

Lecture 3: Competition problems in two-sided and multi-sided markets & Cartels: Whistleblowers and leniency programmes

EC307 Competition Policy

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Part 1

Competition problems in two-sided and multi-sided markets

Setting

- According to Evans (2003) a *two-sided market* is one where firms (e.g. a platform operator) serve
 - two distinct types of customers
 - where these depend on each other in some important way (interaction), and
 - whose joint participation makes platforms more valuable to each (network externalities)
- There are *indirect network externalities* between the two different customer groups

Evans, David S. (2003) "The Antitrust Economics of Multi-Sided Platform Markets," *Yale Journal on Regulation*, 20(2), 325-82

Two or Multi-Sided Markets

Platform	Categories
Newspapers	Advertisers, Readers
Video game consoles	Game developers, Gamers
Computer OS	Software developers, users
Payment card systems	Merchants, consumers
Media players	Music publishers, listeners
Dating agencies	Different types
Sports event	Broadcasters, advertisers, sponsors, spectators, betting companies, newspapers, gamblers

Two-sided market for TV channels



Annual fee (marketing fee),
Monthly average subscriber charge
Royalty based on net revenue

£5.50 monthly subscription fee
Free at point of use

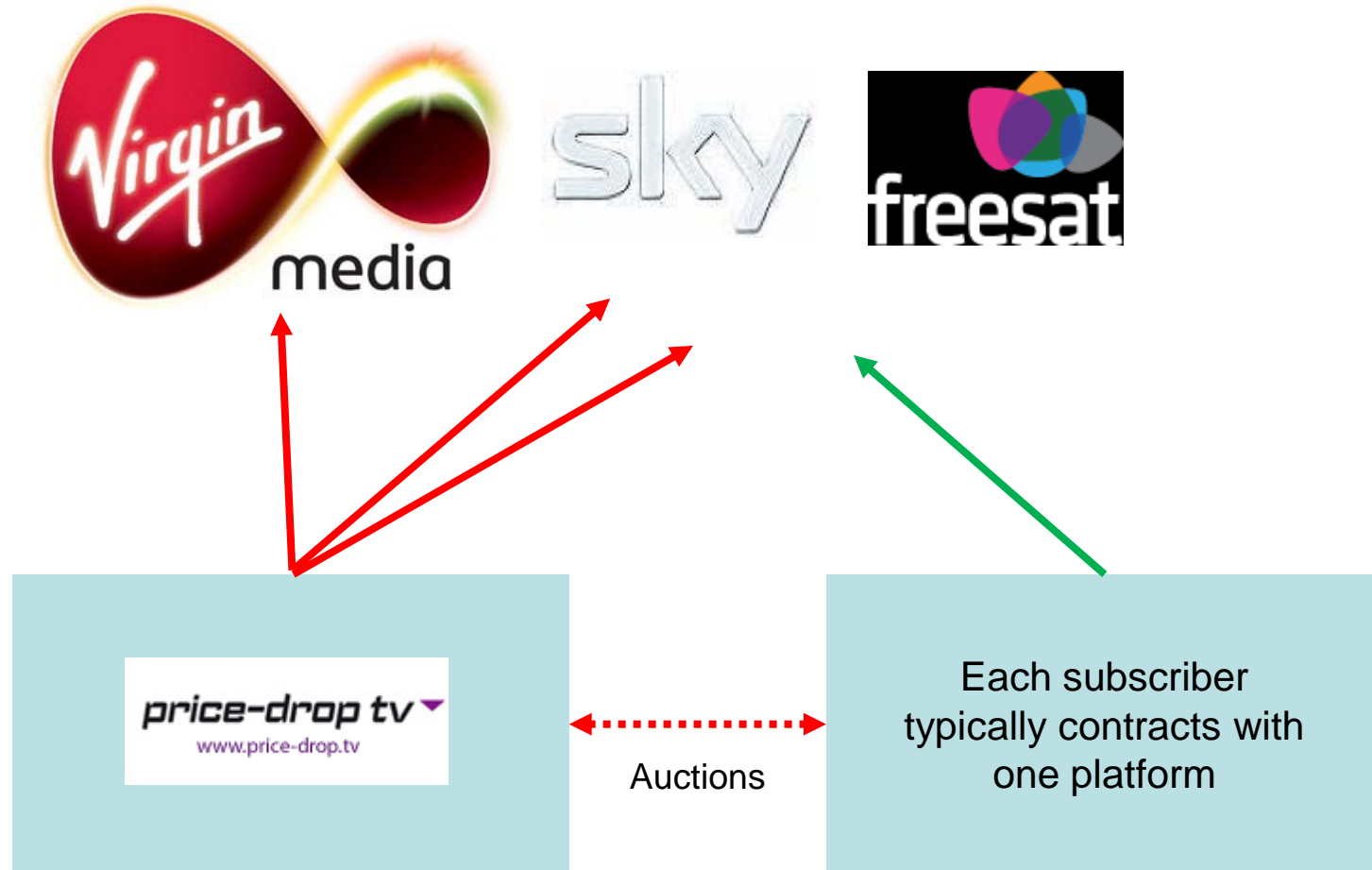
(sellers - channels)

