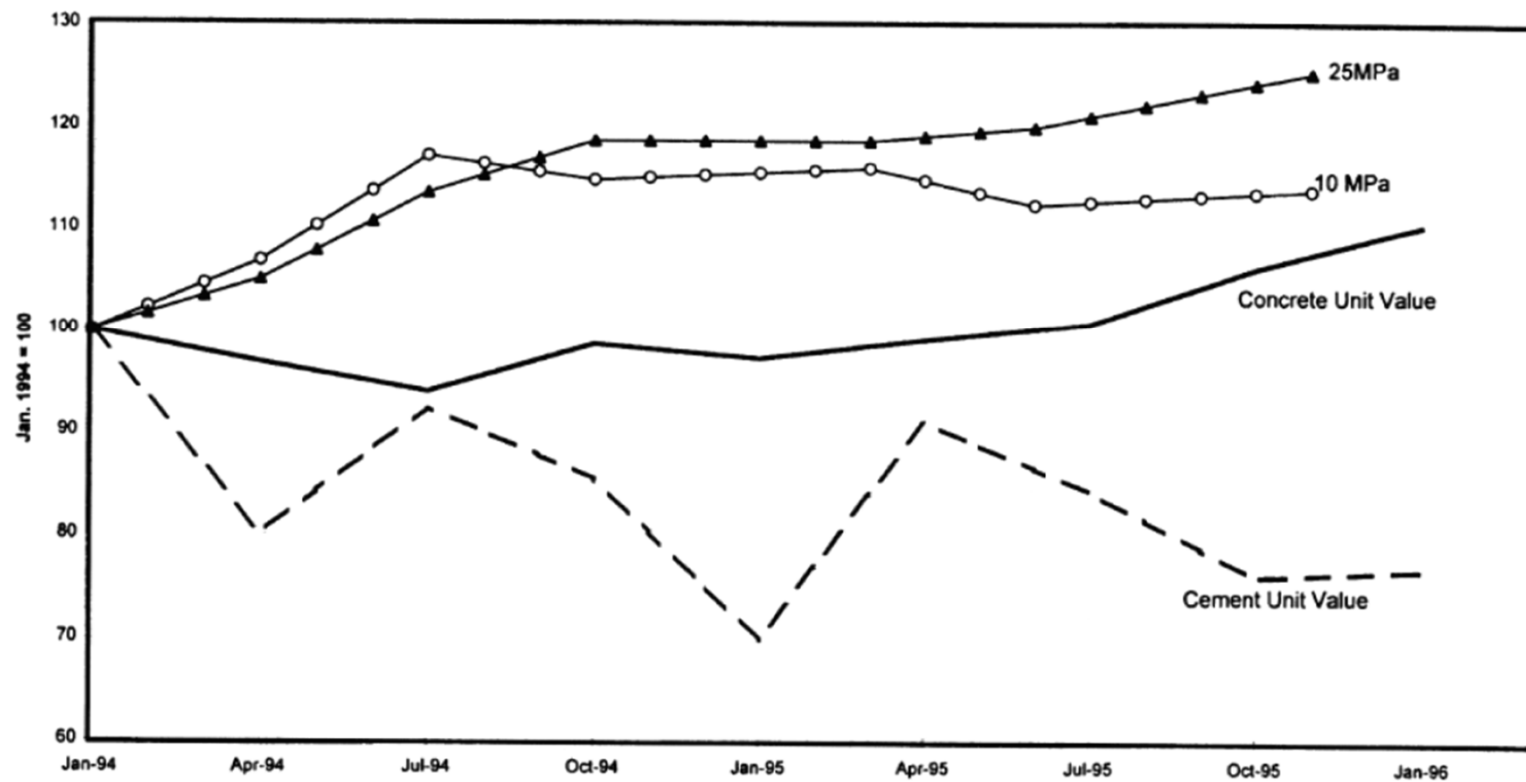
- Data on list and transaction price over 1994 and 3 quarters of 1995
- 2 grades of ready mix concrete
- 18 production sites in 3 regions (7 in region 1; 6 in region 2; 5 in region 3)

# National prices (1)

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- Establishing // conduct (step 1)
  - // price increase + convergence on price level
    - ✦ *“National price indices for the average transactions prices of the two grades of concrete selected by the CC. These prices rose significantly over the first 2-3 quarters of 1994” “Average increase over the two grades sampled was 19% from January to October of 1994”*
  - “Out of line” with other relevant aggregates
    - ✦ *“Consumer prices rose by 1.9%, wholesale prices by 1.6% and the price index for imported, unprocessed raw materials by 1.1%. In addition, a national index for residential construction costs exhibited almost no movement during this period”.*

# Data



Source: Unit Values: Danmarks Statistik *Varestatistik for Industrien*, Various Issues;  
10 and 25 MPa: CC 1994/95.

