Antitrust, Agency and Amnesty: 
An Economic Analysis of the Criminal Enforcement 
of the Antitrust Laws Against Corporations

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Introduction

While perhaps overshadowed by the more visible and controversial civil actions against high-technology sector companies, significant changes in the criminal enforcement of the antitrust laws occurred during the Clinton administration. Under the Clinton administration, the Department of Justice’s (DOJ) Antitrust Division refocused its efforts away from relatively small domestic conspiracies toward much larger international cartels.1 Perhaps the most visible evidence of this change in focus was the unprecedented increase in the average and total criminal fines imposed on corporations for violating the antitrust laws. Prior to 1995, the largest criminal fine imposed against a criminal antitrust defendant was $6 million dollars.2 For corporations sentenced for antitrust violations in fiscal years 1997, 1998, and 1999, the average criminal fine far exceeded $6 million dollars.3 Criminal antitrust fines imposed on corporations in fiscal years 1997 and 1998 were “virtually identical to the total fines imposed in all of the [Antitrust] Division’s prosecutions during the 20 years from 1976 through 1995.”4 Fines imposed in Fiscal Year 1999 were even higher, exceeding $1.1 billion.5 The record corporate criminal fines have also been accompanied by a decline in enforcement actions against smaller firms.6

In addition, criminal enforcement was aided by changes to and increased use of the Antitrust Division’s corporate leniency policy.7 Prior these changes, firms could escape criminal prosecution by being the first to disclose their role in the conspiracy to the government and to agree to cooperate with the government. However, use of the policy was limited to situations where the defendant’s conduct was not known and unlikely to be discovered by the Antitrust Division.8 The new policy both expanded use of the policy to situations where a criminal

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1 See, e.g., David A. Balto, Antitrust Enforcement in the Clinton Administration, 9 CORNELL J.L. & PUB. POL’Y 61, 65 (1999) (discussing changes in the Antitrust Division’s criminal enforcement policy under the Clinton administration).
3 See Table 2, infra.
7 Corporate Leniency Policy – 1993, TRADE REG. REP. (CCH) ¶13,113.
8 See Balto, supra note 1 at 65.
investigation had already begun. In addition, the new policy also clarified the circumstances under which an organization and its employees could escape criminal punishment. The changes were designed to strengthen incentives for corporations to defect from and inform on other members of the cartel. Following the changes, the rate of applications for leniency increased from approximately once per year prior to the changes to a current rate of two per month. Under the new policy, actions based on cooperation in exchange for corporate amnesty became an important means through which criminal antitrust cases were generated.

This article provides an economic analysis of the Antitrust Division’s recent changes in enforcement strategy. Recent events have increased both the magnitude of the penalty and the probability of detection and punishment. The large and unprecedented increase in fines collected from large public corporations, coupled with the Division’s expanded use of its corporate amnesty program, will cause the shareholders of such organizations to face higher ex-ante penalties. While such large ex-ante penalties can increase deterrence, they also induce corporations to incur higher precaution and avoidance costs. If expected penalties are set too high, excessive preventative expenditures by corporations will result. Moreover, the potential for excessive expenditures is exaggerated by the “first to cooperate” nature of the Division’s corporate leniency policy.

Section I reviews the factors leading to the large increase in fines collected from corporations, including changes in the statutory maximum penalty for antitrust crimes, the increase in penalties that resulted from the Federal Corporate Sentencing Guidelines, and the expanded use of the Antitrust Division’s corporate leniency policy. Section II evaluates the efficiency of these increases in criminal fines and the probability of enforcement using an optimal penalties model. Section III concludes that the recent increase in fines may have resulted in higher than optimal fines.

I. Changes in the Enforcement of the Antitrust Laws

Two changes, which predated the Clinton administration, made possible the implementation of an enforcement strategy that focused on the imposition of large fines on organizations. First, an increase in the maximum penalty available for

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9 Id.
10 Id. See also Section IC, infra.
12 See 1999 DOJ Annual Report, supra note 5 at Section II.
criminal antitrust violations led to the unprecedented increase in criminal fines imposed on antitrust violators. In addition, the Federal Sentencing Guidelines increased the level of sanctions imposed for criminal antitrust violations.

A. *Increases in the Maximum Fine.*

Recent changes have dramatically increased the maximum penalty for a criminal antitrust violation for corporations.13 Sherman Act violations were originally misdemeanors with maximum penalties of five thousand dollars and one year in prison.14 Maximum fines were increased to $50,000 in 1955.15 The Antitrust Procedures and Penalties Act of 1974 changed violations of the Sherman Act from misdemeanors to felonies.16 This act increased the maximum jail term to three years, and increased the maximum criminal fines to $100,000 for individuals, and to $1 million for corporations.17 Maximum fines were further increased by the Criminal Fine Enforcement Act of 1984 (CFEA), which increased the maximum fine for individuals to $250,000, and also allowed for a higher maximum fine equaling twice the pecuniary gain or pecuniary loss.18 The maximum fines for 15 U.S.C. §§1-3 were increased to their current levels in 1990.19 Current violations can result in a maximum fine of $350,000 for individuals and $10 million for corporations.20 The Antitrust Division has supported a further increase in the maximum fine for corporations to $100 million,21 and legislation to achieve such an increase has been introduced in the Senate.22

Figure 1 shows the historical maximum fine applicable to Sherman Act violations in constant year 2000 dollars. The recent increase in statutory

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14 *Id.* at _.


20 *Id.* See also 15 U.S.C. §§ 1-3.


maximum fines for corporations represents a significant real increase in the magnitude of the fine that can be imposed on corporations. In contrast, the increase in real fines facing individuals has been more modest. These modest increases in individual fines, however, have been accompanied by an increase in expected incarceration.\footnote{See Federal Sentencing Guidelines Manual, United States Sentencing Commission (West 2000) (USSG), §2R1.1 Background.}

Figure 1 – Maximum Antitrust Fines (in constant 2000 dollars)

The increase in maximum fines depicted in Figure 1 understates the applicable statutory maximum facing an antitrust defendant. First, convictions on multiple counts increases the maximum fine.\footnote{See USSG, supra note 23 at §2R1.1, §8C3.1. In determining whether a single versus separate conspiracies exist, the courts have examined both the scope and the mechanics of the conspiracy. See Brown and Burns, supra note 2, at 178 (citing In re Grand Jury, 797 F.2d 1377 (6th Cir. 1986) (holding that bid rigging incidents were separate offenses); U.S. v. Korfant, 771 F.2d 660 (2d. Cir. 1985) (holding price-fixing involving distinct sets of conspirators in unrelated markets were separate conspiracies); U.S. v. Wilshire Oil Co., 427 F.2d 969 (10th Cir. 1970).}

Perhaps more significantly, the
Criminal Fine Enforcement Act of 1984 allowed an alternative maximum fine equal to two times the gain to the offender or loss to the victim. Under this alternative maximum fine, an organization convicted of violating the antitrust laws can face a maximum fine greater than ten million dollars when pecuniary gain or loss is proven to exceed five million dollars. Use of the alternative maximum fine was infrequent prior to 1991 but increased after the promulgation of the Sentencing Guidelines for Organizations in 1991. As part of these guidelines, the Antitrust Guideline was amended to allow use of an amount equal to 20 percent of the “volume of affected commerce” as a base fine for organizations in lieu of pecuniary loss. Use of the “volume of affected commerce” proxy, which is a measure of the gross revenues of a firm during the conspiracy period, was intended to “avoid the time and expense that would be required for the court to determine the actual gain or loss.” The Antitrust Division also has used a fraction of the “volume of affected commerce” to assert the existence of losses large enough to raise the statutory maximum under 18 U.S.C. §3571(d). The

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(same)). The Antitrust Division can also charge antitrust defendants with mail and wire fraud to increase the statutory maximum. See id. at 194 (citing U.S. v. Southwest Business Sales, 20 F.3d 1449 (8th Cir. 1994) (allowing joinder of antitrust and mail fraud claims)).

See CFEA, supra note 18. The Sentencing Reform Act of 1984, PUB. L. NO. 98-473, Title II § 212(a)(2), 98 STAT. 1995 (1984), superseded this act. Although this act did not change the maximums, it did result in the promulgation of the Federal Sentencing Guidelines, which increased the average fine levels for antitrust offenders. See Section I.B, infra. The alternative maximum fine is codified at 18 U.S.C. § 3571(d) (specifying alternative maximum fine based on gain or loss). Under 3571(d), “If any person derives pecuniary gain from the offense, or if the offense results in pecuniary loss to a person other than the defendant, the defendant may be fined not more than the greater of twice the gross gain or twice the gross loss, unless imposition of a fine under this subsection would unduly complicate or prolong the sentencing process.”


See Klawiter, supra note 13, at _ (discussing the initial uses of 18 U.S.C. 3571(d) in an antitrust sentencing).

See USSG, supra note 23 at §2R1.1(d)(1). The guideline defines “volume of commerce attributable to an individual participant in a conspiracy” to be the “volume of commerce done by him or his principal in goods and services that were affected by the violation.” Id at §2R1.1 (b)(2). In addition, in a bid-rigging case in which the organization submitted one or more complementary bids, the applicable volume of commerce alternatively equals the “largest contract on which the organization submitted complementary bid in connection with the bid-rigging conspiracy” if this amount is greater that the volume of commerce done by the organization there were affected by the violation.