The logo for "AT THE RACES" is displayed in a white box with a red and blue background. Below it, the text "(sellers - channels)" is written in black.

subscribers
(buyers)

The text "subscribers" and "(buyers)" is written in black inside a light blue rectangular box.

Two-sided markets – Multi-homing, subscriber single-homes



Nested two-sided market



Annual fee (marketing fee),
Monthly average subscriber charge
Royalty based on net revenue

Monthly subscription fee

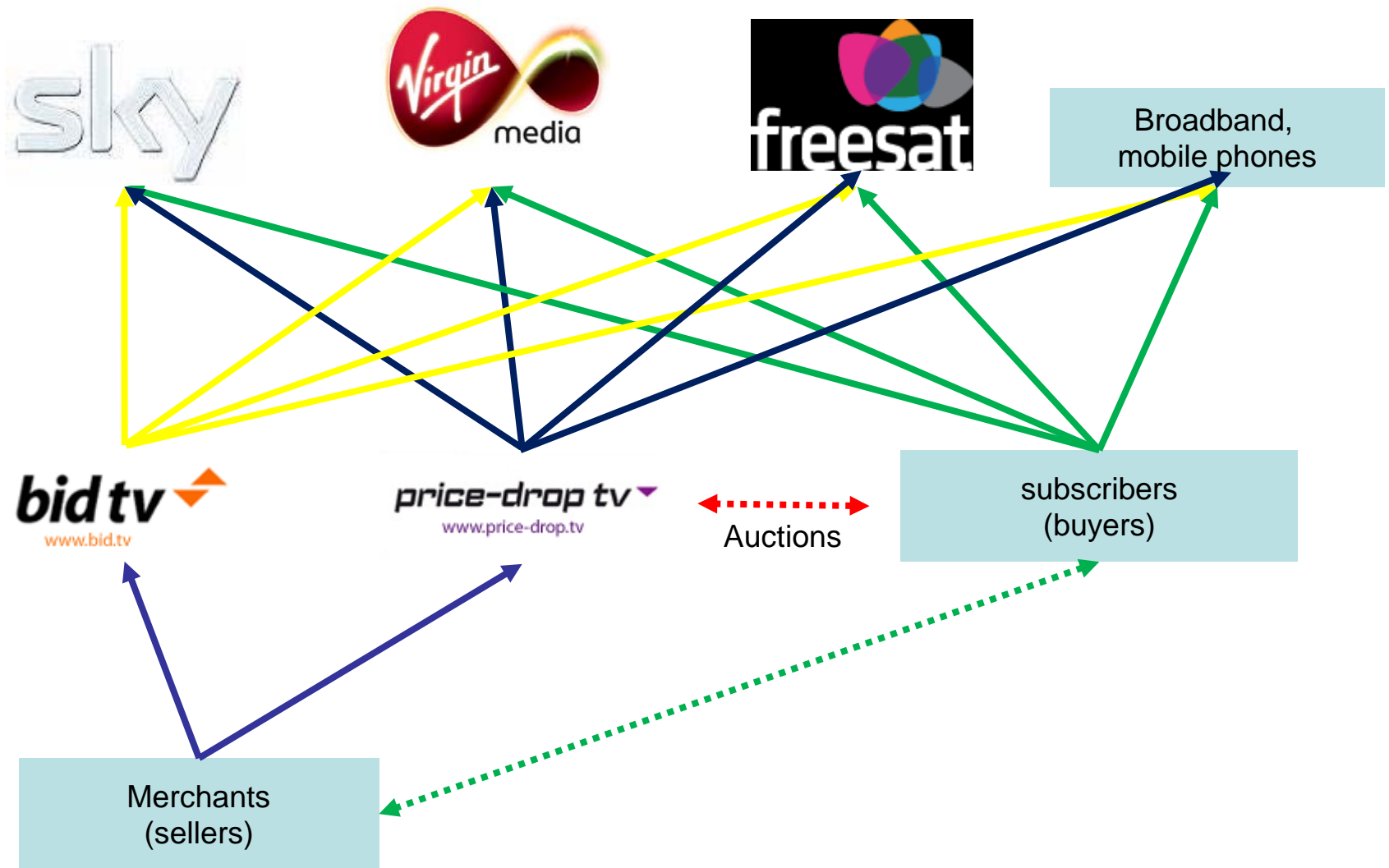
price-drop tv
www.price-drop.tv

Auctions

subscribers
(buyers)

Merchants
(sellers)

Nested multi-homed two-sided market – horizontal competition and vertical structures



Possible competition concerns

- One side of a market ‘tilts’ in favour of one platform
 - Platform might leverage market power (abuse dominance e.g. exploitative behaviour, apply restrictive terms)
- Vertical integration
 - Refuse to deal favouring own affiliates (possible anti-competitive discriminatory conduct)
- Collusion
 - May arise if there are few sellers and many platforms, or more likely few platforms and many sellers
 - In October 2002 Sotheby’s was fined £12 million by the European Commission for rigging the art market in collusion with rival Christie’s. Christie’s escaped a fine because it blew the whistle. The fine represented 6% of the company’s annual turnover.
