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BID RIGGING IN CONSTRUCTION WORKS (SEE GASTER, SWITZERLAND)

Economic tools used in ex-ante screening to uncover cartels ACE 2018 (Bologna)



CONTENT

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1. The «See-Gaster» Case

- “See Gaster” is a region of the Canton St. Gallen in East Switzerland
- Investigation by Competition Commission (ComCo) in the region “See Gaster”, April 2013 - July 2016:
 - ✓ It is about road construction sector
 - ✓ **Result:** ComCo uncovered a bid-rigging cartel and fined eight firms a total of around CHF 5 mio. [*“Bid rigging involves groups of firms conspiring to raise prices or lower the quality of the goods or services offered in public tenders”* (OECD)]
 - ✓ **Cartel:** The companies agreed on bids and determined who should to be awarded contracts between 2002-2009
 - ✓ **State:** The case is currently pending before the first appeal instance: The issue is not the cartel itself but the statute of limitation

Particularity:

Trigger of the investigation was for the first time an ex ante statistical analysis of tender data («**Screening**»)!

- ✓ The investigation confirmed the conclusion of screening tool



3. Screening Tool – i. Steps

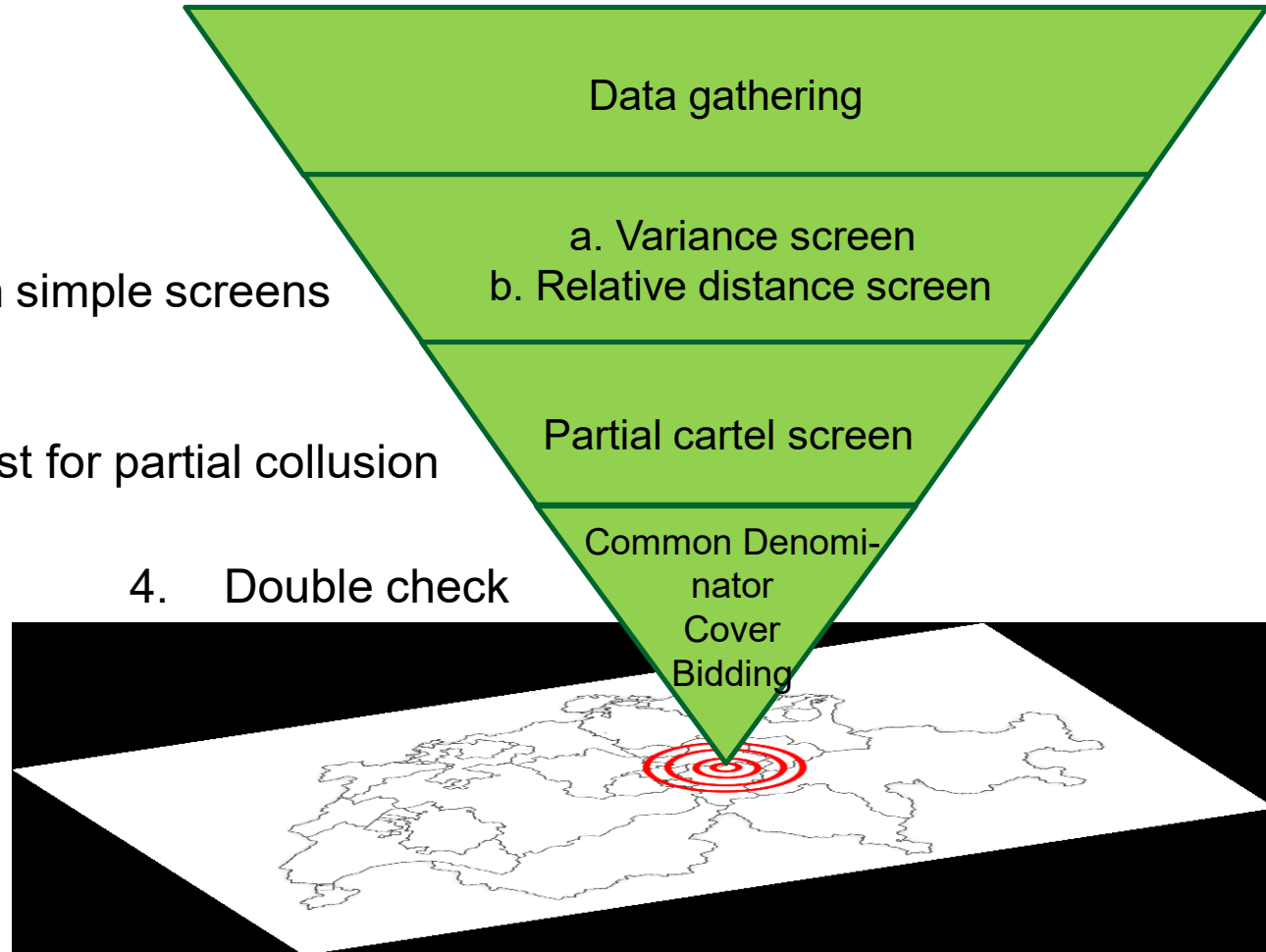
