Pros and cons of leniency, damages and screens

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1 Introduction

In this essay we have been asked to evaluate the pros and cons of leniency policies, which are currently the main instrument of competition law enforcement against "hard-core" cartels. We will address the assigned objective focussing on leniency policies *as they are implemented by competition authorities*, trying to highlight what could be improved and looking at the matter from different perspectives.

For this purpose, we will examine the leniency-related fine reductions granted, in the EU and the US, to cartel members who come forward. We observe that some cartels are convicted in an increasing number of jurisdictions in parallel but we refrain from discussing the costs of parallel investigations of the same cartel by different authorities. We also will not evaluate the potential impact that the increase in jurisdictions with criminal provisions applicable to cartels. Conversely, we are looking at the potential impact of increased private litigation and of the introduction of pro-active detection tools.

The issue is important. Cartels remain widespread and constitute a major problem for society. In just the past 5 years, 20 cartels have been discovered in the EU and the US, including the ones of the automotive parts' suppliers which are the largest set of bid rigging schemes ever discovered, suggesting that antitrust enforcement still has limited deterrence effects.[1]

That said, the available evidence also indicates that, among the range of available competition policy tools, anti-cartel enforcement is by far the most important in terms of the effects on a country's productivity growth[2]. Optimising the design and administration of leniency policies is therefore a key objective for competition authorities and society at large.

A crucial ancillary question we will have to take into account along the paper is: *the pros and cons for whom*? Law enforcement agencies, for example, and more specifically competition authorities, publish the number of successful cartel convictions and the amount of fines collected in their annual reports, implicitly proposing them as performance measures. This tends to generate a discrepancy between the objectives of law enforcement agencies and those of society: it creates a natural incentive to use a leniency policy (and plea bargaining) too generously, so as to win more cases, potentially at the cost of reduced deterrence and social welfare.

Seriously taking into account the "for whom" question, it will be easier to discuss different pros and cons of leniency policies, that are different for different parties involved. When considering

1 See Marvão, C., Spagnolo, G., 2015. What do we really know about the effectiveness of the current Leniency Policies? – A survey of the Empirical and Experimental evidence, in "The Leniency Religion: Anti-Cartel Enforcement in a Contemporary Age", Hart Publishers, *September 2015 (Ed. Caron Beaton-Wells and Christopher Tran)*, for an in depth review on the available evidence of the effects of leniency policies as they are implemented by competition authorities, and of the experimental evidence of what the effects could be if leniency policies were better implemented.

2 See Buccirossi, P., Ciari, L., Duso, T., Spagnolo, G., Vitale, C., 2013. Competition Policy and Productivity Growth: an Empirical Assessment. Review of Economics and Statistics, October, 95(4), 1324-1336.

the perspective of the firms, we will think of the pros and cons of applying for leniency, and we will necessarily be drawn into discussing the issue of damages, and more generally the interaction between private and public enforcement. The new EU Damages Directive is likely to significantly change the pros and cons of applying for leniency in Europe, and, potentially, differently depending on the previously existing national legislation. When considering the perspective of society, we also briefly consider the possible need to step up (sanctions and) proactive cartel detection policies like screening, not as possible substitutes (they are much more expensive and less effective) but as potential complements of less generous leniency policies. The combination of tools may improve efficiency and social welfare by increasing cartel deterrence and reducing the large deadweight loss society currently suffers in terms of private and public litigation costs.

2. Pros and Cons for Competition Authorities and the Excessive use of Leniency

The fact that many competition authorities, particularly in Europe, adopted leniency policies inspired by the US one[3] – the increasing number of Leniency Program (LP) applications in Europe is shown in column 13 of *table 1* – is suggestive of the central role currently played by these policies in cartel enforcement. Using leniency policies to elicit crucial information directly from wrongdoers, authorities are able to gather more and/or better elements of proof on cartel infringements, and at a much quicker rate. By having leniency applicants reporting themselves as guilty, authorities need to spend less time and effort to obtain the evidence needED need for sanctioning wrongdoers – or bringing cases to court, as the case may be.. It is therefore natural that with all these "pros", competition

3 See Department of Justice, 1993. U.S. corporate leniency program. Antitrust Division, U.S. Department of Justice.

Fine year	Cases (Cartels)	Cases found by report			Also fined in US		Nb. Fines	Nb. Firms	Immunity		All LR		Average Leniency Reduction (LR)		
		LP (excl. US)	US inv. 1st	% cases	*If EU first (% cases)				Nb.	%Fine	Nb.	%Fine	All	if US inv. 1st	LP (excl.US)
1998	4	2	0	50%	0	0%	28	28	0	0%	12	43%	23%	n/a	22%
1999	2	0	0	0%	0	0%	14	13	0	0%	2	14%	30%	n/a	n/a
2000	2	1	0	50%	1	50%	20	20	0	0%	5	25%	34%	34%	n/a
2001	10 (17)	1	2	30%	11	65%	76	55	4	5%	61	80%	39%	43%	33%
2002	10	3	3	60%	5+1*	60%	57	55	6	11%	37	65%	37%	54%	49%
2003	5	1	2	60%	4	80%	26	25	3	12%	18	69%	43%	46%	44%
2004	5	2	1	60%	2	40%	25	25	2	8%	15	60%	35%	27%	44%
2005	5 (6)	2	2	80%	2	33%	37	33	3	8%	25	68%	34%	49%	34%
2006	5	4	1	100%	1+2*	60%	47	41	5	11%	17	36%	52%	52%	53%
2007	8 (14)	6	0	75%	1+1*	14%	63	41	8	13%	29	46%	53%	50%	85%
2008	7	4	1	71%	4	57%	39	39	5	13%	14	36%	61%	25%	70%
2009	5 (6)	2	2	80%	2	33%	44	33	5	11%	14	32%	55%	52%	59%
2010	6	4	2	100%	3+1*	67%	73	68	7	10%	38	52%	38%	32%	45%
2011	4	2	2	100%	2	50%	14	14	4	29%	11	79%	57%	50%	69%
2012	4 (8)	3	1	100%	1	13%	63	37	13	21%	30	48%	61%	64%	56%
2013	4 (8)	4	0	100%	0	0%	28	19	8	29%	23	82%	57%	n/a	57%
2014	8	5	1	75%	2	25%	53	49	7	13%	26	49%	52%	59%	59%

