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## Why and How to Use Empirical Screens in Antitrust Compliance

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# Why and How to Use Empirical Screens in Antitrust Compliance

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## I. MOTIVATION

Despite their success in many respects, antitrust compliance programs seem to play a minor role in detecting and possibly deterring antitrust violations. Why may that be the case? There are a variety of reasons. At the top of the list is the fact that key jurisdictions (e.g., the United States and the European Union) do not offer credit to corporations for their compliance programs in case antitrust violations are found. Were such credit offered, it would increase the incentive for corporations to enhance their compliance programs.

In this article I argue that, despite this lack of formal recognition by regulatory bodies, corporations need to enhance their compliance programs for their own benefit and, furthermore, they need to do so through the use of empirical techniques capable of detecting antitrust violations, commonly known as screens. The current environment of increased regulation, higher penalties, increased leniency programs, and the expanded use of screening methods by competition authorities worldwide offers more than enough incentive for corporations to prevent any internal illegal behavior. Better to be the first to detect, the first to report, and the first to benefit from leniency rather than risk losing such benefits to somebody else who detects and reports the violations first.

## II. THE POWER OF SCREENS TO DETECT POTENTIAL ANTICOMPETITIVE BEHAVIOR

The art of flagging unlawful behavior through economic and statistical analyses is commonly known as screening. A screen is a statistical test based on an econometric model and a theory of the alleged illegal behavior, designed to identify whether manipulation, collusion, fraud or any type of cheating for that matter, may exist in a particular market, and who may be involved. Screens use commonly available data such as prices, bids, quotes, spreads, market shares, volumes, and other data to identify patterns that are anomalous or highly improbable.

A survey of screening methodologies and their multiple applications can be found in Abrantes-Metz & Bajari and Harrington.<sup>2</sup> The use of these methods in antitrust litigation is detailed in the American Bar Association's *Proof of Conspiracy under Antitrust Federal Laws* which

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<sup>2</sup> R. Abrantes-Metz & P. Bajari, *Screens for Conspiracies and their Multiple Applications*, 6(2) COMPETITION POL'Y INT'L 129-144 (Autumn 2010), and The Antitrust Magazine, Vol. 24, No.1, Fall 2009; J. Harrington, *Detecting Cartels*, HANDBOOK IN ANTITRUST ECONOMICS, (P. Buccirossi ed., 2008).

specifically describes the role of the economic expert in proving a conspiracy and details the use of screens in this context.<sup>3</sup>

Economic analysis and empirical screening do trigger antitrust cases, such as an Italian cartel in baby milk and a Dutch cartel in the shrimp industry. Screens are also being successfully used to identify potential anticompetitive behavior in gasoline markets by the U.S. Federal Trade Commission, and to prioritize complaints in the Brazilian gasoline retail market, leading to raids and the finding of direct evidence of collusion. In Mexico, the competition authority also initially flagged a conspiracy in pharmaceutical markets through the use of bid-rigging screens, while in India screens were applied to detect a cement cartel. Market monitoring and screening programs have been adopted by several other competition authorities, such as the European Commission and the South African Competition Authority.<sup>4</sup>

Other regulatory agencies worldwide routinely use screens to help detect anticompetitive behavior, conspiracies, and manipulations, including the U.S. Securities and Exchange Commission and the U.S. Commodities Futures Trading Commission. In a 2010 article, I described two different examples of the power of these screens to flag anticompetitive behavior in financial markets: the recent stock options backdating and spring loading cases from the mid 2000's, and the 1994 break of an alleged conspiracy by NASDAQ dealers in which odd-eighths quotes were avoided.<sup>5</sup> Both of these were triggered by the application of screens to financial data and generated large-scale public investigations as well as private litigation.

Most recently, the U.S. Department of Justice, the Securities and Exchange Commission, the Commodities Futures Trading Commission and other regulatory agencies worldwide have made allegations of a possible conspiracy to manipulate the U.S. dollar Libor rate ("Libor") by several major banks, and Libor rates denominated in other currencies. These allegations followed the application of empirical screens that flagged unexpected patterns in the Libor setting, representing the latest example of the power of screens to flag potentially illegal behavior.

Arguably these investigations began with a series of articles published in the *Wall Street Journal* in April and May of 2008 which alleged that several global banks were reporting unjustifiably low borrowing costs for the calculation of Libor.<sup>6</sup> I and co-authors then followed with an August 2008 working paper in which these and other patterns were studied in more detail.<sup>7</sup> While we found sufficiently anomalous patterns among individual bank quotes awarding further investigation, our preliminary analysis pointed to a lack of evidence of a *material* collusion and manipulation of the realized level of the Libor given the benchmark rates used, but did not in any way disregard the possibility that such behavior may have occurred.