For an example of such an analysis by the government, see U.S. v. SGL Carbon AK & Robert J. Koehler, Government’s Sentencing Memorandum, CR 99-244, (U.S. DCT. E.D. Pa. 1999) available at http://www.usdoj.gov/atr/cases/f3800/3854.htm (visited 03/11/01). “Because the Guidelines fine exceeds the $10 million statutory maximum under the Sherman Act, the fine
result has been the more frequent imposition of fines above the current $10 million dollar statutory maximum.\textsuperscript{32}

Because the government has imposed the vast majority of the criminal antitrust fines exceeding $10 million pursuant to a plea or sentencing agreement, the court has not had the opportunity to require the government to present evidence to support the use of the alternative maximum fine.\textsuperscript{33} The Supreme Court’s recent decision in \textit{Apprendi v. New Jersey}, however, has implications for the government’s ability to use the volume of commerce (or some fraction thereof) as a proxy for pecuniary loss to invoke an increase in the statutory maximum above $10 million dollars.\textsuperscript{34} In this case, the defendant was convicted in a New Jersey state court for firing gunshots into the home of a black family that had moved into his neighborhood.\textsuperscript{35} The defendant pled guilty to two counts of second-degree possession of a firearm for an unlawful purpose and one count of third-degree possession of a bomb.\textsuperscript{36} At sentencing, the judge applied a hate-crime law that authorized, upon determining by a preponderance of the evidence that the defendant acted with “a purpose to intimidate an individual or group of individuals because of race, color, gender, handicap, religion, sexual orientation, or ethnicity,” to sentence the defendant as if the grade of the offense was one grade higher.\textsuperscript{37} Defendant appealed, and the application of the hate crime law was affirmed by the New Jersey Supreme Court.\textsuperscript{38} A narrowly divided U.S. Supreme Court reversed, holding that any fact that increases a penalty beyond the

\textsuperscript{32} Based on the Sentencing Commission data there are ten cases that were sentenced in 1998 and 1999 where the criminal fine exceeded the listed statutory maximum of ten million dollars per count, and one case in which the $20 million fine equaled the statutory maximum based on two counts. See \textit{United States Sentencing Commission, Corporate Sentencing Data (Organizational Sentencing Data, copy on file with author).} See also \textit{Final Report of the International Competition Policy Advisory Committee: Chapter 4, Anticartel Enforcement and International Cooperation,} (Feb 2000) at text accompanying n. 27, \textit{available at http://www.usdoj.gov/atr/icpac/finalreport.htm} (visited 3/11/01, noting 26 members of the “10 million dollar club”); Klawiter, \textit{supra} note 13 (Table showing 25 cases in where fines exceeded 10 million dollars).

\textsuperscript{33} See Klawiter, \textit{supra} note 13 at _.

\textsuperscript{34} 120 S. Ct. 2348, 530 U.S. 466 (2000).


\textsuperscript{36} \textit{Id}.

\textsuperscript{37} \textit{Id} at 497-98.

\textsuperscript{38} \textit{Id} at 485.
prescribed statutory maximum must be submitted to a jury and proven beyond a reasonable doubt.\textsuperscript{39}

The Court’s decision in \textit{Apprendi} affects the government’s ability to use the alternative statutory maximum fine in several ways. First, when a defendant chooses to challenge a fine exceeding $10 million, the court must hold an evidentiary hearing to increase the maximum under 18 U.S.C. §3571(d). Prior to \textit{Apprendi}, the government would have to prove loss or gain by a preponderance of the evidence standard.\textsuperscript{40} Under \textit{Apprendi}, in order to increase the statutory maximum above $10 million under 18 U.S.C. §3571(d) the government instead is required to prove, beyond a reasonable doubt, the size of the pecuniary loss or gain. The increase in the standard of proof required may, \textit{ceteris paribus}, induce more defendants to challenge the government’s ability to impose fines that greatly exceed $10 million dollars. Moreover, any increase in the frequency and complexity of litigation over the alternative maximum fine may decrease the courts’ willingness to consider such fines.\textsuperscript{41}

A second problem is that proof of loss is not the same as determining the applicable volume of commerce. The focus of the inquiries under the sentencing guidelines and under 18 U.S.C. §3571(d) are conceptually distinct. In determining sentencing factors such as the volume of commerce, the inquiry under the sentencing guidelines focuses upon “the specific acts and omissions for which the defendant is to be held accountable.”\textsuperscript{42} In contrast, the increase in the statutory maximum under 18 U.S.C. §3571(d) is based on the narrower concept of pecuniary gain or loss resulting from the “offense”.\textsuperscript{43} Moreover, twenty percent of the volume of commerce may not be reliably related to the concept of pecuniary gain or loss. In the antitrust guideline, the Sentencing Commission notes that, “it has been estimated that the average gain from price-fixing is 10 percent of the selling price.”\textsuperscript{44} Thus, the guidelines provide for a base fine that is twice the “estimate” of gain.\textsuperscript{45} There is no evidence, however, to support the claim that the 10 percent figure was reliably “estimated.”\textsuperscript{46} A review of the existing evidence on price fixing conspiracies found that the 10 percent markup

\begin{footnotesize}
\begin{enumerate}
\item[39] \textit{Apprendi}, 120 S. Ct at 2354-66.
\item[40] Klawiter, \textit{supra} note 13 at _.
\item[41] 18 U.S.C. §3571(d) (giving courts the discretion to impose the statutory maximum fine if use of alternative maximum fine would “unduly complicate or prolong the process.”). \textit{See also} Klawiter, \textit{supra} note 13 at _ (noting the court’s refusal to use the alternative maximum fine in the sentencing of Mark Andreas).
\item[42] \textit{See USSG, supra} note 23, at §1B1.3, Application note 1.
\item[43] 18 U.S.C. §3571(d).
\item[44] \textit{See USSG, supra} note 23, §2R1.1, Commentary Number 3.
\item[45] For a discussion of the social loss from price fixing, \textit{see infra} text accompanying notes 115 and 118.
\item[46] \textit{See Cohen & Scheffman, supra} note 27 at 343-5.
\end{enumerate}
\end{footnotesize}
figure was implausible, and inconsistent with existing empirical studies of price fixing conspiracies.\textsuperscript{47}

Indeed, the “affected volume of commerce” proxy was never intended to be a measure of the actual loss or gain. Under the guidelines, 20\% of the volume of commerce is to be used “in lieu” pecuniary loss in order to “avoid the time and expense that would be required for the court to determine the actual gain or loss.”\textsuperscript{48} Thus, even if one accepts the use of a fraction of the “affected volume of commerce” as sufficient for determining the guidelines sentence, using this amount to raise the statutory maximum above $10 million would fall far short of proving either loss or gain beyond a reasonable doubt.\textsuperscript{49}

B. Increases in the Fine Imposed Under the United States Sentencing Guidelines

An increase in the magnitude of the fines levied against corporations for antitrust violations has accompanied the increase in maximum penalties documented above. Table 1 shows the recent data on average and median sentences for antitrust violations. The data show the record increase in fines imposed on corporations occurring in Fiscal Year 1997-1999. The data show

\begin{itemize}
\item \textsuperscript{48} See USSG supra note 23 at §2R1.1, Application note 3.
\item \textsuperscript{49} Although \textit{Apprendi} does not directly impact the Federal Sentencing Guidelines, the case does have potentially significant implications for the use of unproven sentencing factors. See \textit{Apprendi}, 120 S. Ct. at 2402 (Breyer, dissenting); Thomas W. Hutchison, \textit{Supreme Court Consideration of the Guidelines}, FEDERAL SENTENCING GUIDELINES MANUAL, WEST (2000) at xxix. See also Jones v. United States, 526 U.S. 227 (1999) (holding any fact (other than prior conviction) that increases the maximum penalty for a crime must be charged in an indictment, submitted to a jury, and proven beyond a reasonable doubt); Almendarez-Torrez v. U.S., 523 U.S. 224 (1998) (allowing sentencing enhancement based on fact of prior conviction).
\end{itemize}
significant increases in both the average and the median fines imposed on organizations.

Table 1 – Sentencing of Antitrust Defendants by Year of Sentencing\(^{50}\)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>N</th>
<th>Organizational Fine</th>
<th>Individual Incarceration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>1999</td>
<td>18</td>
<td>$53,152,280</td>
<td>$725,000</td>
</tr>
<tr>
<td>1998</td>
<td>13</td>
<td>$16,778,462</td>
<td>$500,000</td>
</tr>
<tr>
<td>1997</td>
<td>14</td>
<td>$8,955,286</td>
<td>$1,062,500</td>
</tr>
<tr>
<td>1996</td>
<td>14</td>
<td>$1,226,221</td>
<td>$315,000</td>
</tr>
</tbody>
</table>

The increase in the average and the median fine levels shown in Table 1 are the result of several factors. First, it is clear from the data that the Antitrust Division has refocused its efforts on larger international conspiracies with a much larger “affected volume of commerce”. Because the base fine under the guidelines is proportionately related to the volume of commerce, we would expect average guidelines fines to increase even if there were no change in the criminal fine to loss ratio.\(^{51}\) Second, as noted above, recent statutory changes and use of the alternative maximum fine have dramatically increased the maximum fine.\(^{52}\)

If larger international cartels cause larger harms, then neither the increase in the statutory maximum nor the increase in the size of penalties are necessarily troublesome or inconsistent with efficiency. It is clear, however, that the size of the criminal fines relative to loss was increased for antitrust violations under the U.S. Sentencing Commission Guidelines.\(^{53}\) Moreover, these significant changes occurred without any analysis of the adequacy of historical fine levels,\(^{54}\) nor any

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\(^{50}\) Source: \textit{UNITED STATES SENTENCING COMMISSION, SOURCEBOOK, 1996-1999 (USSC Sourcebook)}. The fines reported in the table do not include restitution.

\(^{51}\) For a discussion of the relationship between loss and fine under the guidelines, see \textit{infra} text accompanying notes 60 and 63. In addition, the guidelines punish larger organizations more severely, \textit{ceteris paribus}, through culpability scores that are positively related to the size of the organization. \textit{See USSG, supra} note 23, §8C2.5, Background.