- Horizontal bundling across platforms

Market definition and two-sided markets

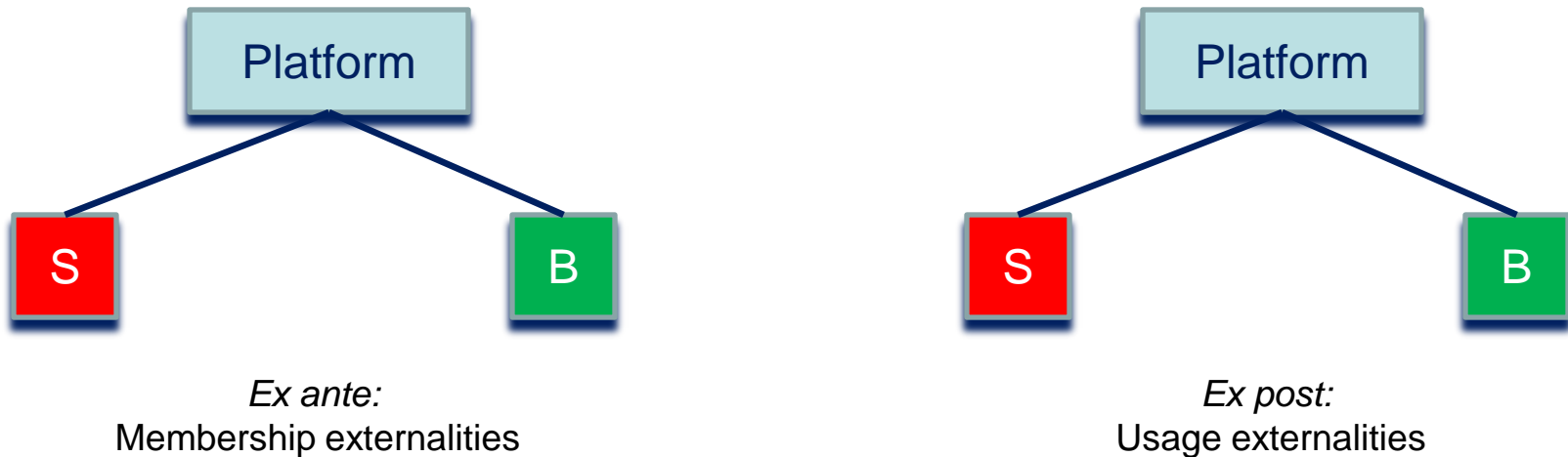
- The EC acknowledged indirectly two sides play a role in market definition in the Telia/Telenor merger case 1999 (see http://ec.europa.eu/competition/mergers/cases/decisions/m1439_en.pdf)
- Paras 108/9: “local telephone directories are produced once a year and delivered to households and businesses free of charge. Publishers earn revenues from selling advertising space to a range of advertisers, mainly large and medium sized businesses...the sale of advertising space in local telephone directories can be taken as a distinct relevant product market.”
- “After examination of the notification, the Commission concluded that the notified operation fell within the scope of the Merger Regulation and raised serious doubts as to its compatibility with the Common Market, because it could create or strengthen a dominant position as a result of which effective competition would be significantly impeded in the common market or in a substantial part of it and in the territory covered by the EEA Agreement.”