Table 1 *- Statistics on cartels convictions by the EC, 1998-2014. Note that the number of firms may be different from the number of fines, as one firm may be fined for more than 1 cartel, in a given year. (source: data collected by Marvão (2015), from EC publicly available reports)*

Fine		Cartel	US	EU	RO / MO	LR	Other reduction/ Settlement*	Fine Increase	Reason	Other Fines
US	EU		Immunity Recipient	Highest LP Reduction						
Cases where the same firm receives immunity in cartels convicted by the EC and US DOJ										
1998	2003	Cable high-voltage	ABB		RO	100%				
2001	2003	Organic peroxides	Akzo and Crompton (US-only)		RO			100%	Gravity	
2006	2006	Hydrogen Peroxide	Degussa		RO			50%	RO	CAN
1999	2001	Vitamin A	Sanofi-Aventis		MO			100%	other	CAN,AU,KR
1999	2001	Vitamin E	Sanofi-Aventis		MO			100%	other	CAN,AU,KR
2004	2006	LCD	Samsung		MO			16% 20%	Gravity other	KR, BR
1998	2003	Sorbates	Chisso		MO			100%	other	CAN
2001	2002	Food flavor enhancers	ADM (US-only) and Takeda Chemical		MO					CAN
2001	2002	Graphite, Isostatic	GrafTech and UCAR*		MO*					CAN
2003	2002	Methyl-glucamine	Merck		MO					CAN
1999	2002	Fuel surcharge	Lufthansa				15%			JP,AU,KR
2002	2005	Rubber Chemicals	Akzo: Solutia-US; Flexys (50%)-EU				40%			
2003	2002	DRAMs	Micron				10%*			
2001	2003	Marine hose	Yokohama Rubber				10%*			JP,AU,KR,BR
2001	2005	MCAA	Clariant							
2001	2002	Compressors, refrigeration	Tecumseh							BR, NZ
Cases where immunity was granted in both EC and US DOJ cartels (different firms)										
2004	2006	Methacrylates	Crompton	Degussa,Röhm, Para-Chemie	RO	100%		50%	RO	
2002	2006	Synthetic rubber	Crompton	Bayer	MO			50%	RO	
2004	2007	Polychloro-prene Rubber	Crompton	Bayer	MO			50%	RO	CAN
2007	2009	Freight for-warders	---	DHL and Exel	MO					NZ
2001	2005	Plastic Additives	Metallgesellschaft	Chemtura	MO					
1997	2002	Cathode ray tubes	not named	Samsung	MO		10%*			CZ
1997	2002	Auction houses	Artemis	Christies						CAN
Firms with Immunity in US and Leniency Reduction in EU										
1996	2001	Citric Acid	---	Cerestar	MO	90%		35% 100%	Leader other	
1997	2001	Sodium Gluconate	Montana and ADM	Fujisawa		80%				
1997	2001	Graphite Electrodes	Carbide/Graphite	Showa Denko		70%		150% 45%	Gravity other	KR
1995	2000	Lysine	---	Ajinomoto* and Daesang**	MO	50%		50%	Leader	CAN,Mexico
1999	2001	Vitamin B5	---	F.H.La Roche* and BASF**	MO	50%		50%*,35%** 100%	Leader other	CAN,AU,KR
1999	2001	Astaxanthin & Canthaxanthin	---	F.H.La Roche* and BASF**	MO	50%		50%*,35%** 100%	Leader other	CAN
1999	2001	Beta Carotene	---	F.H.La Roche* and BASF**	MO	50%				CAN
1999	2001	Vitamin C	---	F.H.La Roche* and BASF**	MO	50%		50%*,35%** 100%	Leader other	CAN,AU,KR
2003	2008	Nitrile Synthe tic Rubber	Crompton and DESC	Bayer	RO	30%		50%	Leader	CAN
1998	2004	Choline chloride	Mitsui	AKZO and UCB	RO	30%	55%	29%	RO(UCB)	CAN
1999	2001	Vitamin B2	Sanofi-Aventis	F.H.La Roche and BASF**	MO	50%		35%** 100%	Leader other	CAN

Table 2 *- Cartel cases convicted in (at least) the EU and the US, 1998-2014. RO-Repeat Offender, MO-Multiple Offender (source: data collected by Marvão (2015), from EC publicly available reports)*

authorities have fondly embraced leniency policies. These make convicting cartels much easier, and the only disadvantage (of truthfully reported cartels) appears to be that too many cartels have to be convicted, too much of a good thing, one could think.

Data on cartel convictions by the European Commission (EC), since the LP is in place, confirm that the Commission indeed loves being lenient: 52% of the cartel fines set between 1998 and the end of 2014, include a leniency reduction and this number is over 80% in some years (see columns 13 and 14, *table 1*). Given an average of 6.3 firms per cartel, this means that about 4 members in each cartel obtained leniency, even though many cartels in the sample were already known to be present in the industry, as they had been investigated and prosecuted by other authorities, such as the ~~US.~~ Indeed, 38% of the cartels convicted by the EC were also convicted in the US (see columns 7 and 8, *table 1*). These cases, fined by the EC and the U.S. Department of Justice (DOJ), are described in additional detail in *table 2*. The first set of cartel cases (16) in the table includes those in which the same firm received full immunity from fines in both the EU and the US. Three of these cartel members are repeat offenders and other 7 are multiple offenders. It is worth noting that, had some of these firms not received immunity from fines in the EU, they would have had to pay a fine which was significantly higher, or even doubled, due to recidivism and the gravity of the infringement, among other reasons.

why is this with a strikeout? Should just be "U.S."