\(^{52}\) \textit{See supra} text accompanying notes 27 and 32.

\(^{53}\) \textit{See} Cohen and Scheffman, \textit{supra} note 27 at 338-9 (noting Sentencing Commission’s deliberate decision to increase individual sanctions over Commission Staff’s study of past practice, and noting large increase in corporate antitrust fines that would result from application of Sentencing Guidelines). \textit{See also} Jeffrey S. Parker, \textit{Rules Without . . . : Some Critical Reflections on the Federal Corporate Sentencing Guidelines}, 71 WASH. U. L. Q. 397, 404 (1993) (noting that the base fine and multiplier for corporate guidelines generally were chosen to make guideline fines overlap with statutory \textit{maximum} penalties).

\(^{54}\) \textit{Id.} at 423-26.
systematic analysis of the average gain or loss from price fixing. Historically, total fines for antitrust violations, including those levied on individuals and corporations, were less than two percent of the volume of commerce prior to 1980. When initially promulgated in 1987, the United States Sentencing Guidelines mandated fines for organizations sentenced for criminal antitrust violations equal to “20 to 50 percent of the volume of commerce, but not less than $100,000.” Compared to the pre-1980s practice, the guidelines range indicated a 10 to 25-fold increase in corporate fines for antitrust violations.

Corporate fines for antitrust crimes were revised in 1991 as part of the promulgation of the guidelines for sentencing of organizations. Although these changes, in some cases, allowed for guideline fines lower than 20 percent of the volume of commerce, the minimum guidelines fine/loss ratio was still at levels far above the historical average.

Under the current United States Sentencing Guidelines, the guidelines fine range is determined by first calculating a base fine. The base fine equals the greatest of the pecuniary gain to the organization, the pecuniary loss from the offense caused by the organization, or the amount provided by an offense-level fine table. For antitrust violations, 20% of the volume of affected commerce is used in lieu of pecuniary loss, and is almost always used in lieu of pecuniary gain or the amount from the offense-level fine table.

The base fine is then multiplied by a minimum and maximum multiplier to determine the range for the guidelines fine. The minimum and maximum multipliers are an increasing function of the organization’s culpability score, which has a functional range of 0 to 10. A culpability score of 10 results in a minimum multiplier of 2 and a maximum multiplier of 4, while a culpability score of 0 results in a minimum multiplier of .05 and a maximum multiplier of .2.

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55 See supra text accompanying notes 44 and 47.
56 See Cohen & Scheffman, supra note 27 at 339 (reporting estimates of criminal fines equal to .4 percent of the volume of commerce for the period 1955-1974, and 1.4% of the volume of commerce for the period 1974-80).
57 See USSG, supra note 23, Appendix C at 800 (listing original antitrust guideline and changes).
58 See Cohen and Scheffman, supra note 27, at 346.
59 The Antitrust Guideline was changed when Chapter 8, covering organizational sanctions, was made effective on November 1, 1991. See USSG, supra note 23, Appendix C at 854-6.
60 Id. at §8C2.4.
61 Id. at §2R1.1(d). The loss proxy based on 20% of the volume of commerce will be greater than the amount from the offense level fine table as long as the affected volume of commerce is estimated to be greater than $100,000 in a price fixing conspiracy, and $150,000 for a bid rigging offense. For an example of this relationship, see note 68 and accompanying text.
62 Id. at §8C2.7.
63 Id. at §8C2.6.
However, for antitrust violations, the minimum multiplier that can be applied is .75. This multiplier results in a minimum antitrust guidelines fine for organizations equal to 15 percent of the volume of commerce (for a firm with a culpability score of 3 or less), and a maximum guidelines fine of 80 percent of the volume of commerce (for a firm with a culpability score of 10).

To illustrate the magnitude of fines that would be imposed on organizations under the guidelines, Table 2 illustrates several applications of the antitrust guidelines based upon the graphite electrodes price fixing conspiracy. This cartel involved large international and domestic corporations, and is a prime example of the type of cartel focused on by the Clinton Administration. The firms involved in this cartel conspired to fix the prices of graphite electrodes, which are large heat-generating columns in electric-arc furnaces used to make steel. 64 Total sales of graphite electrodes in the United States during the conspiracy period, which ran from March 1992 through June 1977, were more than $1.7 billion. 65 Although the fines levied on firms and individuals involved in this conspiracy are among the largest ever imposed, 66 three of the four fines above $10 million listed in Table 2 are downward departures from the sentencing guidelines range. Only the relatively small $6 million fine against Tokai Carbon and the large fine against Mitsubishi are within the guidelines range. 67

65 Id.
66 At the time of sentencing, the $135 million fine imposed on SGL and the $10 million dollar fine imposed on its CEO, Robert J. Keoehler were the largest ever imposed against a corporation and an individual. See Barry J. Lipson, Local Firm Sends Competitor to Jail, 2 LAWYERS J. 6 (2000). The fine against SGL has been eclipsed a $500 million fine imposed on Hoffman-LaRoche and a $225 million fine imposed against BASF for their role in the vitamin price fixing cartel. See Stuart M. Gerson, Extra-Territorial Enforcement of the United States Antitrust Laws, SF 63 ALI-ABA 187 (2000).
67 In addition to the fines listed in Table 1, there were fines of $4.8 million dollars levied against SEC Corp. and $2.5 million levied against Nippon Carbon. There is also an outstanding indictment against former UCAR executive Georges Schvegler. See Sentencing Memorandum of the United States, U.S. v. Mitsubishi Corp., Crim. No. 00-033 (E.D. Pa., filed 4/19/01), available at http://www.usdoj.gov/atr/cases/f8200/8205.htm (visited 5/20/01).
Table 2 – Examples of Guideline Fine Calculations from the Graphite Electrodes Criminal Litigation.

<table>
<thead>
<tr>
<th></th>
<th>Showa Denko Carbon</th>
<th>UCAR Int. Inc.</th>
<th>SGL AG.</th>
<th>Tokai Graphite</th>
<th>Carbide Graphite</th>
<th>Mitsu-bishi</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Market Share(^b)</td>
<td>18%</td>
<td>34%</td>
<td>23%</td>
<td>1%</td>
<td>18%</td>
<td>0%</td>
</tr>
<tr>
<td>Vol. Of Commerce (millions of dollars)</td>
<td>325(^c)</td>
<td>713(^c)</td>
<td>485(^d)</td>
<td>21(^e)</td>
<td>325(^c)</td>
<td>175.45(^c)</td>
</tr>
<tr>
<td>Offense Level</td>
<td>17(^a)</td>
<td>17(^a)</td>
<td>17(^d)</td>
<td>15(^e)</td>
<td>17(^f)</td>
<td>17(^e)</td>
</tr>
<tr>
<td>Base Fine (millions of dollars)</td>
<td>65(^a)</td>
<td>142.6(^a)</td>
<td>97(^d)</td>
<td>4.2(^e)</td>
<td>65(^f)</td>
<td>35.09(^c)</td>
</tr>
<tr>
<td>Culpability Score</td>
<td>5(^a)</td>
<td>7(^a)</td>
<td>8(^d)</td>
<td>5(^e)</td>
<td>0(^f)</td>
<td>10(^e)</td>
</tr>
<tr>
<td>Multiplier</td>
<td>1 2</td>
<td>1.4 2.8</td>
<td>1.6 3.2</td>
<td>1 2</td>
<td>.75 .75</td>
<td>2 4</td>
</tr>
<tr>
<td>Min</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine Range (millions of dollars)</td>
<td>65 130</td>
<td>199.64 399.28</td>
<td>155.2 310.4</td>
<td>4.2 8.4</td>
<td>48.75</td>
<td>70.18 140.36</td>
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<td>Min</td>
<td>32.5</td>
<td>110</td>
<td>135</td>
<td>6</td>
<td>0</td>
<td>134</td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine Imposed (millions of dollars)(^c)</td>
<td></td>
<td>32.5</td>
<td>110</td>
<td>135</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Fine as % of Volume of Commerce</td>
<td>10%</td>
<td>15.4%</td>
<td>27.8%</td>
<td>28%</td>
<td>0</td>
<td>76.4%</td>
</tr>
</tbody>
</table>

\(^a\) - From Organizational Sentencing Data/ \(^b\) - From Krass Sentencing memorandum/ \(^c\) - From Mitsubishi Sentencing memorandum/ \(^d\) – From SGL Sentencing Memorandum/ \(^e\) -Estimated/ \(^f\) - Hypothetical or assumed

Of the firms involved in the conspiracy, Showa Denko Carbon was the first firm to plead guilty. The guidelines calculation for this firm illustrates the magnitude of fines contemplated under the guidelines. The base fine, equal to
twenty percent of the “affected volume of commerce”, is $65 million.\textsuperscript{68} The minimum and maximum multipliers are based on the organization’s culpability score, which is determined by adding and subtracting enhancements and reductions from a five-point base score.\textsuperscript{69} In this case, the firm received a two point enhancement for the participation, condoning, or willful ignorance of “substantial authority” personnel,\textsuperscript{70} and a two point reduction for acceptance of responsibility, for a total culpability score of 5.\textsuperscript{71} This score yields a minimum multiplier of 1 and a maximum multiplier of 2. The minimum guideline fine equals $65 million, and the maximum guideline fine equals $130 million.