Relevant markets

- In a two-sided market interdependency means that the correct competitive price to use when applying the HMT is the **total price** charged by the platform to sellers and buyers
- In a two-sided market involving a TV platform and a TV channel, the total price combines the price charged by the TV platform to a channel and the price charged to its subscribers
- The structure of the price charged by a TV platform to a basic channel typically comprises an annual charge, a monthly charge based on subscriber numbers, and a royalty fee related to any turnover generated on the channel
- On the other side of the market the charge levied on viewers for viewing a basic channel is in practice zero – where pay-per-view charges do not exist
- Note that the two-sides of the competitive price may not equal the underlying marginal costs on each side of the market

Economics of two-sided markets

- Rochet and Tirole (2008) set out a framework of analysis



- Level and structure of prices
 - Is the structure of tariffs across the market 'optimal'? Is there scope for intervention? Mobile termination charges
 - Price demand elasticities on the different sides of the market will influence structure of prices

Lyons: OFT Horseracing case

- Bruce Lyons (2009) discusses a UK OFT competition case (Ch 1 CA 1998 case) that involved British horseracing
- Two sides of the market interact via a platform
 - Bookmakers
 - Racehorse owners
- The platform is the governing body which owns race data rights
- Bookmakers need race data to offer betting services to punters
- The payment for race data by bookmakers could be used by the governing body as prize monies and to support governance costs (credibility)
- Prize money attracts racehorse owners and hence there is a 'membership' externality
- More horses in training leads to a better product for punters and enthusiasts
- If this externality is strong, bookmakers should be charged a price above the 'marginal cost' of the data

OFT Horseracing case

- OFT case focussed on *Order and Rules of British Horseracing*
 - Levy on bookmakers
 - Fixtures and race planning
 - The OFT objected to the monopolisation of race and runners data
 - The OFT defined three relevant markets and proceeded to analyse them ‘independently’
 - Fails to account for interactions and indirect externalities
 - Lyons links the markets illustrating their multi-sided nature
 - The ‘gross win’ for bookmakers is assumed to be $B(n)$, where n is the number of horses in training
- $$B'(n) = \beta(n) > 0$$
- Outside option for bookmakers (e.g. foreign races) is a gross win $\bar{\pi}$

OFT Horseracing case

- Assume bookmakers contribute P in prize money, then the net benefit to bookmakers is:

$$\pi = B(n) - \bar{\pi} - P$$

- Inverse demand for racehorses is $v(n)$ where $v'(n) < 0$
- Annualised cost of a horse is assumed to be c
- Net benefit of owning n th horse is:

$$u(n) = v(n) - c + P/n$$

- Equilibrium number of horses given by:

$$v(n) + P/n = c$$

- The relationship between number of horses n and P :

$$[nv'(n) + v(n) - c]dn + dP = 0$$

$$\frac{dn}{dP} = \frac{-1}{nv'(n) + v(n) - c} = \frac{1}{\left[\frac{P}{n} - nv'(n) \right]} > 0$$