Steps of the screening tool of ComCo

1. Data

2. Application simple screens

3. Test for partial collusion

4. Double check





3. Screening Tool – ii. Data

- **Data:** Bids of tender participants
 - Available from/to procurement authorities.
 - Concrete data set: 282 tenders from 2004 to 2010, about 1500 bids and 138 firms

- **Benchmark data**
 - Investigation of a market-wide cartel in the canton Ticino
 - Investigation of a partial cartel in the Canton Aargau

- **Application:** Canton St. Gallen
 - No prior investigation
 - No prior leniency application, no complaint

- Ex-ante analysis



3. Screening Tool – iii. Variance Screen

First experience: In tenders where bids are set collusively the variance is lower than in non collusive tenders.

- Investigation «Canton Ticino» (see *next slide*).
- Empirical and theoretical evidence: Abrantez-Metz et al. (2006), Jimenez / Perdiguero (2012), Athey et al. (2004), Harrington / Chen (2006).

Operationalization:

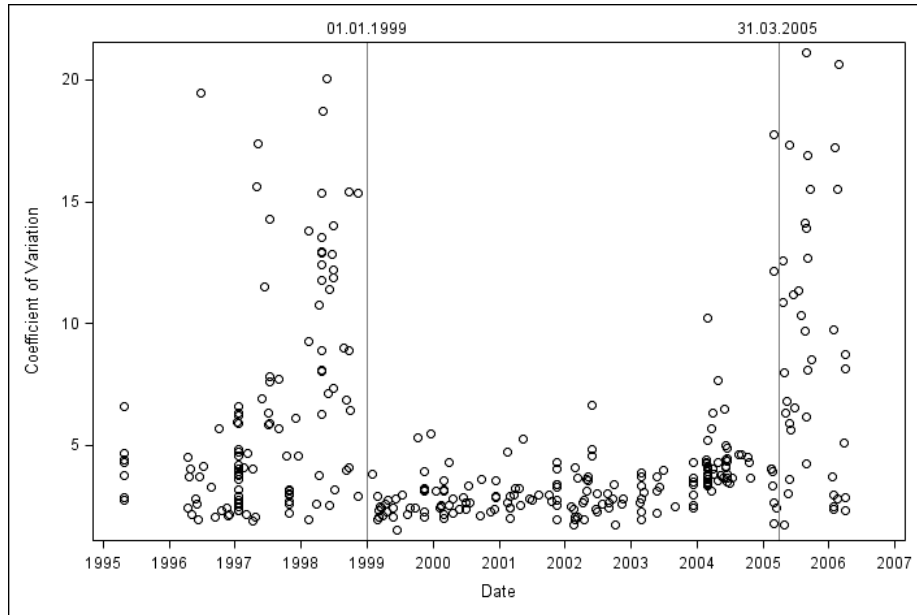
- The **coefficient of variation** ($CV_j = s_j / \mu_j$) captures the variance from the distribution of the bids.
- Because the CV is scale invariant, it allows comparisons between tenders.

Conclusion: The smaller the CV the more likely is the collusion.