Showa pled guilty to one count of price fixing and agreed to pay a $29 million dollar fine.\textsuperscript{72} The judge, however, rejected this plea,\textsuperscript{73} and the parties withdrew the initial plea. The judge accepted a subsequent plea agreement with a fine range of $29 to $32.5 million, and ultimately imposed a fine of $32.5 million dollars, one-half of the minimum guideline fine (equal to 10 percent of the volume of commerce).\textsuperscript{74} Even with the downward departure, the fine paid was well over the explicit $10 million dollar statutory maximum.\textsuperscript{75} If 20% of the volume of affected commerce ($65 million), however is sufficient for purposes of an alternative maximum fine under 18 U.S.C. §3571(d), the organization will face

\textsuperscript{68} This amount is far greater than the base fine calculated from the offense level table. The base offense level for an antitrust violation is 10, and there is a maximum seven level enhancement in this case for a volume of affected commerce greater than $100 million (in this case $325 million). The base fine from the offense level table corresponding to a level 17 offense equals $250,000.

\textsuperscript{69} See USSG, supra note 23 at §8C2.5.

\textsuperscript{70} The organization’s culpability score is increased if “high level personnel” were involved, condoned or willfully ignored the offense, or if tolerance of the offense by “substantial authority personnel” was pervasive. The increase in culpability score is greater for larger firms. There are also enhancements for firms with prior criminal or civil adjudications for similar conduct, for violation of an order, and for obstruction of justice. There are subtractions for the existence of an effective program to prevent and detect violations of law, and for self-reporting, cooperation and acceptance of responsibility.

\textsuperscript{71} In addition to subtractions for self-reporting, cooperation and acceptance of responsibility, the guidelines allow subtractions for the existence of an effective program to prevent and detect violations of law. The latter credit was not given in any antitrust case listed in the Organizational Sentencing Data covering antitrust violators sentenced during fiscal years 1994-1999. See Organizational Sentencing Data, supra note 32. See also infra text accompanying notes 151 and 155.


\textsuperscript{73} See Spratling, supra note 4.

\textsuperscript{74} The stated reason for this downward departure was substantial assistance to the authorities. See Organizational Sentencing Data, supra note 32.

\textsuperscript{75} 15 U.S.C. §1.
a maximum fine equal to twice the proxy for pecuniary loss ($130 million -- equal to the maximum guideline fine in this case). 76

The second firm to plead in this case was UCAR International. UCAR had a larger market share, and thus a larger volume of commerce and base fine than Showa Denko. Because of its larger size, it also incurred a larger fine enhancement (four points) for high-level involvement. 77 After a two-point decrease for acceptance of responsibility, firm B’s culpability score was seven, resulting in a guidelines fine range of approximately $200 to $400 million. The court imposed a $110 million, which was also a downward departure, in this case just over one-half of the minimum guideline fine. In addition, two former employees of UCAR were fined, terminated, and sentenced to jail terms. 78

The last column shows the relevant sentencing data for Mitsubishi Corp., which did not engage in the business of manufacturing graphite electrodes. Rather, the firm owned a 50% share of UCAR, served as a sales agent and, according to the United States, the cartel manager of the graphite electrodes price-fixing cartel. 79 Mitsubishi was the only firm that chose to contest the charges it faced. After a two-week trial, Mitsubishi was convicted on one count of aiding and abetting a price fixing conspiracy. 80 Of particular interest is the volume of commerce calculation used by the Division in their sentencing memorandum, in which Mitsubishi was given “credit” for its 50% share of UCAR plus its U.S. volume of commerce as a sales agent for graphite electrodes manufactured by Tokai Carbon. 81 As a result, Mitsubishi’s sentences were based upon a volume of commerce that had been previously used to sentence UCAR and Tokai Carbon. 82

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76 See supra text accompanying notes 44 and 47, and text accompanying notes 60 and 63.
77 See supra text accompanying note 51.
80 See Mitsubishi Sentencing Memorandum, supra note 67.
81 Id. Specifically, UCAR’s affected volume of commerce was $336.3 million, and Mitsubishi’s U.S sales were $7.3 million. The DOJs sentencing memorandum calculates the affected volume of commerce as .5*$336.3 million + $7.3 million = $175.45 million. While Mitsubishi contested its liability, it reached an agreement with the DOJ with respect to the sentence to be imposed.
82 Mitsubishi was an active shareholder of UCAR from February 1991 through mid 1995. Because it sold its shares prior to the detection of the cartel or the conviction and sentencing of
SGL had an affected volume of commerce between that of Showa Denko and UCAR. Due to a five level enhancement for participation of high-level personnel in an organization with 5,000 or more employees, however, SGL had the highest guideline fine range. This enhancement, combined with a two-point reduction for acceptance of responsibility, resulted in a culpability score of 8, and a guideline fine range of $155.2 to $310.4 million. The firm was fined $135 million dollars, with the amount reduced below the guidelines range, because SGL was unable to pay the guideline fine. The firm also agreed to pay a $10 million fine imposed on its employee, Robert Koehler.

Tokai had a small, market share (1 percent) and thus the smallest guideline fine range. Assuming a volume of commerce of $21 million, and a culpability score of 5, the $6 million fine imposed would make Tokai the only one of the four firms listed in the Table to have a fine within the guideline range (in this case $4.2 to $8.4 million).

Finally, Carbide Graphite, with a market share approximately equal to that of Showa Denko, received leniency under the Antitrust Division’s Corporate Leniency Policy and paid a zero fine. The hypothetical sentencing data illustrates what would have happened to the firm if it had in place and received a credit for having an effective compliance program, and detected and reported the price fixing to the government. Even in this case, the minimum guideline fine would still be 48.75 million dollars for an antitrust violator.

UCAR, it did not implicitly pay the fine as a result of a decline in the value of UCAR’s stock. The Antitrust Guideline instructs that the “volume of commerce attributable to an individual participant in a conspiracy is the volume of commerce done by him or his principal in goods or services that were affected by the violation.” See USSG, supra note 23, at §2R1.1(b)(2). A coordinated approach would have joined Mitsubishi and UCAR as co-defendants and would have apportioned the fine based on the affected volume of commerce of UCAR between Mitsubishi and UCAR’s current shareholders. No such coordination occurred. On the contrary, the approach of the DOJ double counts UCAR’s volume of commerce, and penalizes the shareholders of the firm that purchased Mitsubishi’s interest in UCAR. For a discussion of the coordination problem generally, see infra text accompanying notes 104 and 110. In addition, the theory behind penalizing Mitsubishi for its downstream commerce as a sales agent for Tokai Carbon is not clear. As a downstream sales agent, it is not clear how Mitsubishi gained, absent side payments, from cartelizing the upstream market.

The present value of the fine is generally less than the nominal fine, as the agreements allow the firms to pay the total amount, interest free, over a period of years. See, e.g., Showa Plea Agreement, supra note 72, at 15(a) (Payment of fine to be made in five equal payments over a period of 30 months).

In contrast to the UCAR employees, Koehler was not terminated by SGL nor was he sentenced to any term of imprisonment. See Government’s Sentencing Memorandum, U.S. v. SGL Carbon, A.K. and Robert J. Koehler, supra note 31.

See Lipson, supra note 66.

The example assumes that credit for an effective compliance program would result in a culpability score of zero. See USSG, supra note 23, §8C2.5. This would occur, for example, the
The Sentencing Commission set this high minimum fine, equal to 15% of the volume of commerce, to ensure that the minimum fine exceeds the average loss and to provide an “effective deterrent to antitrust offenses”. Ensuring that the minimum fine exceeds the average loss, even in the case where the firm both detects and self-reports the antitrust violation, seems to serve as a potential deterrent to self-reporting behavior. For antitrust crimes, however, incentives for self-reporting are provided by the Antitrust Division’s corporate leniency program, which is explained in the next section.

C. The Corporate Leniency Policy

In 1978, the Antitrust Division announced that it would consider lenient treatment of corporations or officers that voluntarily report their involvement in price fixing prior to government detection. Under the 1978 program, leniency was not automatic. Rather, the Antitrust Division considered such factors as whether it could have reasonably expected to become aware of the scheme in the near future, and the timeliness and candor of the application. These factors are listed in Table 3. In addition, in order to set up a prisoners’ dilemma and to produce an incentive for firms to race each other to the door of the Antitrust Division, only the first firm to come forward would be considered for leniency.

Culpability score under §8C2.5(a)-(d) was eight points or less, and the firm received a three point reduction for having an effective program to prevent and detect violations of the law under §8C2.5(f), and a five point reduction for reporting the offense prior to an imminent threat of disclosure or government investigation under §8C2.5(g)(1). A culpability score of zero would result in a multiplier of .75 being applied to the base fine of $65 million dollars. Id at §8C2.6., §2R1.1(d)(2).

In contrast, for non-antitrust violations, the minimum multiplier in this case would be .05, and the minimum guideline fine would be $3.25 million.

See USSG, supra note 23, §2R1.1, Background. For a discussion of the loss from price fixing offenses, see infra text accompanying notes 115 and 119


Prosecutorial Amnesty – “Whistleblowing Conspirators”, TRADE REG. REP. (CCH) ¶13,112.