OFT Horseracing case

- Benefit to owners as a group:

$$U(n) = V(n) - nc + P$$

- The social optimum number of horses is given by maximising:

$$\varpi(n) = V(n) - nc + B(n)$$

$$\varpi'(n) = 0 \rightarrow v(n^*) + \beta(n^*) = c$$

- The combined marginal benefits to owners and bookmakers should equal marginal cost c
- Coase Theorem – does not hold for this case according to Lyons
- Bargaining extremes relative to n^*
 - Bookmakers under-invest
 - Owners over-invest
- OFT withdrew objections following undertakings from British horseracing

The racing world's view of the OFT case

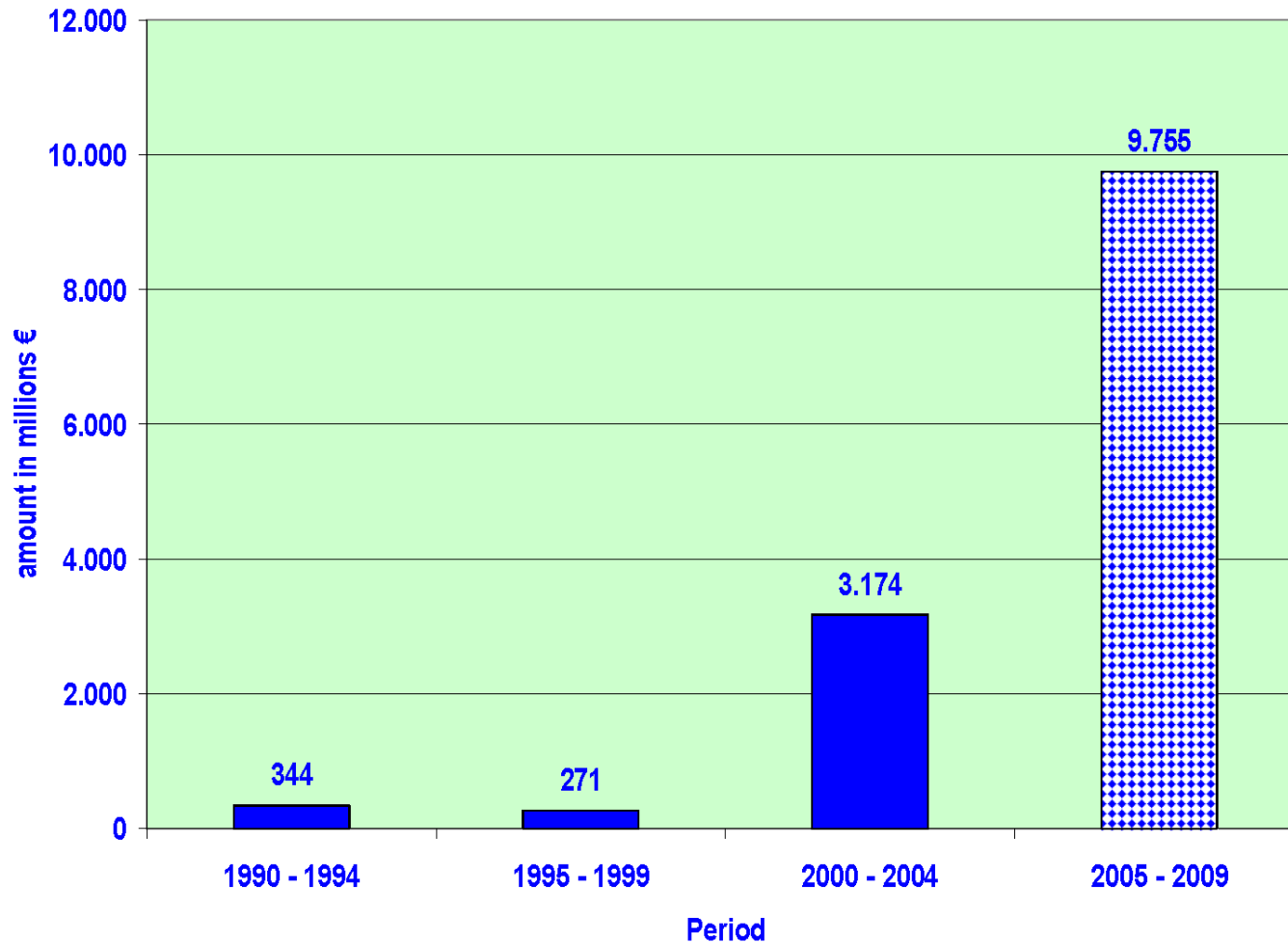


Front cover of the specialised trade paper *Racing Post* 4 September 2000

Part 2

Cartels: Whistleblowers and leniency programmes

EU cartel enforcement



EC Highest fines on cartel members

1.6. Ten highest cartel fines per undertaking (since 1969)

Last change: ++8th July 2009++

Year	Undertaking**	Case	Amount in €*
2008	Saint Gobain	Car glass	896.000.000
++2009++	E.ON	Gas	553.000.000
++2009++	GDF Suez	Gas	553.000.000
2007	ThyssenKrupp	Elevators and escalators	479.669.850
2001	F. Hoffmann-La Roche AG	Vitamins	462.000.000
2007	Siemens AG	Gas insulated switchgear	396.562.500
2008	Pilkington	Car glass	370.000.000
2008	Sasol Ltd	Candle waxes	318.200.000
2006	Eni SpA	Synthetic rubber	272.250.000
2002	Lafarge SA	Plasterboard	249.600.000

* Amounts corrected for changes following judgments of the Courts (General Court and European Court of Justice).

Cartels in the EU 1998-2007

- Average cartel had 5.4 participating firms and operated for 7.2 years
- Longest cartel operated for 29 years with 6 members (*Organic Peroxides*)
- Largest cartel had 16 firms and operated for 3 months (*FETTCSA*)
- Cartels were concentrated in the chemicals, industrial inputs, and food sectors
 - The chemical industry had 21 or 42% of all prosecuted cartels
 - Industrial inputs 15 or 30% of all prosecuted cartels
 - Food sectors 8 or 16% of all prosecuted cartels

EU whistle blowing example – Gas insulated switchgear 2007

- Market for gas insulated switchgear (controls flow of electricity in grid networks)
- Cartel operated between 1988 and 2004