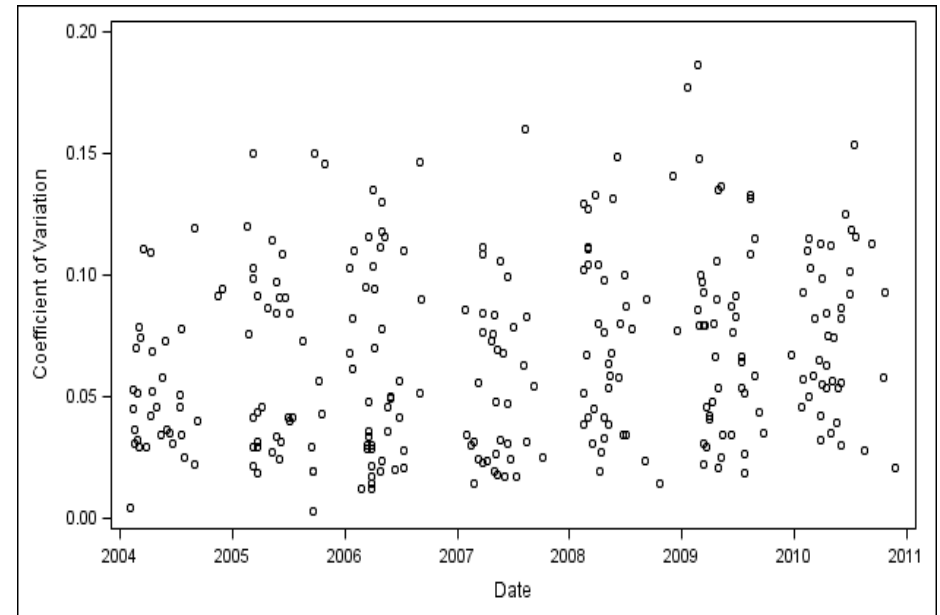
3. Screening Tool – iii. Variance Screen

Figure 1: Coefficient of Variation, **Canton of Ticino**



- **All-inclusive cartel**
- **Clear-cut findings!**

Figure 2: Coefficient of Variation, Canton of **St. Gallen**, data to screen



- **No findings!**

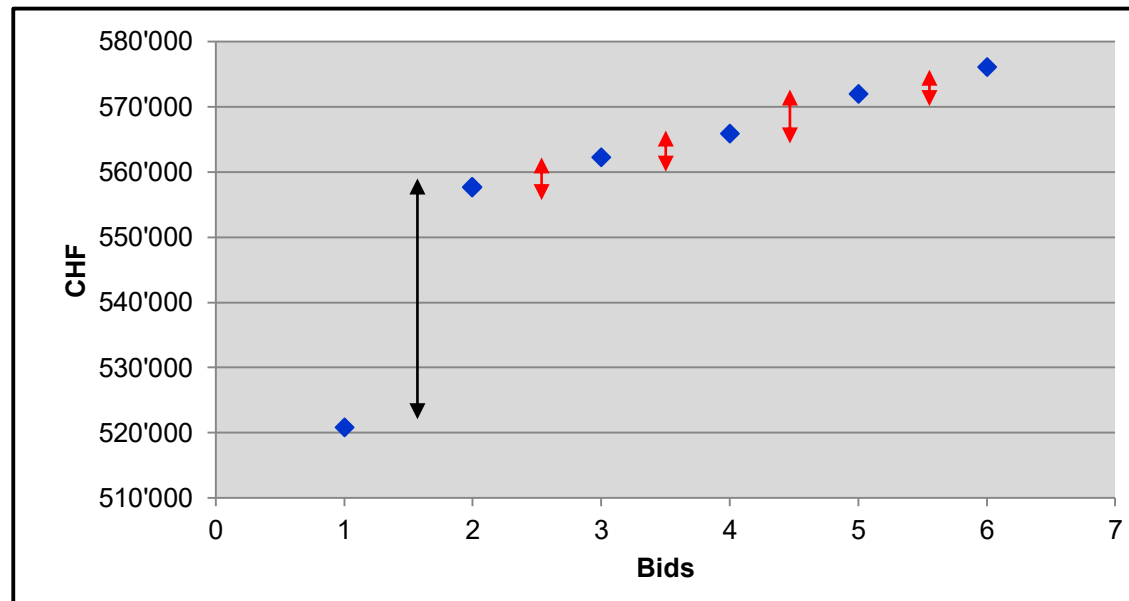


3. Screening Tool – iv. Relative Distance Screen

Second experience:

Bid riggers manipulate the tender award by creating a notable difference between the bid of the designated winner and the cover bids