See Spratling, supra note 11. In game theory, a prisoners’ dilemma is a strategic games in which unilateral incentives to defect from the preferred solution results in game participants receiving an inferior payoff. See Avinash K. Dixit and Barry J. Nalebuff, THINKING STRATEGICALLY: THE COMPETITIVE EDGE IN BUSINESS, POLITICS, AND EVERYDAY LIFE, (Norton 1991) at 11-14. In the game, two prisoners accused of committing a crime are held incommunicado. Each prisoner is made the following offer. If you confess and you help convict the other, you will go free, and receive a reward. If you do not confess and are convicted by the testimony of the other prisoner, you will receive five years in jail. If you confess but your testimony is not needed to convict the other because he also confesses, you will receive four years.
### Table 3 – The Antitrust Division’s Leniency Policy

<table>
<thead>
<tr>
<th>1978 Policy</th>
<th>1993 Revised Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factors considered</strong></td>
<td><strong>A. Conditions for Leniency Before an Investigation has Begun</strong></td>
</tr>
<tr>
<td>1. Whether the Division could have reasonably expected, in the case of a price-fixing conspiracy, that it would have become aware of the scheme in the near future if the corporation had not reported it.</td>
<td>A1. At the time the corporation comes forward to report the illegal activity, the Division has not received information about the illegal activity being reported from any other source.</td>
</tr>
<tr>
<td>Only the first firm to come forward might escape prosecution.</td>
<td>(This precludes more than one grant of leniency).</td>
</tr>
<tr>
<td>2. Whether the corporation, on the discovery of illegal activity previously unknown to it, took prompt and effective action to terminate its part in the conspiracy</td>
<td>A2, B3. The corporation, upon its discovery of the illegal activity being reported, took prompt and effective action to terminate its part in the activity.</td>
</tr>
<tr>
<td>3. The candor and completeness with which the corporation reports the wrongdoing and continues to assist the Division throughout the investigation.</td>
<td>A3. The corporation reports the wrongdoing with candor and completeness and provides full, continuing and complete cooperation to the Division throughout the investigation.</td>
</tr>
<tr>
<td>First confession must truly be a corporate act, as opposed to the confessions of individuals or executives.</td>
<td>A4, B5. The confession of wrongdoing is truly a corporate act, as opposed to isolated confessions of individual executives or officials.</td>
</tr>
<tr>
<td>5. Whether the corporation has made, or stated its intent to make, restitution to injured parties.</td>
<td>A5, B6. Where possible, the corporation makes restitution to injured parties.</td>
</tr>
<tr>
<td>4. The nature of the violation and the confessing party’s role in it – for example, was the corporation’s conduct coercive toward its co-conspirators, was it the originating party, and where there actual exclusionary effects on others in the marketplace.</td>
<td>A6. The corporation did not coerce another party to participate in the illegal activity and clearly was not the leader in, or originator of, the activity.</td>
</tr>
</tbody>
</table>

In addition, both prisoners know that if neither confesses, both will go free. While both would be better off if neither of them confessed, both will have a unilateral incentive to defect and will confess in equilibrium. Since both will defect in equilibrium, both receive a penalty equal to four years.
Rather than a race, however, the policy produced a crawl. Under the Division’s initial policy, applications for leniency averaged approximately only one per year.92 The Division’s leniency policy was revised in 1993, resulting in its more frequent use.93 Under the division’s revised policy, the corporation will not be charged for the activity being reported, provided it meets six conditions, which are similar to those set out in 1978, but not identical (see comparison in Table 3).94 Condition A1 of the revised policy required that the Division “has not received information about the illegal activity being reported from any other source”, thus limiting leniency to the first firm to come forward. In contrast, under the 1978 policy, leniency could be denied for a corporation that disclosed a previously unknown illegal price-fixing scheme if the Division could have “reasonably expected” that it would have become aware of the scheme in the near future. Under the revised policy, however, leniency would be automatic for corporations meeting all six conditions.

Further, the revised policy allows amnesty in cases where the department has already initiated an investigation, if the corporation meets seven alternative requirements for leniency. Thus, alternative requirements B1 and B2 further expand the set of conditions under which the first firm to defect and cooperate with the government can receive leniency. Alternative condition B4, however, requires that the cooperation of the firm be of use to the government, requiring “full, continuing and complete cooperation that advances the Division in its investigation.” In contrast, the similar condition A3 of the former policy only requires the provision of “full, continuing, and complete cooperation to the Division throughout the investigation.” In addition, alternative condition B7 also expands the scope of the leniency program by substituting the more rigid requirement A6 that would prohibit firms that were clearly the ringleaders from obtaining leniency with a discretionary standard. Under the revised policy, the number of applications rose dramatically to a reported current rate of two per month.95 These facts suggest that the increased use of the corporate leniency

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94 Some of the conditions seem restrictive, but have not been strictly enforced by the Department of Justice. For example, condition A2 and B3, which requires that the corporation promptly terminate its part in the activity upon discovery of the illegal activity, would seem to preclude the granting of amnesty to closely held firms that had top executives that actively participated in the price-fixing conspiracy. The Division, however, has interpreted this condition to require prompt termination after legal counsel is first informed. See Spratling, supra note 92, at A2.

95 See Spratling, supra note 92.
policy will cause some cartels to face both a higher magnitude fine and higher probability of punishment.

II. Guidelines, Amnesty and Optimal Penalties

In the previous section, we have shown that the sentencing guidelines have increased the magnitude of fines faced by corporations, both in absolute terms, and in proportion to the affected volume of commerce. In addition, it is plausible that the government has, through the more frequent use of its amnesty program, increased the probability of detection for some cartels. Thus, corporations are likely to face significantly larger expected penalties for engaging in price fixing. In this section, we examine whether these changes are likely to be efficient. Specifically, we examine whether the high penalties and changes in enforcement would likely to lead to overdeterrence.

A. Optimal Penalties

Economic analyses of the punishment of crimes have generally adopted Gary Becker’s optimal-penalties framework.\(^{96}\) Optimal-penalties theory requires that fines be set at a level that induces the offenders to internalize the total costs of their crimes. If the enforcement costs are zero, and the probability of detection and punishment is one, the optimal penalty will equal the harm from the offense. Positive enforcement costs and probabilities of punishment less than one require the fine plus enforcement costs to be grossed up by one over the probability of punishment so that the expected penalty equals the harm caused by the act.\(^{97}\)

In the absence of error costs, and under the assumption that the costs of punishment are zero, the optimal penalty is a large fine coupled with a corresponding low probability of detection and punishment. Such a strategy serves to minimize the costs of enforcement, and promotes fines, which are assumed to be costless, over imprisonment, a relatively costly punishment. While this strategy may be limited by factors such as wealth constraints, or by risk-aversion and legal error,\(^{98}\) the implication of the model is that high magnitude


penalties can be consistent with efficiency. Focusing enforcement on levying large fines rather than penalties, including imprisonment, imposed on individuals may also be efficient.

Under optimal penalties theory, excessive expected penalties must be avoided. The effects of higher than optimal penalties are collectively called overdeterrence. Overdeterrence can result when socially efficient behavior is deterred, e.g., when the benefits of the deterred crime would have outweighed the costs. In addition, socially efficient behavior can be deterred when there is a possibility of legal error, i.e., when the criminal law is erroneously applied to legal behavior. Finally, higher than optimal penalties induces corporations to make excessive expenditures on avoidance of sanctions, and detecting violations by their agents. This latter cost is especially relevant when considering corporate criminal liability.

Thus, high magnitude penalties must be offset by appropriate reductions in the probability of punishment. Indeed, the ability to control the rate of enforcement given high magnitude penalties should, in theory, differentiate the private and public enforcement of the antitrust laws. Increased availability of large awards in private antitrust cases is likely to induce an increase in the number of cases filed, because suits are filed based on the private rather than the social gain from litigation. In contrast, criminal prosecutions should not, in theory, increase in frequency in response to an increase in the magnitude of the penalty if the government is pursuing an optimal penalties policy. If the desire to collect large fines is what drives the Antitrust Division’s incentives, however, expected penalties that are higher than the optimal penalty, and the costs of overdeterrence, will result.

Furthermore, any problems with excessive criminal punishments from public enforcement will be further exaggerated by follow on civil suits by private

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100 See, e.g., Schwartz, supra note 47 at 1080 (discussing lack of attention paid to this issue).

101 See Schwartz, supra note 47 at 1083 (noting that “[t]he prosecutor and the courts, through their combined activity can establish the frequency of apprehension and the severity of punishment that generate the right price of a violation.”). See also Phillip E. Areeda, Roger D. Blair and Herbert Hovenkamp, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION, § 303e (noting the critical importance of responsible filtering of the cases presented) and § 652a (discussing need for limits on private treble damage actions).


103 For a discussion of the incentives driving the public enforcement of the antitrust laws, see Schwartz, supra note 47 at 1093-4. See also Fred S. McChesney, On the Economics of Antitrust Enforcement, 68 GEO. L. J. 1103, 1107-1110 (1980).
plaintiffs. The optimal penalty determines the total penalty that should be faced by the firm, which should include both individual and entity level penalties, as well as both civil fines and market based penalties. Firms convicted of criminal antitrust violations can be sued by private civil plaintiffs for treble damages. In addition, large criminal fines can create a focal point for juries to award large damages and further increase the incentive for private plaintiffs to bring such cases. The large international cartels also face lawsuits in other jurisdictions. While it would be theoretically possible to coordinate these numerous sources of sanctions, no such coordination currently takes place.