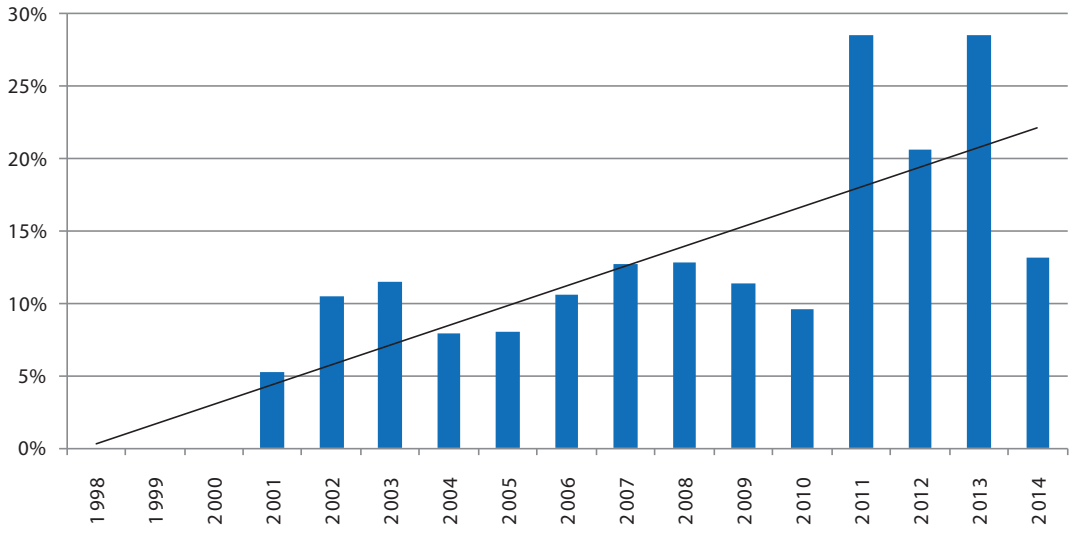

Figure 1A *- Share of fines imposed on cartel members, in which immunity (100% fine reduction) were granted. EC fines, 1998-2014. (source: data collected by Marvão (2015), from EC publicly available reports)*

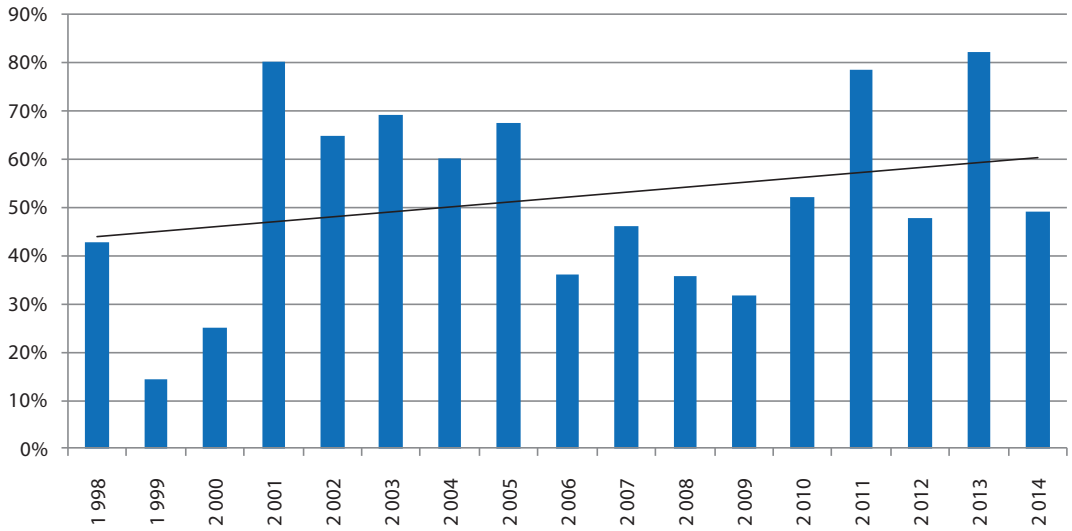

Figure 1B *- Share of fines imposed on cartel members, in which a leniency reduction (1-100% fine reduction) were granted. EC fines, 1998-2014. (source: data collected by Marvão (2015), from EC publicly available reports)*

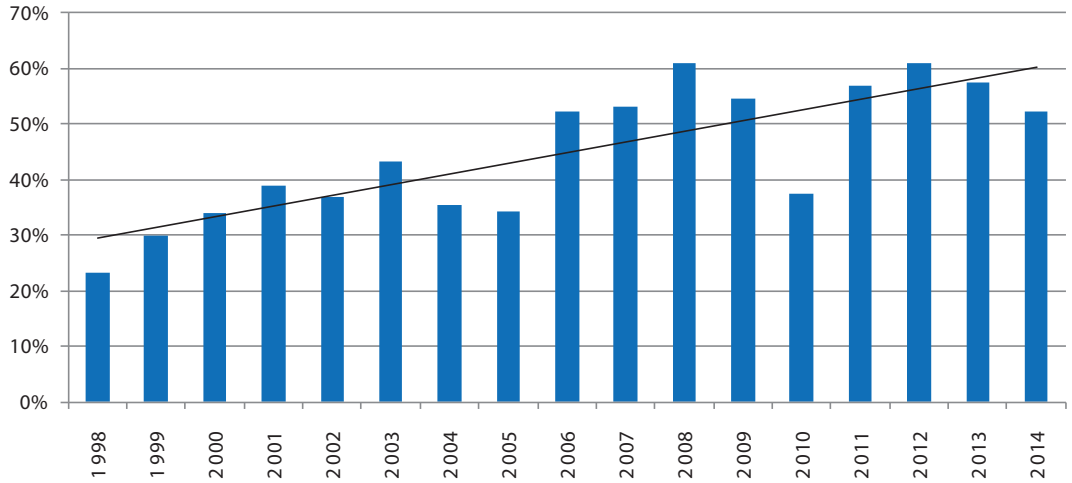

Figure 2 *- Average leniency reduction granted, per year. EC fines, 1998-2014.*
(source: data collected by Marvão (2015), from EC publicly available reports 1998-2014)