 - Rigged bids for procurement contracts, fixed prices, allocated projects to each other, shared markets and exchanged commercially important and confidential information
- Switzerland's ABB was a whistleblower and escaped without any fine January 2007, Siemens fined €396m over role in price fixing – role as ringleader
 - Total fines €750m (Alstrom, Areva, Schneider) and Japanese firms Fuji, Hitachi, Mitsubishi Electric, Toshiba and Japan AE Systems

EU whistle blowing example – Vitamins 2001

- Market for supplying vitamins
- Cartel operated between 1990 and 1998
- French company Aventis was a whistleblower and was fined £3m instead of £70m
- November 2001, Price fixing cartel fined £534m (€790m)
 - Roche (£288m), BASF (£185m), Aventis (£3m) and Merck (£5.7m) and nine others (includes three Japanese firms)

EU whistle blowing example – Synthetic rubber 2006

- Market for rubber chemicals used in manufacture of rubber (90% go into automotive applications)
- Cartel operated between 1996 and 2001
 - Price-fixing and market-sharing
- Flexsys was a whistleblower and was granted immunity
- December 2005, Price fixing cartel fined £534m (€790m)
 - Bayer AG (20% reduction, €58.88m), Chemtura (Crompton Europe) (50% reduction in fine, €13.6m), Flexsys (immunity), others (€3.38m)

EU leniency example – Elevators & Escalators 2007

- Market for lifts and elevators
- Cartel operated between 1995 and 2004
 - Rigged bids for procurement contracts, fixed prices and allocated projects to each other, shared markets and exchanged commercially important and confidential information
- Otis cooperated and received a lower fine
- February 2007, Price fixing cartel fined (€992.3m)
 - Germany's ThyssenKrupp (€480m), US-owned Otis (€225), Kone (€142) of Finland and Swiss firm Schindler (€144m)

EU leniency example – Plasterboard 2002

- Market for plasterboard, common building material
- Cartel existed between 1992 and 1998
 - Controlled 80% of the European market worth €1.2bn in 1998
- BDP (British) and Gyproc (Belgian) cooperated and received lower fines €138.6m and €4.32m
- November 2002, Market fixing plasterboard cartel companies fined (€478m)
 - Lafarge (French) fined €249.6m for not cooperating, Knauf (Germany) €85.8m