B. Can Antitrust Crimes be Overdeterred?

The theory of optimal penalties has been applied to antitrust violations on numerous occasions. Some authors, however, have questioned whether the optimal penalties framework should be applied to inefficient price fixing, arguing

104 See Klawiter, supra note 13 at _ (discussing follow-on civil class actions in lysine price fixing case).
107 Treble damages in addition to criminal sanctions are problematic for several reasons. First, it has been shown that the existence of treble damages may result an excessive number of private lawsuits. See, e.g., Schwartz, supra note 47 at 1094-5; Elzinga and Breit, supra note 13 at 81-96. And because antitrust defendants in the follow-on civil cases are collaterally estopped from contesting liability, follow on civil plaintiffs need only to prove damages to recover. Thus, the case for treble damages as a necessary incentive to induce plaintiffs to file suits is weaker when applied to these cases.
108 See Klawiter, supra note 13 at _ (noting an increase in follow on civil cases in response to the record criminal fines). See also Howard P. Marvel, Jeffrey M. Netter and Anthony M. Robinson, Price Fixing and Civil Damages: An Economic Analysis, 40 STAN. L. REV. 561 (1988) (examination of follow on cases from earlier period).
109 See Klawiter, supra note 13 at _.
110 See, e.g., Schwartz, supra note 47 at 1095-6.
111 For a discussion of the coordination issue, see Stephen Calkins, An Enforcement Official’s Reflections on Antitrust Class Actions, 39 ARIZ. L. REV. 413, 419, 444-5 (1997) (noting increase in class actions, and noting that with recent increase in government imposed penalties, “antitrust class actions cannot be justified reflexively as essential for deterrence.”).
that such antitrust crimes can be overdeterred at existing penalty levels\textsuperscript{113} or in general.\textsuperscript{114}

A preliminary question in considering optimal penalties is what constitutes the societal harm from price fixing. The traditional measure of social loss from monopoly is the deadweight loss that results from the monopolist’s output restriction (also known as the “welfare triangle”).\textsuperscript{115} In contrast, the proxy for loss based on 20% volume of commerce is intended to equal twice the transfer from producers to consumers.\textsuperscript{116} This transfer itself represents neither social gain nor loss, as the gain to the antitrust violator is offset by the loss to the consumer. Thus, naked horizontal price fixing, (i.e., price fixing unaccompanied by any generation of efficiencies, is unambiguously inefficient because the transfer is accompanied by a social loss.\textsuperscript{117} This social loss includes the deadweight loss and the costs incurred by the cartel in effecting the transfer.\textsuperscript{118}

The important question is whether there are potential costs of expected penalties larger than the minimum penalty required to deter. One problem of applying the criminal law to antitrust generally is the vagueness of the Sherman Act, and the considerable uncertainty regarding the social desirability of a given business practice.\textsuperscript{119} This problem has been mitigated, but perhaps not


\textsuperscript{114} See Werden and Simon, supra note 112 at 932-34

\textsuperscript{115} This social loss from monopoly results from the monopolist’s efforts to reduce output from the competitive level in order to increase prices. As a result, units that should be produced (i.e., units valued in excess of their marginal cost of production) are neither produced or sold. In a standard price-quantity diagram, this deadweight loss is depicted by the triangular shaped area that lies between the demand and supply curves, and the competitive and monopoly output levels. See, e.g., Elzinga and Breit, supra note 17 at 5-7.

\textsuperscript{116} See supra text accompanying notes 60 and 61.

\textsuperscript{117} A harm-based penalty would include both the deadweight costs of monopoly and the costs of effecting the transfer. Note that if the transfer is greater than the social loss, a penalty set equal to deadweight costs of monopoly will not be sufficient to deter the offense and prevent the welfare loss. See Landes, supra note 112 at 654-5.

\textsuperscript{118} Others have pointed out that for cartels, the size of the transfer will be converted into a social loss though expenditures made to form and maintain the cartel if such activity is not deterred. If complete dissipation of the transfer results from these expenditures, the transfer would have to be added to the welfare triangle to derive the social harm from the cartel. See Richard A. Posner, ECONOMIC ANALYSIS OF LAW, 5th ed. at 303-04. See also Richard A. Posner, The Social Costs of Monopoly and Regulation, 83 J POL. ECON. 807 (1975); Gordon Tullock, The Welfare Cost of Tariffs, Monopolies, and Theft, 5 W. ECON J. 224 (1967). While near complete dissipation may be a reasonable assumption for activities such as theft and other competitively supplied illegal activities, it is less clear that this is true of cartels, which, by definition, are not competitively supplied. If so, the social loss should be far less than twice the amount of the transfer.

\textsuperscript{119} Areeda, et al., supra note 101 at §303b3. Note that the criminal penalties, and the statutory maximum discussed above apply to Sections 1-3 of the Sherman Act. That is, criminal
eliminated, by limiting imposition of criminal liability to cases of naked price fixing.\textsuperscript{120} This limitation, however, requires the continued sensible exercise of prosecutorial discretion. Further, even if criminal prosecutions are limited to prosecution of horizontal price-fixing conspiracies, there may still be a problem of characterization – i.e., the mischaracterization of a practice to be equivalent to naked horizontal price fixing.\textsuperscript{121}

The courts have limited criminal prosecutions of antitrust offenses by requiring sufficient proof of \textit{mens rea}.\textsuperscript{122} Some courts, however, have indicated that \textit{mens rea} can be presumed when the challenged conduct is illegal on its face.\textsuperscript{123} This, of course opens the courts’ control over the limits of criminal prosecution to the characterization problem, as the \textit{per-se} category is not always clear-cut.\textsuperscript{124} Even small amounts of uncertainty from characterization error would penalties are available for monopolization and Robinson-Patman cases. However, a WESTLAW search revealed no criminal cases involving either pure section two or section three cases.\textsuperscript{120} See Werden and Simon, \textit{supra} note 112, at 919. But see Landes, \textit{supra} note 112 (discussing efficient price fixing).


\textsuperscript{124} Id. Currently, all criminal cases are in the \textit{per-se} category. However, not all \textit{per se} offenses would give rise to criminal liability. See FTC v. Superior Court Trial Lawyers Assn., 493 U.S. 411 (1990).
lead to overdeterrence in the form of forgone legal activities. These costs will increase with the size of the penalty.

C. Agency Costs and the Punishment of Corporations

Suppose that one accepts the argument that the problems of characterization are unimportant for acts prosecuted as antitrust crimes. Under this assumption, large direct penalties in excess of harm do not generate large costs from overdeterrence when placed on individuals who clearly intend to commit a crime. It does not follow, however, that large penalties should be placed on a corporation under these circumstances. Because corporations cannot commit criminal acts or possess *mens rea*, corporate criminal liability is vicarious, based on the tort doctrine of *respondeat superior*. Under this doctrine, the corporation is criminally responsible for the criminal actions of their employees acting within the scope of their employment or apparent authority. This standard includes acts that are contrary to company policy, or without the knowledge or consent of contracting parties within the firm. Thus, the corporation can be held criminally liable if it is unsuccessful in controlling the actions of its employees.

The costs imposed by a firm’s inability to effectively control the behavior of its employees are called agency costs. Agency costs alter the economic analysis of criminal liability as applied to organizations. If crimes committed by employees are manifestations of agency costs, the imposition of corporate liability under these circumstances is not directly designed to deter, but to provide an incentive for the corporation to monitor, detect, and prevent crimes committed by agents acting within the scope of their employment.

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125 See, generally, John E. Calfee & Richard Craswell, *Some Effects of Uncertainty on Compliance with Legal Standards*, 70 Va. L. Rev. 965 (1984); Richard Craswell and John E. Calfee, *Deterrence and Uncertain Legal Standards*, 2 J. L. Econ. & Org. 279 (1986). See also Cohen & Scheffman, *supra* note 27 at 354 (reporting survey of Fortune 500 companies that found that over half had explicit antitrust compliance strategies that included the avoidance of legal activities that might result in a government investigation or private litigation.).

126 See Kobayashi and Lott, *supra* note 98; Block and Sidak, *supra* note 98. See also Parker, *supra* note 122 (discussing *mens rea* as a mechanism to limit imposition of criminal penalties in order to limit over-investment in self-characterization).


128 Id.

129 Id.


Even if one condemns price fixing as presumptively undesirable, one would still not want to impose arbitrary, large fines on the shareholders of a corporation whose agent engages in such activity.\textsuperscript{132} Unless the incentives provided by corporate fines can be costlessly and effectively transmitted to a firm’s agents, an arbitrarily large expected penalty in excess of the social harm from the crime will induce excessive investments in monitoring and prevention by corporations.\textsuperscript{133} These excessive expenditures will also increase production costs for all firms (even those that did not engage in the criminal activity ex-post), ultimately resulting in a secondary effect—higher marginal costs of production and higher prices to consumers.\textsuperscript{134} Ironically, high prices to consumers and the resulting welfare losses, is exactly the effect that the criminal antitrust laws are intended to prevent.\textsuperscript{135}

The relevant question for setting the appropriate amount of corporate liability is how much vicarious liability is appropriate to induce the corporation to undertake the optimal amount of monitoring and prevention of crime by agents of the corporation. Optimal penalty theory suggests that the corporation should be fine equal to the social cost of the crime adjusted for the probability of non-detection.\textsuperscript{136} A fine that exceeds this level will cause the private return to monitoring and compliance to exceed the social return, and will result in overcompliance.

Moreover, the advantages of corporate criminal liability in this setting is not clear. For individuals, criminal convictions can incapacitate as well as deter.\textsuperscript{137} Some argue that the criminal penalty imposes an additional punishment in the form of stigma.\textsuperscript{138} Neither of these benefits of criminal punishment, however, are particularly relevant to the criminal punishment of corporate antitrust violators. Corporations, unlike individuals, cannot be incapacitated

\textsuperscript{132}See Fischel and Sykes, supra note 127 at 323-4.
\textsuperscript{133}See Baysinger, supra note 131 at 343-34. See also Parker, supra note 122 at 759-62, (describing similar issue regarding characterization costs and criminal punishment of individuals).
\textsuperscript{135}It is also ironic that one of the seminal cases which held that a corporation could be criminally liable involved enforcement of a provision of the Elkins act that criminalized cheating on a government-enforced price-fixing agreement entered into by the railroads. See Fischel & Sykes, supra note 127 at 334, 337 (discussing New York Central and Hudson R.R. v. U.S., 212 U.S. 481 (1909)).
\textsuperscript{136}See id at 324.
\textsuperscript{137}See Fischel and Sykes, supra note 127 at 322.
though imprisonment. And there is little evidence that corporations suffer from stigma when convicted of antitrust crimes.\textsuperscript{139}