Case	Market	Total fine (million)	Nb. cartel members	Type of collusion	Cartel duration	Leniency Reduction	Settlement Reduction	Other fine reductions
39922 Bearings	Car and truck bearings	€ 953	6	Price fixing, information exchange	7 years	JTEKT (100%)	JTEKT (10%)	
						NSK (40%)	NSK (10%)	
						NFC (30%)	NFC (10%)	NFC (15%*)
						SKF (20%)	SKF (10%)	
						Schaeffler (20%)	Schaeffler (20%)	
							NTN (10%)	NTN
								(25-50%**)
39801 Poly-urethane Foam	Foam for mattresses, sofas and car seats	€ 114	4	Price fixing	5 years	Vita (100%)	Vita (10%)	None
						Recticel (50%)	Recticel (10%)	
						Eurofoam (50%)	Eurofoam (10%)	
							Carpenter (10%)	
39748 Automotive wire harnessess	Wire harnesses	€ 141	4	Price fixing, supply allocation, bid-rigging	2 months to 9 years	Sumitomo (100%)	Sumitomo (10%)	None
						Yazaki (30%,50%)	Yazaki (10%)	
						Furukawa (40%)	Furukawa (10%)	
						SYS (40%, 45%)	SYS (10%)	
						Leoni (20%)	Leoni (10%)	

* Reduction for limited participation. From the EC report: "NFC participated in the bi-/and trilateral discussions to a much lesser extent than the other parties, and it was absent from the multilateral meetings but was aware of the content of some of them."

** Due to the 10% turnover limit. Fine reduced from a range between €100.000.000 and 150.000.000, to €75.490.600.

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Table 3 *- EC Fines on the automotive sector (2013 and 2014). In no cases were fine increases imposed.*
(source: data collected by Marvão (2015), from EC publicly available reports)

Was this much leniency needed to discover cartels whose existence was known from previous US investigations?

Moreover, the percentage of cartel members obtaining leniency is increasing in time in terms of the number of recipients (see *figure 1* on the trend of leniency) and in the amount of leniency per cartel (see *figure 2*). In several of the automotive parts' cartels, all cartel members obtained leniency (see *table 3*)!

Altogether, these numbers illustrate a trend towards an excessive use of leniency as a substitute for investigative effort. This is not an innocent substitution. While the information obtained from the first or second leniency applicant may help increasing sanctions for the whole cartel, further leniency does not. Excessive leniency reduces expected sanctions and thus, potentially deterrence. Leniency should be used, if necessary, to discover and prosecute cartels but should be minimized to

avoid having counterproductive effects[4]. Ideally, one and only one firm should be granted leniency in exchange of important information to be used against other cartel members. Every additional firm receiving leniency after the first applicant tends to further reduce overall sanctions and – most importantly – reduce the push to rush and report first, as firms may always think that they do not need to be first to run to the antitrust authority. If somebody reports, they can then follow up and run second (or third, or fourth!) and still receive some leniency.

The success of competition authorities in anti-cartel enforcement should ideally be measured in terms of deterrence, or prevention of cartel formation. Antitrust is valuable if it generates a decline in the total number (and size) of cartels forming[5]. Unfortunately, this is not a very practical measure, as this would require observing changes in the total population of cartels. Yet, cartels are illegal and are kept secret, so the full population of cartels is not directly observable and deterrence is thus not observable.

Law enforcement agencies, including competition authorities, publish the number of successful cartel convictions in their annual reports and these conviction rates are widely used as a performance measure, instead of deterrence. As a result, authorities have a natural incentive to use leniency policies (as well as plea bargaining and other forms of settlement) generously so as to win more cases. If sanctions are adequate, as appears to be in the United States, this may still be ok, as it increases the expectation that sanctions will be imposed and thus ultimately increase deterrence, though we continue to uncover plenty of cartels active in the US.

If sanctions are not robust, however, as in many jurisdictions outside the US, this will come at the social cost of reduced cartel deterrence.

4 See Motta, M., Polo, M., 2003. Leniency programs and cartel prosecution. International Journal of Industrial Organization 21 (3), 347–379;
Spagnolo, G., 2004. Divide et Impera: Optimal Leniency Programmes. CEPR Discussion Papers 4840;
Spagnolo, G., 2008. Leniency and Whistleblowers in Antitrust. In P. Buccirossi (Ed.), Handbook of Antitrust Economics. MIT Press, Cambridge, MA.

5 Buccirossi, P., Ciari, L., Duso, T., Spagnolo, G., Vitale, C., 2014. Deterrence in competition law. The analysis of competition policy and sectoral regulation. Ch. In World Scientific [u.a.], pp. 423–454.

This decreased deterrence linked to the abuse of leniency ends up creating its own "cons" for competition authorities: poor deterrence and generous leniency mean many cartels in society, and many cases for competition authorities to process. Excessive leniency reduces expected sanctions and deterrence, producing itself the "problem" of competition authorities becoming overwhelmed with the number of cases. In April 2005, the competition commissioner Neelie-Kroes noted that the high number of leniency applications created a serious workload problem, such that the EC opened more cases than it was able to handle within a reasonable time-frame[6]. However, the problem is not the excessive workload, it is the fact that so many cartels are still around, suggesting that competition authorities are not deterring cartels, but just prosecuting them, thus adding prosecution and litigation costs to the distortion caused by cartels.

3. The Pros and Cons for Society and the possible role of Screens

The social benefit of antitrust enforcement consists of its effect on deterrence, i.e. the reduction of the number of cartels which form in society[7]. Therefore, the "pros" of leniency policies for society are their deterrent effect and the associated reduction in the number of cases to be prosecuted and in the amount of fines and other sanctions imposed. As stressed above, antitrust activity is a pure social loss if it does not reduce the number of cartels that form. As any Law and Economic handbook explains from the first chapter, prosecuting, convicting and punishing infringements are wasteful activities that *per se* reduce welfare and must be minimized. The costs of competition authorities, courts, competition lawyers and economists are deadweight losses for society. Litigation and prosecution activities waste society's resources, precious ones like human capital. Such a waste is only justified on efficiency grounds if it determines a sufficiently robust decrease in the number of formed cartels. The disadvantage of leniency policies for society is precisely the risk that they are abused by a self-serving "antitrust community" that thrives with a high number of cases/ litigation, at the expense of social welfare and efficiency.