EU whistle blowing example – Brewers 2007

- Market for alcoholic beverages
- Cartel operated 1996-99 in Holland
 - Coordinating prices and price increases of beer in The Netherlands
- InBev SA was a whistleblower and was granted immunity
- April 2007, price fixing cartel fined €273.8m
 - Dutch brewers Heineken (€219.3m), Royal Grolsch (€31.7m) and Bavaria (€22.9), InBev SA immunity

UK approach

- Whistle blowing policy launched by OFT in 2003 using provisions under the Enterprise Act 2002
- Big reductions in potential fines and directors protected from jail sentences in return for information
- February 2003 retailers Argos and Littlewoods were fined £22.5m for fixing the price of toys and games
 - Fines were the result of toymaker Hasbro implicating the retailers in exchange for being exempt from its own £15.6m fine
- Although whistle blowers can avoid fines and jail, they may still have to repay excess profits earned from selling fixed-price goods

Approach started in mid-1990s in the US

- August 1993 the Antitrust Division of the Justice Dept adopted a new Corporate Leniency Programme
- More transparent and certain than previous versions
- The first to blow the whistle would receive immunity from criminal fines and imprisonment
- Around two cartels disclosed per month as a result of whistleblowing

EU Law

- Article 81 – restrictive practices – makes cartels illegal
- 1996 European Commission adopted a Notice providing for the non-imposition of or reduction of fines for cartel members who whistle blow and cooperate
- 2002 new Notice set out specific rules regarding whistleblowing

2002 Notice

- Immunity from fine if first to submit evidence triggering an investigation
 - Immunity not available if Commission already has sufficient evidence, but a fine reduction may be available
- Fines will be reduced where an undertaking provides evidence of suspected infringement
 - The first undertaking benefits from a reduction of 30-50%, the second 20-30% and subsequent undertakings up to 20%

2006 Notice

“Commission considers it is in the Community’s interest to reward undertakings involved in this type of illegal practices [price fixing, bid rigging, etc.] which are willing to put an end to their participation and cooperate in the Commission’s investigation”

“The interests of consumers and citizens in ensuring that secret cartels are detected and punished outweigh the interest in fining those undertakings that enable the Commission to detect and prohibit such practices”

EU position

- Since 2002 the enforcement procedures in the EU have improved and demonstrate that ‘transparency’ and ‘certainty’ are more effective at busting cartels

Fining process

- The 1998 Penalty Guidelines (Steps 1-4) governed the Commission's structure of fines for antitrust violations to prosecutions initiated before September 2006
- Together with the 1996 Leniency Notice and 2002 Leniency Notice (Step 5) and appeals to the courts (Step 6) the fining process involves six sequential steps

Fining process

- Step 1 – Basic Amount (x + y):
 - The basic amount consists of three elements – the gravity of the offence (x); deterrence uplift which is part of x; and the duration of the offence (y)
 - Gravity of offence (x): Three classes of infringements together with starting tariffs are used - minor (€1000 and €1 million), serious (€1-€20 million); and very serious (above €20 million) offences;
 - Deterrence uplift (part of x): The basic amount can be increased to ensure ‘sufficient deterrent’ which ‘take account of the effective economic capacity of offenders to cause significant damage to other operators, in particular consumers, and to set the fine at a level which ensures that it has a sufficiently deterrent effect’
 - Duration (y): the basic amount is not increased for short term infringements (less than one year); for medium-term infringements (one to five years) it is increased by up to 50%, and an additional 10% for each year thereafter

Fining process

- Step 2 – Aggravating & Attenuating Factors:
 - The ‘basic amount’ is then increased and reduced in line with a set of ‘aggravating circumstances’ and ‘attenuating circumstances’ respectively.
 - Aggravating circumstances include recidivism, leading role, retaliatory measures against other undertakings, refusal to co-operate with or attempts to obstruct the European Commission in carrying out its investigations, and “other”.
 - Attenuating circumstances include passive role, non-implementation of the offending agreement, termination of the infringement as soon as the European Commission intervenes, existence of reasonable doubt on the part of the undertaking as to whether restrictive conduct does indeed constitute an infringement, effective co-operation outside the scope of the leniency notice, and “other”.
- Step 3 - Aggregate Adjustments:
 - The fine can adjust up or down the amount of the fine to take account ‘of certain objective factors such as a specific economic context, any economic or financial benefits derived by the offenders, the specific characteristics of the undertaking in questions and their real ability to pay in a specific social context’.