Indeed, a system of vicarious liability for corporations may be more efficient than a system that relies solely upon the direct punishment of individuals.\textsuperscript{140} Corporate liability can be efficient if corporate managers and shareholders have a comparative advantage in controlling agency costs, by substituting lower cost private resources for higher cost public resources.\textsuperscript{141} These considerations, however, do not suggest the use of criminal sanctions.\textsuperscript{142} Rather, they suggest a system of civil fines, which would incorporate better procedures for the accurate determination of damages that the broad proxies used in the criminal sentencing process described above.\textsuperscript{143} Further, to the extent that reliance on private civil suits is likely to result in either over or under enforcement, civil fines on corporations could still be the result of public civil enforcement.\textsuperscript{144}

\textbf{D. Efficient Punishment and Compliance Expenditures}

The analysis of optimal penalties for corporations is altered if prevention expenditures also increase the probability that the firm will be punished. In many cases, expenditures by the firm aimed at monitoring and preventing crimes by its agents will also jointly produce an increase the probability the firm will be punished, in effect altering the analysis of optimal penalties. Thus, high penalties can actually deter these types of expenditures.\textsuperscript{145}

One possible solution to this particular problem is to give the corporation credit for such expenditures.\textsuperscript{146} In theory, the efficient fine would decrease to reflect the increased probability of punishment that results from such

\begin{itemize}
\item \textsuperscript{139} See Alexander, \textit{supra} note 138 at 499, 508, (abnormal stock marked returns that include reputational penalties for antitrust crimes are small in magnitude and not statistically significant). Block, \textit{supra} note 134 at 412 (same for regulatory violations including antitrust offenses).
\item \textsuperscript{140} See Polinsky and Shavell, \textit{supra} note 105.
\item \textsuperscript{142} See Fischel & Sykes, \textit{supra} note 127 at 331-3. \textit{See also} Jeffrey S. Parker, \textit{Doctrine for Destruction: The Case of Corporate Criminal Liability}, 17 MAN. & DEC. ECON. 381 (1996).
\item \textsuperscript{143} See \textit{supra} text accompanying notes 60 and 61.
\item \textsuperscript{144} For a discussion of the private/public enforcement issue, \textit{see supra} text accompanying notes 107 and 108.
\item \textsuperscript{146} See Arlen, \textit{supra} note 89 at 857-8.
\end{itemize}
expenditures. Unfortunately, it may not be cost effective or wise to attempt to finely tailor criminal fines to reflect changed probabilities of punishment. Although the Federal Sentencing Guidelines incorporate a crude approach based on credit for compliance programs in its corporate leniency program, it is not clear that the approach in the Sentencing Guidelines does much to alleviate this problem. Under the antitrust guideline, the minimum penalty is still large (equal to 15% of the volume of affected commerce) for a firm that has an effective compliance program. This criminal fine is in addition to any restitution, disgorgement, civil damages, and market penalties imposed on the firm, and criminal penalties, market penalties and civil damages imposed on individuals employed by the organization. Thus, even with the mitigation of the fine, there exists a substantial disincentive for self-detecting behavior.

A second practical problem is that guidelines rarely award credit for effective compliance programs. For example, based on data collected by the sentencing commission for fiscal years 1996-1999, only two out of 415 corporations were listed as having effective compliance programs. The meaning of this statistic, however, is ambiguous. One potential interpretation is that the commission of a crime by an agent of a corporation renders the compliance programs de facto “ineffective” for guidelines purposes. Alternatively, it may be that corporations with truly effective compliance programs are not prosecuted. Under the latter interpretation, the exercise of discretion by the prosecutor serves as the true mitigation program, and would not show up in the sentencing data.

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147 Id.
148 See Parker, supra note 53, at 410-23, Arlen, supra note 89, at 840.
149 See supra text accompanying note 87.
150 The Sentencing Guidelines make no attempt to coordinate this diverse set of penalties. See Fischel and Sykes, supra note 127 at 344-5.
151 See USSC Sourcebook, 1996-1999, supra note 50, at Table 54.
154 See Parker and Atkins, supra note 152 at 446. See also U.S. DEPARTMENT OF JUSTICE MEMORANDUM REGARDING FEDERAL PROSECUTION OF CORPORATIONS, Submitted by Philip Urofsky, 1177 PLI/CORP. 571 (2000), at Sections VI and VII (discussing cooperation and the adequacy of corporate compliance program as factors used to determine whether or not the corporation is charged with a crime).
The meaning of this statistic is not ambiguous, however, for corporations charged with antitrust crimes. It has been the longstanding policy of the Antitrust Division not to give any weight to the existence of a compliance program in its decision to prosecute.\textsuperscript{155} Thus, sentencing credit for having an effective antitrust compliance expenditures seems unlikely, and any incentives to engage in compliance or mitigation activities is limited to those incentives provided by the Antitrust Division’s corporate leniency policy.

E. \textit{The Incentive Effects of the DOJ’s Amnesty Program.}

For the corporation that is granted leniency, the payoffs from their monitoring and compliance program would be substantial: the avoidance of a high guidelines fine. However, two attributes of the Division’s leniency policy differentiate it from the granting of immunity from prosecution under routine exercise of prosecutorial discretion, and from other corporate compliance programs. First, the Division’s policy, as noted above, is not discretionary, but automatic for a corporation that meets the conditions for leniency.\textsuperscript{156} However, leniency is not assured. One of the conditions required for leniency is that the organization is the first to come forward.\textsuperscript{157} Thus, in contrast to other settings in which a firm detects and self-reports wrongdoing by an employee, firms in a price-fixing cartel are forced to “compete” with other cartel members to be the first to discover the wrongdoing.\textsuperscript{158}

\textsuperscript{155} See Laufer, \textit{Integrity} at 176, n. 90 (citing policy of Antitrust Division).
\textsuperscript{156} See supra text accompanying notes 93 and 94.
\textsuperscript{157} See Table 3, \textit{supra}, Conditions A1 and B1.
\textsuperscript{158} See \textit{supra} text accompanying note 91.
Table 4 – Incentives from Division’s Leniency Policy

<table>
<thead>
<tr>
<th>Case Description</th>
<th>Incentive Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No leniency application</td>
<td>( P1 = Y - p_0 F_i )</td>
</tr>
<tr>
<td>2. Only Firm i applies for leniency</td>
<td>( P2 = -r p_0 F_i )</td>
</tr>
<tr>
<td>3. Other firm applies for leniency, Firm i does not</td>
<td>( P3 = -(1-r)F_i - r p_0 F_i )</td>
</tr>
<tr>
<td>4. Multiple Firms (n) apply for leniency</td>
<td>( P4(n) = P2/n + P3(n-1)/n )</td>
</tr>
</tbody>
</table>

Table 4 illustrates the incentives generated by the Division’s leniency program. Let \( s_i \) denote the market share of firm i, and let \( Y \) be the abnormal net profits expected to be generated by the cartel in the future. Let \( V \) denote the volume of commerce affected by the cartel, and let \( m \) be the applicable guidelines fine multiplier. The firm’s expected fine under the guidelines equals the firm’s share of the affected volume of commerce times the applicable guidelines multiplier, or \( F_i = s_i m V \).\(^{159}\) Let \( p_0 \) denote the probability of detection and punishment in the absence of an application for leniency by any firm. Absent any cooperation, the firm faces an expected fine of \( p_0 F_i \), and a net benefit of continuing in the cartel equal to \( Y - p_0 F_i \). Any firm’s application for leniency is assumed to result in the loss of future cartel profits \( Y \). If firm i is the only firm that applies for leniency, it is given leniency with probability \( (1-r) \) and pays a zero fine if leniency is granted.\(^{160}\) If leniency is rejected, the firm faces an expected fine of \( p_0 F_i \). If firm i does not apply for leniency, and leniency is given to another firm in the conspiracy, we assume that the firm i will be convicted, and will face a fine equal to \( F_i \). If leniency for the other firm is rejected, his payoff is the ex-ante expected fine \( p_0 F_i \).

Finally, if more than one firm applies for leniency, we assume for the moment that each firm has an equal chance of being the first firm.\(^{161}\) Under these circumstances, each firm receives an expected payoff of \( P2 \) with probability \( 1/n \), where \( n \) is the total number of firms that are potential competitors for leniency.

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\(^{159}\) See supra discussion accompanying notes 60 and 62.

\(^{160}\) Note that payment of restitution is contemplated by condition A5/B6. Payment of restitution, in addition to the criminal fine, is also contemplated in the Federal Sentencing Guidelines. See USSG, supra note 23 at §8B1.1. Taking restitution into account would increase the expected penalty in P2-P4 relative to P1, making the defection equilibrium less likely. However, in practice, restitution is not frequently ordered. In 158 antitrust cases sentenced between 1995 and 1999, restitution was ordered in 4 cases. See Organizational Sentencing Data, supra note 32.

\(^{161}\) Below, we discuss the effect of allowing firms to expend resources to be first. See infra text accompanying notes 167 and 171.
With probability \((n-1)/n\), the firm will receive the payoff \(P_3\). Thus the payoff when there are multiple firms applying for leniency is a weighted average of \(P_2\) and \(P_3\). In addition, as \(n\) increases, it is more likely that any given firm will receive the undesirable outcome \(P_3\). Thus, \(P_4\) is a decreasing function of the number of firms in the cartel.