Figure 1  
National Price Indices

# National prices (2)

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- Discarding alternative causes (step 2)
  - Increase in demand, exogenous cut in capacity, or an increase in input prices?
    - ✦ Construction activity and employment is an indicator of the demand for concrete
      - Small upturn in demand, but did this lead to capacity constraints and price increases?
      - No reported capacity constraints in production and distribution, as compared to previous periods
  - Wages and energy prices at a “**virtual standstill**” from 1993 to 1994

# Regional Prices

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- Robustness check through micro-sample
- Data on 3 regions, focus on region 2 (Aarhus)
- 6 firms with 70%, but focus on 4 firms close to the city of Aarhus

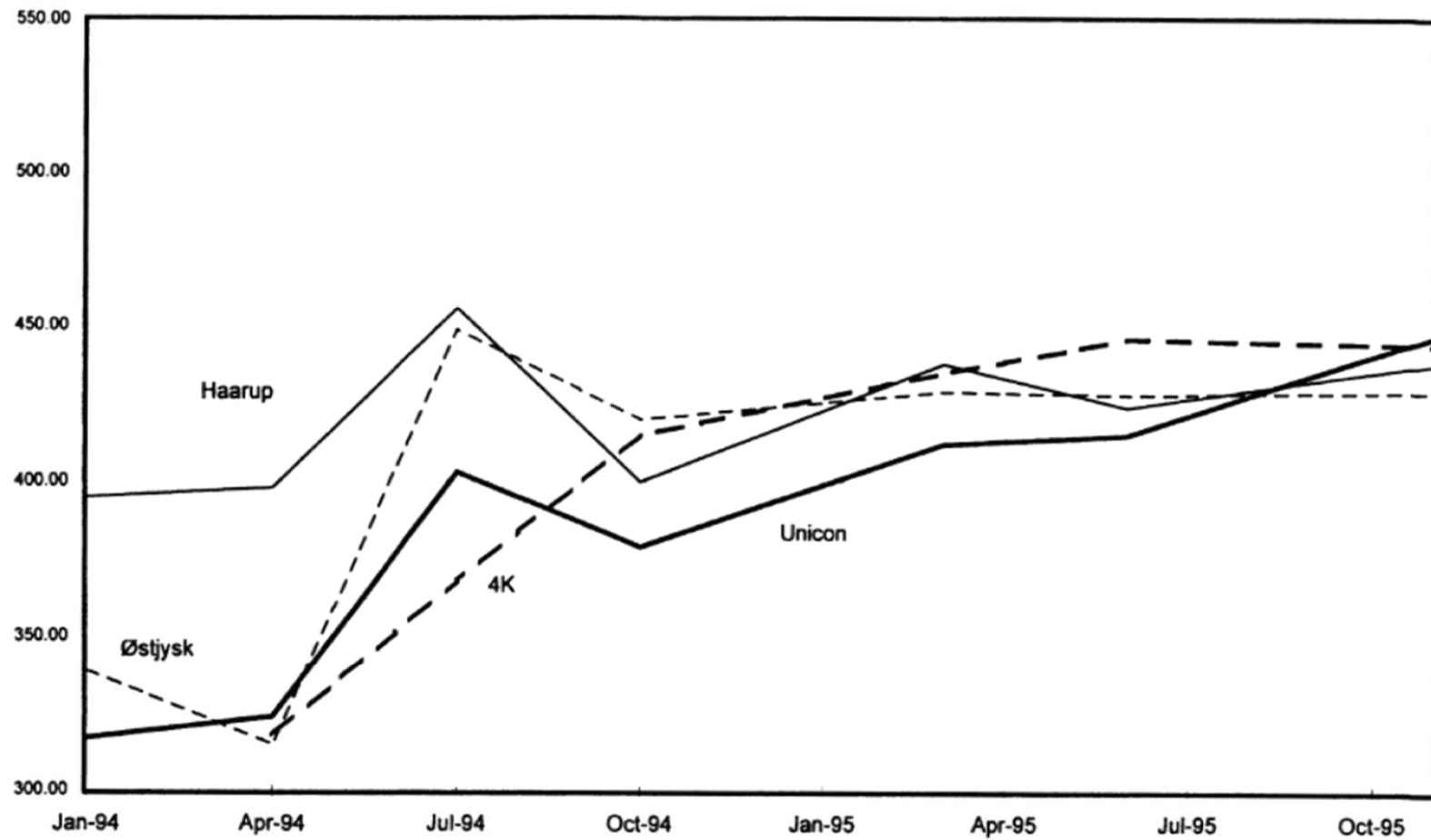


# Regional Prices

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- *“from April to July prices shot up by 20-25%. Since then prices have more or less settled at the new level. This suggests that the observed price change may be described as a one-shot jump in response to an exogenous change in the structure of information available to firms”.*
- *“In particular, there was no particularly strong local business upturn, and input prices (i.e. wages and prices of raw materials) remained more or less constant or in the case of cement – the most important raw material – fell”*

# Data



Source: CC 1994/95

Figure 3  
Low 10-MPa Prices in Aarhus

# Possible improvements?

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- Screens for suspicion
  - Start with duopolies?
  - And markets not scrutinized under EUMR?
- Tests for conviction

## IV. What the lawmakers Say

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# Confusing pronouncements on collective dominance (1)

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- GC, T-464/04, *Impala v. Commission*, §251