Figure 3: Typical Pattern



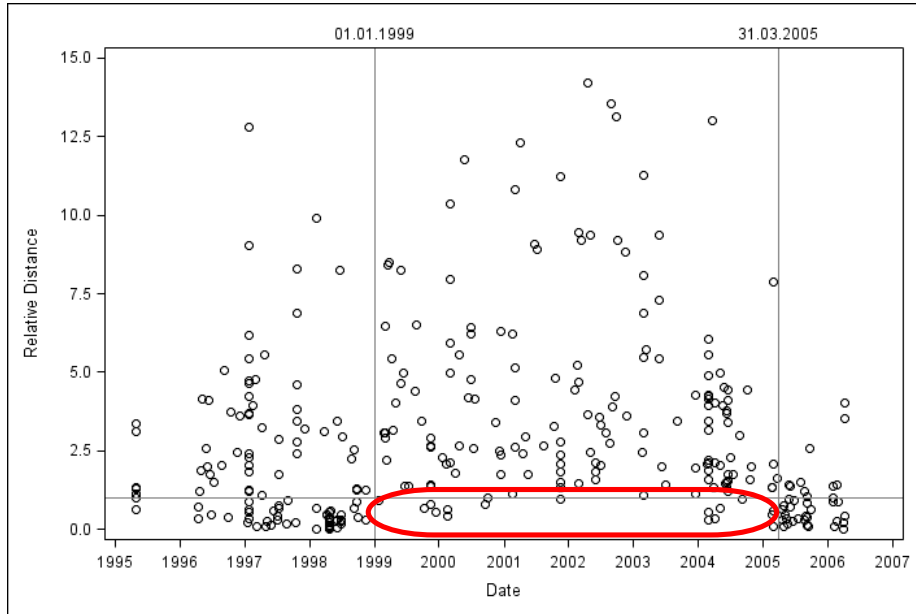
Operationalization by

- Distance measure:
$$\frac{\text{difference of the two lowest bids}}{\text{standard deviation of the losing bids (OR: Mean of the differences between the losing bids)}}$$
- If «relativ distance ratio» > 1 ==> pay attention! (indication for bid rigging)



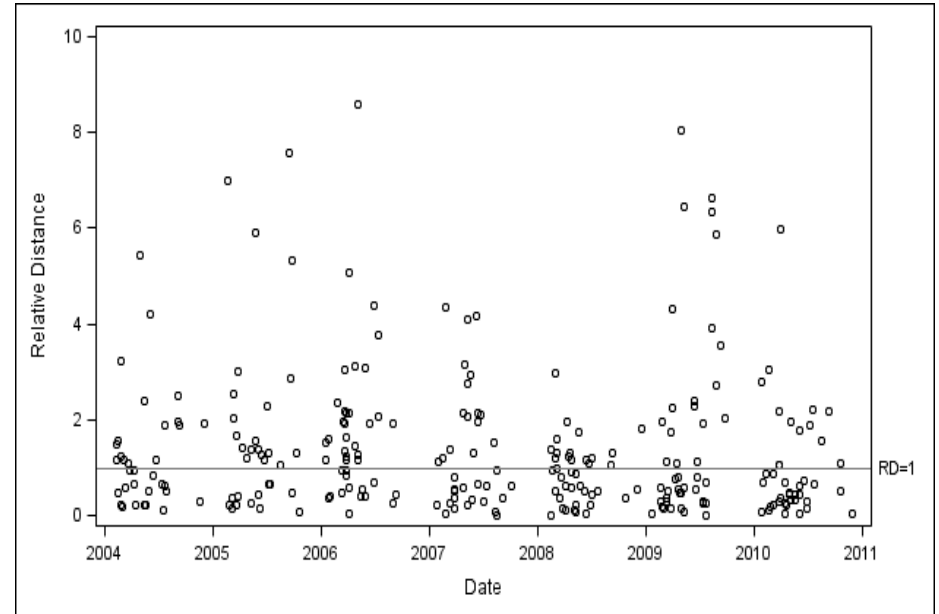
3. Screening Tool – iv. Relative Distance Screen

Figure 4: The Relative Distance, **Canton of Ticino**



- **All-inclusive cartel**
- **Clear-cut findings!**

Figure 5: The Relative Distance, **Canton of St. Gallen**, data to screen



- **No findings!**

3. Screening Tool – v. Screening for Partial Collusion

Our analysis so far indicates no systematic market embracing collusion in the canton of St. Gallen (no all-inclusive cartel) **but**

Third experience:

- COMCO's investigations involving bid rigging have revealed that bid-rigging cartels may concern only a subset of contracts: firms collude solely with regards to some tenders and not all tenders (*partial collusion*).