6 Kroes, N., 2005. The First Hundred Days. 40th anniversary of the Studienvereinigung Kartellrecht 1965-2005, international forum on European competition law.

7 See Buccirossi et al. (n 7).

If we are on the right path towards cartel deterrence, then the number of cartels that form in society may well be *inversely* related to how many cartels are convicted and to the amount of fines collected. Robust enforcement will substantially reduce cartel formation, and with few cartels around, few convictions will necessarily take place, and thus, few fines will be imposed. A large number of convictions and fines imposed is more likely a sign of failure of antitrust enforcement – low cartel prevention, high wasteful litigation costs – than of success, from the societal point of view. Moreover, a large number of cases to be prosecuted hinders the ability of the authority to detect, prosecute and deter cartels that are not reported within the leniency program[8]. The worse possible outcome for society is produced by excessive leniency, with subsequent: reduced expected fines for wrongdoers, high wasteful prosecution costs linked to the many cases and leniency applications to process, lack of resources to fight cartels that are not reported, and consequently lack of deterrence (i.e. many cartels in society).

It can't be argued that, even if cartels are not deterred, "taxing" them with fines remains a good practice, as it may reduce their effectiveness. The opposite is true! Recent research has shown that – given the way fines are currently calculated – imposing fines but not deterring cartels worsens the distortion generated by cartels[9]. Antitrust without deterrence is worse than no antitrust whatsoever, not only because of the large implied deadweight loss linked to administrative, litigation and prosecution costs, but also because the expected fines distort production decisions across industries and tend to induce forward looking cartels to price even higher than they would if no antitrust enforcement was present.

Research has shown that for a society that strives to maximize deterrence while minimizing wasteful prosecution activity, it is optimal to provide (any) leniency only to the first one or two (at a maximum) reporting firms[10]. The fact that leniency reductions have been granted in 52% of all EC cartel fines (1998-2014), clearly suggests leniency overdoing, which increases the deadweight loss for society through increased prosecution costs, at the additional cost of reduced deterrence. A leniency policy generous with over half of cartel participants, combined with the relatively mild sanctions of most EU jurisdictions, is likely to maintain or increase the deadweight loss from both cartel prices and antitrust administration, prosecution and litigation (because there will be more cartels and more prosecuted cartels).

> Competition authorities, publish the number of successful cartel convictions in their annual reports and these conviction rates are widely used as a performance measure, instead of deterrence

There is thus a large gap between social welfare and the objectives of law enforcement agencies, which are often evaluated and/or funded based on the number of convictions they obtain. In an ideal enforcement regime, where cartels can be fully deterred at a reasonable cost, therefore avoiding the costs of litigation and prosecution, there would be no cartel cases at all, and social welfare would be maximal. But there would also be no successful convictions to demonstrate the need for and the effectiveness of a well-funded agency and its subsequent claim for resources from the government. A higher number of cartel cases prosecuted and convicted following the introduction or modification of a leniency policy does not represent an improvement in antitrust enforcement, as it involves more wasteful prosecution activity, and may be

8 See Harrington, J., Chang, M., 2012. Endogenous Antitrust Enforcement in the presence of a Corporate Leniency Program. Working paper University of Pennsylvania.

9 See Bageri, V., Katsoulacos, Y., Spagnolo, G., 2013. The distortive effects of fines based on revenue. The Economic Journal, 123(572), 545-557.

10 See Spagnolo (n 5); Harrington, J., 2008. Optimal Corporate Leniency Programs. Journal of Industrial Economics, vol.56 (2), p215-246; Chen, Z., Rey, P., 2013. On the Design of Leniency Programs. The Journal of Law and Economics 56 (4), 917–957

due to reduced deterrence, i.e. to an increase in the overall number of cartels that form.

The real disadvantage of leniency policies for society is therefore precisely the risk of authorities abusing the amount of leniency awarded, so as to win more cases faster, at the cost of higher prosecution costs and lower deterrence.

A much stricter use of leniency is necessary, only for the first, maximum for a second reporting party, followed by standard investigation tools, dawn raids, etc., and very tough sanctions. Tougher sanctions, but also a higher probability of detection in the absence of a leniency application are complements of well-run and administered (i.e. much stricter than observed) leniency policies[11].

Screening activities, by increasing the probability of detection independent from leniency applications, may therefore be an important complement of the stricter leniency programs we advocate.

Screens have been greatly debated in the last decades, with mixed views in terms of their efficacy and costs/benefit ratio, but seem to have become more popular in recent years.[12] By screens, we mean statistical tests of suspicious patterns of prices, volumes or market shares observed in market data, with adequate benchmarks, used in order to explicitly identify the presence of collusion (or other types of infringement). Screens may also be able to identify which market players may be involved in the cartel and the duration or dates of the cartel agreement. Harrington[13] argues that screenings and active leniency policies are complements, such that the efficiency of a LP can be improved by screening activities, as these may scare firms and lead them to report the cartel. Similarly, Abrantes-Metz[14] discusses several proactive detection tools for cartels, of which she argues screens are the most effective.

Competition authorities and other agencies have started implementing screens to detect collusive activities in specific markets, where the necessary data are available at a reasonable cost. Some antitrust authorities have implemented structural screening techniques. These screens analyse the characteristics of products or market structures which are more prone to collusion. Behavioural screens aim to identify the behaviour of firms which participated in cartels, and there are also some examples of successfully implemented behavioural screens[15].