*“close alignment of prices over a long period, especially if they are above a competitive level, together with other factors typical of a collective dominant position, might, in the absence of an alternative reasonable explanation, suffice to demonstrate the existence of a collective dominant position (emphasis added)”.*

## Confusing pronouncements on collective dominance (2)

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- GC, T-464/04, *Impala v. Commission*, §252

*“in the context of the assessment of the existence of a collective dominant position, although the three conditions defined by the Court of First Instance in *Airtours v Commission*, paragraph 45 above, which were inferred from a theoretical analysis of the concept of a collective dominant position, are indeed also necessary, they may, however, in the appropriate circumstances, be established indirectly on the basis of what may be a very mixed series of indicia and items of evidence relating to the signs, manifestations and phenomena inherent in the presence of a collective dominant position.”*

# Confusing state of classic 102 TFEU principles (1)

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- Should the Commission test the plausibility of its theory of harm through a “*but for*” analysis?
  - In a collective dominance setting, Commission may identify the counterfactual market by relaxing one of C1, C2, C3 or C4
  - See S. Davies and M. Olczak, “Tacit v. Overt Collusion, Firm Asymmetries and Numbers”, Working Papers 08-32, Centre for Competition Policy, University of East Anglia (supporting counterfactual analysis in collective dominance cases)

## Confusing state of classic 102 TFEU principles (2)

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- But Commission not requested to prove that market power has been exercised => “*Dominance is the ability to prevent effective competition*” (Discussion Paper, §23)
- Same for collective dominance?



# So how heavy is the burden of proof?

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- **Two requirements**
  - Adduce direct evidence of // exteriorized conduct (#1)
  - Test causality with rule of indirect inference (#2)

## #1. Direct evidence of // conduct (1)

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- GC, T-193/02, *Laurent Piau v. Commission*: examining whether the sports agents had effectively partitioned markets
- GC, T-296/09, *EFIM v. Commission*, §§73 and 75: dismissing allegations of collective dominance based on market share stability, observing market shares to be very unstable and new entrant that had followed an aggressive strategy.
- GC, T-191/98, T-212/98 to T-214/98, *Atlantic Container Line AB and Others v Commission*, §623: shipping companies “seen by shippers as having a single trading strategy on the market”.

## #1. Direct evidence of // conduct (2)

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- GC, T-191/98, T-212/98 to T-214/98, *TACA*, §654 => collective dominance compatible with a degree of internal competition between the parties
- **No need** for conduct to be 100% uniform to intervene
  - Semi-collusion or temporary collusion is caught
  - A bad idea? Not necessarily. Not even the most stable cartels achieve full parallelism

# #1. Direct evidence of // conduct (3)

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- Firms may also conceal documentary evidence showing tacitly collusive intent:
  - DoJ, January 2013, *Anheuser-Busch InBev's /Grupo Modelo*:  
<http://www.justice.gov/atr/cases/f292100/292100.pdf>
  - DoJ quotes internal company documents showing ABI's awareness of, and intent to maintain, its upward price leadership

## #2. Test causality with rule of indirect inference (1)

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- Rules of indirect inference are mundane in EU competition law
- Various types :
  - Predatory pricing => infer predatory intent from below cost pricing short of direct evidence (*AKZO*)
  - “*Pay for delay*” settlements (infer exclusionary intent from nonsensical conduct, paying rival to stay out of court)
  - Concerted practice => infer collusion short of no other possible explanation (*Woodpulp II*; *CISAC*)

## #2. Test Causality with Rule of Indirect Inference (2)

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- How to choose?
  - “*Preponderance of the evidence*” or “*balance of probabilities*” (51% or causation more likely than not) => flexible rule of inference;
  - “*Proof beyond reasonable doubt*” => demanding rule of inference

## #2. Test Causality with Rule of Indirect Inference (3)

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- “*Balance of probabilities*” is the rule of inference:
  - Case C-12/03 P, *Commission v Tetra Laval BC*, §44: “*That being so, the quality of the evidence produced by the Commission in order to establish that it is necessary to adopt a decision declaring the concentration incompatible with the common market is particularly important, since that evidence must support the Commission’s conclusion that, if such a decision were not adopted, the economic development envisaged by it would be plausible*”.
  - Under Article 102 TFEU, no infringement arising from finding of collective dominance, unlike in concerted practices under Article 101 TFEU

## #2. Test Causality with Rule of Indirect Inference (4)

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- What matters is not standard of proof, but nature of the evidence (incl. economic evidence)
- Case C-12/03 P, *Commission v Tetra Laval BC*, §39: “the evidence relied on is *factually accurate, reliable and consistent* but also whether that evidence *contains all the information* which must be taken into account in order to assess a complex situation and whether it is capable of substantiating the conclusions drawn from it”.



# Conclusions

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- Tacit collusion is rare, but economic studies suggest it exists
- Systematic *ex ante* testing is far from ideal
- Evidence of tacit collusion can be brought *ex post*
- Inferential error is a necessary evil, and competition law has tools to fight this
- Investigation in oligopolies remains useful to uncover other « *competition problems* », including those caused by regulation
- If unproven, no problem to have agencies to provide « *clean bill of competitive health* »
- Internal documentary evidence is useful