Fining process

- Step 4 - 10% cap:
 - The final fine must not exceed the statutory ceiling of 10% of the previous year's world-wide turnover of the undertaking
- Step 5 Leniency:
 - Under the 1998 Leniency Notice fines can be reduced by between 10% to 100% for firms which cooperate with the Commission's investigations. Under the 2002 Leniency Notice complete immunity can be given for 'whistleblower' provided it was not the 'ringleader' of the cartel, and reductions in fines of between 20% to 50% for parties who provide 'value added' evidence defined as evidence 'which strengthens ... the Commission's ability to prove the facts in question'.
- Step 6: Appeal:
 - Cartelist can appeal the decision to the European courts. Most firms appeal the fines imposed by the EU Commission.

Step 5 Leniency

- Fines reduced for one or more firms in 45 of the 50 (90%) cartels and for 165 firms (61%)
- Total fines were reduced by €3.8 billion or 38.3%
- 21 'whistle blowers' received full immunity avoiding the payment of €1.5bn in fines
- Fines were reduced by €2.2 billion to other offenders who 'co-operated' with the Commission during its investigations
- For 'minor', 'serious' and 'very serious' offences fines were reduced by 48%, 31%, and 40% on average respectively
- No leniency reductions were given in five cartels

Whistle blowing theory

- The theory behind leniency programmes is fairly straightforward
- A cartel member stands to gain $E(x)$ extra profit by participating in a cartel
- However, a fine may destroy cooperative gains
- Also, continuous worry about other cartel members who may cheat
- Immunity essentially increases the prospects for cheating

Whistleblowing: simple algebra

- Setting fines high enough ought to deter formation of cartels
 - Choose A^c such that expected payoffs from participating net expected legal and antitrust consequences are non-positive (*participation constraint*): $E(\Pi^c) - E(A^c) \leq 0$
- However, the participation constraint may not hold (as fines may not be sufficiently big enough or probability of detection large enough)
 - Thereby creating an incentive to collude (*incentive constraint*): $E(\Pi^c) - E(A^c) \geq E(\Pi^d) - E(A^d)$

Whistleblowing: simple algebra

- With whistle blowing/leniency the incentive constraint can be modified by suitable choice of A^d :

$$E(\Pi^c) - E(A^c) \leq E(\Pi^d) - E(A^d)$$

Where $E(\Pi^d)$ is the expected gains from defecting and $E(A^d)$ is the immunity/leniency punishment

- Note $E(\Pi^d) > E(\Pi^c)$ and $E(A^d)$ could be zero or negative (reward whistle blowing)

Negative side effects

- Rewarding whistle blowers may reinforce credibility of punishment threats
 - Strengthening a cartel
- Some research in economics has argued this point Spagnolo (2006, 2008)

Should whistle blowers be rewarded?

- Some commentators argue this would be more effective, and theory suggests that it could be optimal
- Korea has done this since 2002
 - Cash rewards for reporting information on cartels (has had a leniency programme in place since 1996)
- Started at \$20,000, then increased to \$100,000 (Nov 2003) and to \$1m (May 2005)
- Since making the leniency programme more transparent and objective (in 2005), more cartels have been detected
 - 4 reported in 2005 versus
 - 2 in 2004
 - 1 in 2003, 2 in 2002 and none in 2001

Some assessment

Spagnolo and Buccorossi (2005) suggest

1. Past EU fines appear to have been too low to have sufficient deterrence effects
2. Current EU fines still appear insufficient, given the leniency programs
3. Introducing imprisonment is certainly a possible solution, with its costs and benefits, but well-designed and well-managed whistleblowers schemes could achieve the same result at a lower cost

Conclusion & Summary

Conclusion

- Incentive problem: set the individual against the collective (in effect make deviation worthwhile)
- Adopt the winner takes all – maximal benefits for the first to blow the whistle (taper benefits to incentivise destabilisation of cartel)
- Benefits for others should be limited, and there to help successful prosecution