Implementing sophisticated screens is costly in terms of the amount of skilled human resources employed. Screening costs include constructing and maintaining large databases on which to run the screens, then running the screen, using econometrics to examine the data and interpreting its results. Oosterkamp et al.[16], for example, examine several price observatories and conclude that these are too expensive to run, due to the "*continuous, supplementary primary data collection by government and business*". The cost of the French observatory is estimated at around 1 million euros per year.

In addition, screens have an inherent risk of generating false positives (where no cartel exists or where there is tacit collusion) and false negatives (where the cartel is not identified). On false positives of screens, Harrington[17] suggests that these are the result of several omitted factors which influence cartel formation, but in general only a small share of "red flags" from screens are likely to be connected to a real collusive agreement.

High costs related to database creation and maintenance and a very large number of false positives induced some early adopters in the US to actually stop using screens. However, the economic environment is changing and we have entered the era of Big Data. More databases are becoming available, as well as much cheaper methods to clean, store and maintain them. More powerful computers and econometric software are dramatically

11 Bigoni, M., Fridolfsson, S.-O., Le Coq, C., Spagnolo, G., 2015. Trust, leniency and deterrence. Journal of Law, Economics and Organizaton (forthcoming); Harrington and Chang (fn 10).

12 See Harrington (2006) and Abrantes-Metz (2013) for surveys of the literature on screens.

13 See Harrington, J., 2006. Behavioral Screening and the Detection of Cartels. European Competition Law Annual: 2006. pp. 51–68.

14 See Abrantes-Metz, R., 2013, Proactive vs Reactive Anti-Cartel Policy: The Role of Empirical Screens. Available at SSRN: http://ssrn.com/abstract=2284740

15 See Abrantes-Metz, R., Kraten, M., Metz, A., Seow, G., 2012. LIBOR Manipulation? Journal of Banking and Finance, 36, pp. 136–50; first draft dated August 4th 2008

16 Oosterkamp, E., Logatcheva, K., van Galen, M., Georgiev, E., 2013. Food price monitoring and observatories: an exploration of costs and effects. LEI Memorandum 13-058, Project 2273000397, LEI Wageningen UR, The Hague.

17 See Harrington, J., 2010. Leniency Programs: Past Experiences and Future Challenges. Instituto Milenio SCI.

reducing the cost of running more sophisticated screens. The drawbacks of the past may no longer apply in the very near future.

> The disadvantage of LPs for society is precisely the risk that they are abused by a self-serving "antitrust community" that thrives with the number of cases/ litigation, at the expense of social welfare and efficiency

As a result, screens will likely become a good complement for (stricter) leniency policies in the fight of cartels. Competition authorities are probably "abusing" leniency, but we know from research that well designed and run leniency policies (very strict ones with sufficiently high fines and rewards) can theoretically deliver the "first best" that Becker suggested as an impossible for single person crimes[18]. In addition, recent experimental evidence suggests this is not just theory: Bigoni et al.[19] find that if leniency policies are well designed and implemented, then strong deterrence can be achieved with given fines and a zero probability of detection in the absence of a leniency application, i.e. with zero deadweight loss from regulatory costs. Screening activities are in themselves a policing cost, a deadweight loss for society. The two instruments are of different order in terms of potential benefits for society. The question of whether screening may replace leniency is a logical mistake: when looked at from the point of view of the public interest, it just makes no sense.

18 See Spagnolo (fn 5).
Spagnolo's results show that, in contrast to what happens in Becker (1968) and in most of its extensions, there is a finite level of fines that allows to completely deter collusion at no cost (in terms of inspection probability).
19 See Bigoni et al. (fn 12).

4. The Pros and Cons of Leniency Policies for Firms

A poorly designed or too generously administered leniency scheme provides an easy way for cartelists to escape or reduce fines and may even encourage cartels that would not otherwise form. The opportunity of escaping part or all the fine by applying for leniency, if the cartel is detected, is the big "pro" of leniency programs when seen from the colluding firms' perspective. Whether it is also a "pro" for firms which are victims of the cartels, is quite another story, much closer to what we have discussed in the previous section. We will here keep the point of view of firms that are or were part of a cartel.

On average, a cartel member fined by the EC receives a leniency reduction of 45%[20] (see *table 1*). In addition, despite the fact that (most) repeat offenders in (detected) EU cartels receive a fine increase (in theory but not so much in practice – see *table 4*), Marvão[21] shows that they also receive higher leniency reductions, which suggests that firms learn the "rules of the game", becoming experts in obtaining leniency, repeatedly colluding and reporting the cartel.

A description of the firms which have been convicted for collusion more than once can be found in *table 4*. We distinguish between repeat offenders, those who continue to participate in a cartel after being investigated for another collusive agreement, and multiple offenders, those involved in at least two cartels.

Private damage actions, very rare in the past, are on the rise in Europe, and may fundamentally change firms' evaluation of the pros and cons of applying for leniency. While public and private law enforcement may be highly complementary in terms of deterring infringements, leniency programs may engender some conflicts between the two. The increased risk of private actions for damages may jeopardize the incentives to self-report within a LP, since a leniency application may increase the risk of a successful damage claim by the cartel's victims. This is because the evidence provided by the leniency applicant may be used by the claimants in the damage action to prove the existence of the

20 Data for EU cartels convicted during 1998-2014, from Marvão, C., 2015. The EU Leniency Programme and Recidivism. Review of Industrial Organization (forthcoming).
21 See Marvão (fn 21).