Partial Cartel Screen

Step 1. Identification of conspicuous tenders

Step 2. Identification of a subgroup / subgroups of firms

Double Check:

Step 3. Identification of a common denominator for the identified subgroup(s)

Step 4. Identification of the collusive behaviour for the identified subgroup(s)

See: Imhof D., Y. Karagök and S. Rutz (2018), Screening for Bid-rigging: Does it Work? Journal of Competition Law & Economics, Vol. 14(2), 235-261

3. Screening Tool – v. Screening for Partial Collusion

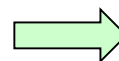
- 1. Identification of conspicuous tenders:** Individual submissions that show the typical pattern of collusion are considered to be conspicuous

That is: both marker combined

- Marker: low variance **and**
 - Marker: high relative distance (>1)
- Results from previous investigations (Ticino and Aargau) serve to choose threshold values for both screens.

Table 1: Identification of Conspicuous Contracts

Scenarios	Coefficient of Variation	Relative Distance Measure	Number of Projects	% of Total Sample
1	≤ 0.03	> 1.30	38	13.5%
2	≤ 0.05	> 1.15	65	23.1%
3	≤ 0.06	> 1.00	80	28.4%

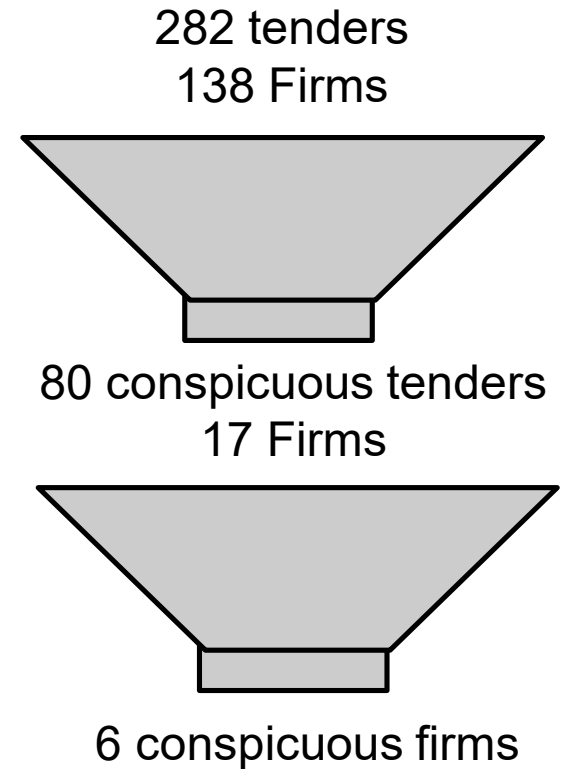


80 conspicuous tenders (from 282)

3. Screening Tool – v. Screening for Partial Collusion

2. Identification of a subgroup / subgroups of firms

- First criterion : **Frequent** participation in conspicuous tenders
→ from 138 to 17 firms
- Second criterion : Frequent **common** participation in conspicuous tenders
→ from 17 to 6 firms
- Result: One homogenous group of 6 firms



3. Screening Tool – v. Screening for Partial Collusion

3. Double Check (See Imhof / Karagök / Rutz (2018))

More in-depth case dependent analysis of identified conspicuous firms and tenders

Common denominator

Area screen: Common geographic denominator

- Concentration of conspicuous firms and tenders in a common region (*See Gaster*)
- This confirms the group formation resulting from Step 1 and 2



4. Possible Outcomes of a Screening

Trade-off in screening

		Screening Tool	
		No cartel	Cartel
Truth	No cartel	True negative	False positive
	Cartel	False negative	True positive

In the present Case «See Gaster»

- **False positive:** No. All of the identified six firms are condemned
- **False negative:** Yes. In the course of COMCO's investigation, the proceedings were extended to two additional firms (No tender in Canton St. Gallen and no frequently participation in conspicuous tenders)



5. Conclusion

In general:

- Screening methods constitute an additional tool to fight against bid rigging
- Screening methods enable the authorities to mitigate the dependency on external sources and to detect cartels proactively
- The primary aim of screening methods is to provide reasonable grounds of suspicion to launch an investigation
 - Efficient use of authorities' limited resources
 - Avoid unnecessary intervention in firms' activity
- Screening methods have high deterrence effect
- But: False negative and false positive results can not be excluded



5. Conclusion

In particular simple screens:

- Easy to understand even for non-economists
- Low data requirement :
 - Simple screens use only data on bids
 - However, the size of the sample must be large enough
- Easy to implement and flexible:
 - Simple screens require the calculation of “descriptive” statistics
 - Simple to adapt to different situations (no “one-size-fits-all” approach)



6. Literature

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