**Table 5 – Game Matrix**

<table>
<thead>
<tr>
<th>All other firms remain in the cartel</th>
<th>Firm i remains in cartel</th>
<th>Firm i applies for leniency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Firm i payoff = (P_1)</td>
<td>Firm i payoff = (P_2)</td>
</tr>
<tr>
<td></td>
<td>Firm j payoff = (P_1)</td>
<td>Firm j payoff = (P_3)</td>
</tr>
<tr>
<td>All other firms apply for leniency</td>
<td>Firm i payoff = (P_3)</td>
<td>Firm i payoff = (P_4(N))</td>
</tr>
<tr>
<td></td>
<td>Firm j payoff = (P_4(N-1))</td>
<td>Firm j payoff = (P_4(N))</td>
</tr>
</tbody>
</table>

Table 5 illustrates the incentives of the cartel members in a game matrix. Note that a firm prefers to be the firm given leniency over being one of the firms that did not apply for leniency \((P_2 > P_3)\). Further, the payoff from being one of may firms applying for leniency \((P_4)\) is a weighted average of the unilateral defection payoff \((P_2)\) and the left-out payoff \((P_3)\), so its value must lie between them \((P_2 > P_4 > P_3)\). In general, however, it is not possible, in general, to order the payoff from remaining in the cartel \(P_1\) and the payoff from a unilateral defection \(P_2\). This ordering is critical. If the payoff from remaining in the cartel is greater than the payoff from the unilateral defection \((P_1 > P_2)\), then the cartel will be stable. Under these circumstances no prisoners’ dilemma is created, and the use of the leniency/amnesty program would not occur in equilibrium. If, however, the opposite is true \((P_1 < P_2)\), there will be a unilateral incentive for firms to defect from the cartel and apply for leniency.

The model presented above can be used to illustrate why the changes to the Division’s leniency policy in 1993 increased its use. The difference between the no defection payoff \((P_1)\) and the unilateral defection payoff \((P_2)\) equals \(Y - (1 - r)p_0Fi\). If this difference is negative, organizations have an incentive to use the leniency program. This difference would be diminished, thus making use of the leniency program more likely, by increases in the expected fine level \((F)\) or the
probability of punishment without cooperation \((p_0)\), or by decreases in the 
probability that the application for leniency will be rejected \((r)\).

Consider a conspiracy where the likelihood of detection absent a 
defection, \(p_0\), is high. Under the pre 1993 amnesty program, a high \(p_0\) means that 
the Division could have reasonably expected that it would have become aware of 
the scheme in the near future if the corporation had not reported it. Thus, 
although the existence of a high \(p_0\) will increase the incentive to defect from the 
cartel, \textit{ceteris paribus}, consideration of factor 1 of the 1978 policy suggests that 
the probability the applicant will be given leniency will diminish. Thus, under the 
1978 policy, any incentive to defect resulting from an increase in \(p_0\) is likely to be 
offset by an increase in \(r\), the probability that the application for leniency will be 
rejected. In contrast, under the revised policy, leniency is automatic if conditions 
A1 through A6 are satisfied, so that \(r = 0\) under these circumstances. Thus, 
increases in \(p_0\) are not offset by increases in \(r\) under the revised policy.

In addition, the alternative requirements for leniency increased use of the 
program by allowing leniency for already detected cartels. For these cartels, the 
future abnormal cartel profits \(Y\) are likely to be small, so that \(P1 < 0\) for a 
sufficiently large \(p_0\). Prior to 1993, already detected cartels were not eligible for 
leniency, so \(r = 1\), and \(P2 < P1\). In contrast, under the current policy, \(r = 0\), and 
\(P2 = 0 > P1\). Thus, under the current leniency program, a unilateral incentive to 
defect from already detected cartels was created. Therefore, the alternative requirements now allow use of the policy in a setting 
where firms are likely to have an incentive to use the policy.\(^{162}\) In addition, the 
inecentive to apply for leniency is also increased by higher fines, which resulted 
from the increase in the statutory maximums, and the increase in expected fines \(F\) 
(through the guidelines increasing \(m\)).\(^{163}\) This increase in the expected fine level 
should increase the use of the corporate leniency policy for existing cartels, 
\textit{ceteris paribus}.\(^{164}\)

Ex-ante, each firm will face an expected penalty of \([(n-1)/n]F_i\) if defection 
is expected in equilibrium. In contrast, the expected penalty faced by each cartel 
member under the no-defection equilibrium equals \(p_0F_i\). As long as \([(n-1)/n] > p_0\), the defection equilibrium induced by the leniency program can increase the 
ex-ante penalty faced by the members of an existing cartel. Under these 
conditions, the total expected penalty faced by the cartel also increases because of

\(^{162}\) Massimo Motta and Michele Polo, \textit{Leniency Programs and Cartel Prosecution}, IGER 

\(^{163}\) See supra discussion accompanying notes 50 and 57.

\(^{164}\) See Giancarlo Spagnolo, \textit{Optimal Leniency Programs}, Fondazione Eni Enrico Mattei, 
Nota Di Lavoro 42.2000 (available at \url{http://www.ssrn.com} visited 3/15/01) (showing increased 
use of leniency programs with high penalties or high rewards to firm granted leniency).
the effect the amnesty program has on increasing the probability of detection and conviction of the members of the cartel that are not given leniency. 165

The above analysis suggests that leniency programs would be used by members of cartels with low expected future profits and for already or soon to be detected cartels. The effect of the leniency policy on viable non-detected cartels is less clear. The above analysis assumes that both the probability of detection and the level of cartel profits are exogenous. The analysis is changed, however, if one considers the probability of detection and cartel profits to be endogenous. For example, the existence of large expected penalties can alter a firm’s incentive to defect from a cartel in the first place. This in turn will have the perverse effect of making the cartel more stable. As a result, the expected level of cartel profits $Y$ will increase. If cartel breakups are a major source of non-amnesty based detections, the probability of detection $p_0$ for such cartels may decrease. Both effects can perversely make it less likely firms in such ongoing cartels will make use of the amnesty program. 166

The analysis is also changed if individual firms can alter the probability that they will be the firm given leniency when multiple firms are expected to apply. In terms of the model of leniency presented above, the participants will view the probability of receiving leniency as a function of their expenditures on the early detection of crimes by their agents, and also the expenditures of other firms “competing” for leniency. 167 Under the rules of the leniency program, a firm receives leniency if and only if it detects and reports the existence of the conspiracy before any other firm does the same. 168 The incentives to invest in detection are driven by both the reduction in the penalty resulting from the early detection, and by the incentive to be first generated by the winner-take-all character of the leniency program. 169


167 The analysis in other papers that have examined competitive leniency programs do not consider information and agency costs within firms. Thus, expenditures by firms on monitoring and policing their agents are not considered in these models. See also Motta and Polo, supra note 162, and Spagnolo, supra notes 164 and 166.

168 See Table 3 supra, conditions A1 and B1.

169 In terms of the model set out above, expenditures by the firm aimed at detecting violations will serve to decrease the expected harm from and criminal acts committed by its agents. The expected harm is reduced because the cartel is detected earlier. As a result, the “affected volume of commerce”, and the guidelines fine $F$ will be smaller. In addition, marginal
By setting up a competition for leniency, the Division’s policy can further exaggerate any overdeterrence problems caused by the high expected fines. In effect, the Division’s policy results in a competition for corporations to find and detect any wrongdoing before their “competitors”. While earlier detection and reporting of cartel activity is good, all cartels should not necessarily be detected immediately. Whether or not cartels should be detected sooner will depend upon the relative cost and benefits of accelerating their detection. Marginal expenditures on detection are efficient only if the marginal benefits of early detection are greater than the marginal cost of these expenditures.  

The problem created is analogous to the problem generated by companies racing to obtain a valuable patent. As Barzel and others have shown, such competitive races for a winner take all prize result in the excessive resources devoted to capturing the prize, and innovations being produced too early. Similarly, a race to be the first in the door of the Antitrust Division to apply for leniency can result in an incentive for firms to collectively overinvest in early detection of cartel activity. This incentive would be on top of any overincentive created by supra-optimal fines.

Furthermore, qualifying for leniency also requires the organization to assume the role of a “whistleblower” by requiring its continuing cooperation with the government. In doing so, the Division takes advantage of a well known tactic used to infiltrate criminal purpose organizations. The use of informants that receive reductions in sentences, however, is not without controversy, even when applied to drug cartels. It would seem that the concern over the reliability of such testimony, and the potential for false convictions, would apply a fortiori

expenditures on detection will increase the probability, ceteris paribus, that the firm will win the race to the Justice Department, and will receive the leniency payoff $P_2$.  

For example, it would not be efficient to spend millions of dollars in order to accelerate detection by a few hours. In general, the optimal amount of detection expenditures is just one consideration in a generalized optimal penalties model. See Becker, supra note 96 at 181-84 (discussing general optimization conditions).


That is, this effect serves to increase the difference between marginal and social incentives for such expenditures.

See U.S. v. Singelton, 194 F3d 1343 (10th Cir. 1998), (holding that promise by prosecutor of sentencing recommendation was thing of value offered in violation of 18 U.S.C. §201(c), rev’d en banc 165 F.3d 1297 (10th Cir. 1999). See also Ellen Yaroshefsky, Cooperation with Federal Prosecutors: Experiences of Truth Telling and Embellishment, 68 FORDHAM L. REV. 917 (1999) (questioning reliance on cooperation testimony); Ian Weinstein, Regulating the Market for Snitches, 47 BUFF. L. REV. 563 (1999) (arguing for numerical limit on use of snitches to reduce excessive use of cooperation agreements).
when such tactics are exported to obtain criminal antitrust convictions, imposed on shareholders of a company that is the future rival of the cooperating firm.\textsuperscript{174}

III. Conclusion

The recent imposition of record fines imposed on large corporations has been publicly touted by the Antitrust Division as a measure of success. In this article, it is suggested that extension of this policy should be taken with some caution. Because criminal fines are not accurate measure for loss, and because of the vicarious nature of corporate liability, there is a great danger that higher than optimal penalties will induce corporations to incur excessive costs in an attempt to avoid these high fines. The potential overdeterrence costs resulting from higher-than-optimal fines is exaggerated by the Antitrust Division’s expanded use of the corporate leniency policy. Ironically, the costs of overdeterrence will result in higher prices to consumers and a decrease in welfare, and will result in exactly the effect that the criminal antitrust laws are intended to prevent.