Firm name	Nb. Cartels	Nb. Cases	Nb. Fine Increase for RO	Nb. LR	Nb. Fulle Leniency	Nb. Other reduction	Nb. Fine Increase leader
Repeat Offenders							
Akzo Nobel	9	8	1	7	3		
Mitsubishi	5	5				3	
Hitachi	5	4		2		3	
ABB	4	4	2	2	2	1	1
Degussa AV (Evonik)	4	4	3	4	2		
Suminoto Metals	7	3		6	5	6	
FMC Corporation/Foret	3	3		1		2	
ThyssenKrupp	5	2		2	2	5	
Danone	2	2	1	1			1
Brugg	2	2		1			
MO with Fine Increase							
Arkema France	5	4	3	4		1	
Bayer AG	4	4	3	4	2		
Shell	3	3	2	1	1		1
ENI	2	2	2				
Hoechst	2	2	2	2			1
Outokumpu	2	2	2	2		1	
Solvay Pharm	3	2	2	2			
BASF AG	9	2	1	9			7
Repsol	2	2	1	2			
SAS	2	2	1	1		1	
Total	2	2	1	1		1	
MO in more than 2 cases							
Samsung	6	5		6	2	2	
Toshiba	4	4				2	
AGC	3	3		3		1	
Archer Daniels Midland	3	3		3		1	2
Aventis (Rhone-Poulenc)	5	3		5	3	2	
Coats	5	3		3		2	
Fuji	3	3		2			
SGL Carbon	3	3		3		2	1
41 other MO	≥2	≥2					
19 other MO	≥2	1					
421 Single Offenders	1	1					

Table 4 *- Distribution of firms fined by the EC, 1998-2014, according to the number of cartels they have been convicted for. (source: data collected by Marvão (2015), from EC publicly available reports)*

infringement and its effects. In addition, leniency applicants, and especially immunity recipients, do not usually challenge in court the infringement decision adopted by the authorities, at least regarding the existence of the cartel, while the other cartel members typically do it, considerably delaying the possibility of successful damage actions against themselves. Since in most EU jurisdictions, the cartelists will be considered to be jointly and severally liable with respect to damage claims by all the cartel's victims, the leniency applicant can become the preferred target of the damage action for the entire harm caused by the cartel. The incentive stemming from the avoidance of the fine may thus be counterbalanced by the disincentive of being condemned to pay damages.

The existing LPs in the EU do not protect leniency applicants from the civil law consequences of their participation in the cartel. Furthermore, the general rules of tort laws of all EU Member States provide that when several parties are responsible for the same damage, as in the case of a cartel, they are jointly and severally liable for it. This means that each victim is entitled to claim their entire loss from each liable party, including the leniency applicants, who may afterwards claim from the other co-cartelists a sum corresponding to their share in the liability.

The recently approved Directive on Antitrust Damages Actions[22] facilitates private actions in several dimensions, and by doing so, it increases the risks of applying for leniency, although it limits damages to the harm caused, thereby preventing EU members of using punitive damages (such as the US's treble damages, aimed at compensating for the low probability of cartel detection).

Before the Directive, the conflict between public and private antitrust enforcement was dealt with by applying two general legal principles. The first is the right of victims to be fully compensated for the harm they suffered[23]. Pre-directive, the leniency applicant could have become the favorite target of litigation in countries where courts were allowed to decide on access to the LP statements. This could have severely weakened the incentive to apply for leniency because firms who received immunity from fines could have been heavily targeted with damage claims. The second concerns the access to the leniency statements, on which the ECJ ruled that EU law does not prohibit a third party (adversely affected by the cartel), from having access to a leniency application[24]. The ECJ held that it is for the national judge to determine the conditions under which access to leniency material can be granted to someone seeking to obtain damages.

The position of the ECJ has the merit of clarifying that actions for damages initiated by the victims of an antitrust infringement may increase the level of deterrence. In this respect, public and private enforcement do not conflict with each other. However, as far as hard-core cartels are concerned, the public interest has been pursued in many jurisdictions through the adoption of LPs. The legal debate has then correctly focused on the risk that, under the current legislation, an increase in damage actions could undermine the incentive to apply to these programs. However, the legal debate has incorrectly taken for granted that an inherent conflict must exist between the proper functioning of a LP and private damage claims, so that any proper legislation necessarily has to compromise between the interest of the public enforcement system and the interest of private cartel victims to be fully compensated.

Two issues are particularly important to this alleged conflict between public and private enforcement. The first issue is whether leniency applicants (and in particular the immunity recipient) should have the same level and type of liability as all other cartel members. The second issue is whether access to the leniency statements and related documents should be granted to the claimants in the damage action.

The Directive intervenes on these two issues. As for the rule on the liability, the Directive provides that the immunity recipient is liable principally to its direct and indirect purchasers (or providers) and it is only liable to other parties if the remaining cartel members cannot provide full compensation. As for the access to the documents submitted by a leniency applicant, the Directive provides that courts cannot order the disclosure of leniency statements and settlement submissions.

Buccirossi et al.[25] show that there is no conflict between the objectives of maximizing deterrence and ensuring full compensation of victims, nor between public antitrust enforcement through LPs and private actions for damages, as presumed by the legal debate which led to the Directive. The analysis suggests that a legal regime in which the immunity recipient's liability is reduced as much as possible (even eliminated) and which grants

22 Directive 2014/104/EU on certain rules governing actions for damages under national law for infringements of the competition law provisions of the Member States and of the European Union Text with EEA relevance; OJ L 349, 5.12.2014, p. 1–19

23 Principles stated in the judgements of the Court of Justice of 13 Jul. 2006, joined cases C-295/04 to C-298/04, Manfredi, ECR I-6619; and of 20 Sept. 2001, case C-453/99, Courage, ECR I-6297.

24 Judgement, on a reference from the district court of Bonn in Germany, of 14 June 2011, Case C-360/09, Pfleiderer. On 30 January 2012, the German court which had brought the case before the ECJ concluded that access to leniency documents should be denied.

25 See Buccirossi, P., Marvão, C., Spagnolo, G., 2015. Leniency and damages. CEPR Discussion Paper 10682

victims full access to all files of the competition authority, including leniency statements, maximizes both the effectiveness of public antitrust enforcement and the ability of victims to obtain compensation for damages (treble damages to be paid by companies which are not leniency recipients would have further improved the outcome). Claimants are shown to be worse off with this part of the Directive, in comparison with both the previously prevailing rules that allowed to disclose part or all of leniency statements, balancing the interests of the leniency applicant against those of the claimant and (to a larger degree) with the one that would result from the optimal solution proposed by the authors. This effect is even larger when the authors take into account the additional deterrence channel induced by the presence of a LP (the "risk of being turned in by a cartel partner"[26]) and the cost of being the preferred target of the damage action.

However, the Directive has been approved and is gradually being incorporated in the legislation of the EU member states. While this is likely to significantly modify the pros and cons of applying for leniency in Europe, its effect depends on the magnitude of change between the previous legal regime of each country and the one envisaged by the Directive.

In fact, some EU member States have particular features in their damage claims system. UK Courts allow claimants to sue a cartel member's subsidiary firm so as to anchor a claim, and to access a wide range of documents from the civil process[27]. The Office of Fair Trading has also suggested allowing the immunity applicant to receive up to 100% of the damages he is liable for, from the non-leniency recipients[28]. Although there was some support to this initiative, concerns were raised that it would increase the level of uncertainty for immunity recipients and lead to further litigation. These concerns made no sense of course, because the uncertainty was strictly in favor of the leniency applicant, but were sufficient to stop a good proposal given the level of the legal debate in Europe.

In Germany, judges can estimate the amount of damages on the basis of a claimant's concrete submission[29] and entities, such as the Belgian firm *Cartel Damage Claims*, can represent a group of claimants. The Netherlands goes further to allow binding collective claim settlements and it features a low cost of litigation[30].

> Escaping part or all the fine by applying for leniency, if the cartel is detected, is the big "pro" of LPs for colluding firms

A rather interesting solution has been adopted in Hungary. Its damage claims' system aims to reconcile leniency incentives and the right of claimants to obtain damage compensation. The legislation allows the immunity recipient to refuse reimbursement of the cartel damages until the claim can be collected from other cartel members held liable for the same infringement, and as far as the claim can be collected from those firms (Hungarian Competition Act, art.88D 2011). This means that the leniency applicant is the last target of damage lawsuits. If there is a request to review the decision of the Hungarian Competition Authority establishing an infringement, the immunity recipient will only be sued after the administrative lawsuit judgment becomes legally binding. However, the other cartel members can claim a contribution from the immunity recipient, to the extent of his fault. In this system, the increased gap between the immunity recipient and the other members is likely to destabilize cartels but it also delays the payment of compensation to the claimants.

26 See Spagnolo (n 5) and Bigoni et al. (n 12).
27 UK Civil Procedural Rules, part 31.
28 See Office of Fair Trading, 2007. Private actions in competition law: effective redress for consumers and business. Discussion paper, April 2007, Ch. OFT916, art.7.18-7.19
29 German Code of Civil Procedure, section 287
30 Wet Collectieve Afwikkeling Massaschade, 2011 and Dutch Civil Code art.3:305a, 1994

Private damage actions in Europe have often taken the form of collective claims, many of which were organized by the *Cartel Damage Claims* firm, which was recently successful in a large damages' claim from the members of a cement cartel in Germany, and which is pursuing three other claims concerning EU cartel cases. The availability of collective redress mechanisms may fundamentally change firms' perspective of the pros and cons of leniency. This is particularly true if firms perceive it as going in the direction of damage claims in the US, where public and private law enforcement have coexisted since the Sherman Act and private litigation plays a major role in the enforcement of antitrust law. In fact, the amount of damages a firm is liable for, is often larger than its cartel fine. Just recently, in December 2014, the immunity recipient (Lufthansa) in a cartel case on airline freights was sued by Deutsche Bahn for 1.76 billion euro worth of damages.
In addition to the potential payment of damages, a concern that firms may have when considering reporting the cartel is the possibility of extradition. In April 2014, the US DOJ was successful, for the first time, on the extradition of a non-national based solely on antitrust charges.

5. Conclusion

There are clear signs that the perceived "pros" of leniency are leading the European Commission to overuse leniency, as if it was a form of plea bargaining. This bias is natural when the number of convicted cartels is used as a performance measure, and may be efficient in some specific (but rare) cases given that plea bargaining is not available and settlements can only award a limited discount on the fine. Moreover, excessive leniency seems to be an attempt to solve a problem – low cartel deterrence and too many cartel cases waiting to be prosecuted by competition authorities – which is worsened, rather than solved, by overusing leniency. The "cons" of leniency overuse, on the other hand, are substantial for society at large, which must bear the deadweight loss from the large administration and prosecution costs of all the cases, in addition to those of cartels that are not deterred.

It is important to ensure that leniency policies are administered to be effective at deterring cartels, rather than merely making it easier for competition authorities to detect and prosecute cartels.

A too generously administered leniency scheme provides an easy way for authorities to obtain easy convictions and for cartelists to escape or reduce fines. If combined with mild sanctions, it is likely to flood authorities with leniency cases, thus harming society by maintaining or increasing cartels' distortions plus the deadweight loss from administration, prosecution and litigation costs, with no balancing benefits for the taxpayer.

The fact that leniency reductions have been granted in 52% of all EC cartel fines (1998-2014), and that this percentage, corresponding to an average of 4 leniency recipients per cartel, is on the rise, reveals that the bias is increasing, together with the excessive deadweight loss for society.

A much stricter implementation of leniency policies, complemented by strengthened sanctions and possibly a moderate use of more expensive but proactive enforcement tools, such as screens, appears to be the way forward.

Looming damage payments reduce the "pros" of leniency for cartel members, and may reduce the number of leniency applications. Maintaining the attractiveness of leniency for the first reporting party remains crucial for cartel deterrence. However, we need not limit cartel victims' ability to recover their loss by hindering the access to leniency statements to preserve the effectiveness of a LP, as done by the EU Damages Directive. Instead, we can do that by further limiting leniency recipients' liability. Once we go in that direction, damage actions will improve the effectiveness of such programs by increasing the cost of taking part in a cartel and of not applying for leniency first, once done that. This path cannot be claimed to be "legally unfeasible" as it is practically the same regime that has been valid in Hungary since 2011, where an immunity recipient is only liable to pay his (direct only) damages in the very unlikely event that all other cartel members went bankrupt.