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<sup>3</sup> AMERICAN BAR ASSOCIATION EDITIONS (2010). Proof of Conspiracy under Antitrust Federal Laws, Chapter VIII on the Role of the Economic Expert describes these methods in detail.

<sup>4</sup> *Beyond Leniency: Empirical Methods of Cartel Detection*, American Bar Association Brown Bag Series, (December 15, 2011). Presentations, slides, and audio available at [www.americanbar.org](http://www.americanbar.org).

<sup>5</sup> R. Abrantes-Metz, *The Power of Screens to Trigger Investigations*, 10(10) SECURITIES LITIGATION REPORT (November 2010).

<sup>6</sup> C. Mollenkamp & L. Norman, *British bankers group steps up review of widely used Libor*, WALL ST. J. C7 (April 17, 2008). *Study casts doubt on key rate; WSJ analysis suggests banks may have reported flawed interest data for Libor*, WALL ST. J. A1 (May 29, 2011).

<sup>7</sup> R. Abrantes-Metz, M. Kraten, A. Metz, & G. Seow, G., *Libor Manipulation?*, Working Paper, First Draft, (2008); published article at J. BANKING & FINANCE 136-150 (2012)).

Other research on the Libor was then conducted by Snider & Youle<sup>8</sup> and by Abrantes-Metz, Villas-Boas, & Judge.<sup>9</sup> Stressing the preliminary nature of all of the findings, and the fact that they cannot represent ultimate proof or absence of wrongdoing, in an earlier article I argued that, had the same methods been used internally by the banks through their compliance programs, the suspected behavior could have been detected internally before it was discovered externally and have assisted, at least to some extent, in protecting the banks from the current large-scale worldwide investigations. It could also potentially have deterred some of the suspected behavior from getting started.<sup>10</sup>

### III. THE CASE FOR SCREENING IN COMPLIANCE

The history of major international cartels, and to some extent the smaller local conspiracies, suggests that compliance training, while a necessary tool, is not sufficient. Likewise, compliance manuals are there for those who choose to read and take them seriously.

More intrusive and applied tools, which do not depend on people's good faith, can enhance a compliance program. Such tools include audits, monitoring, and reviews. Extensive reviews of records and interviews with a broad range of personnel, if done well, may identify conduct that was otherwise hidden. But even these tools have limits—they are somewhat disruptive and typically very expensive. Moreover, if they are not focused on the highest risk areas, their resource-intensive nature can generate management hostility.

The standards set forth in the U.S. Sentencing Guidelines for Organizations have become the benchmark for compliance programs in all areas, including antitrust, and provide an inventory of steps that companies need to follow if they are to get credit in sentencing in federal court. Even more importantly, they have become the starting point when prosecutors assess company programs to decide whether and how to proceed against it.

To meet the Sentencing Guidelines' standards, companies need to "exercise due diligence to prevent and detect criminal conduct." Among other points, these standards require that "...[t]he organization shall take steps...to ensure that the organization's compliance and ethics program is followed, including monitoring and auditing to detect criminal conduct..."<sup>11</sup>

Thus, in addition to the logic of not simply relying on training and manuals to prevent willful violations, there is also the direction in the compliance program standards that the efforts should be purposeful and focused. Companies need to be proactive in seeking out possible violations in their operations.

Additionally, the Sentencing Guidelines call for companies to conduct risk assessments.<sup>12</sup> The concept here is that organizations have limited resources and need to focus those resources where the risk is greatest. This means that companies need to determine which risks are most likely to occur, and then which ones have the greatest impact. Of course, for any competitive

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<sup>8</sup> C. Snider & T. Youle, *Diagnosing the Libor: Strategic Manipulation Member Portfolio Positions*, Working Paper (2009); C. Snider & T. Youle, *Does the Libor Reflect Banks' Borrowing Costs?* Working Paper (2010).

<sup>9</sup> R. Abrantes-Metz, S. Villas-Boas, & G. Judge, G., *Tracking the Libor Rate*. APPLIED ECON. LETTERS 1-7 (January 2011).

<sup>10</sup> R. Abrantes-Metz, *Libor Litigation and the Role of Screening: The Need for Enhanced Compliance Programs*, 7(2) CPI ANTITRUST CHRON., (July 2011).

<sup>11</sup> U.S. Sentencing Guidelines Section 8B2.1(b)(5)(A).

<sup>12</sup> U.S. Sentencing Guidelines Section 8B2.1(c).

company, antitrust risk should always be among the top risks. But even within the broader antitrust category, a company needs to identify which are the more significant risks.

Though there are several possible avenues to address these risks as discussed in Abrantes-Metz, Bajari, & Murphy,<sup>13</sup> screens are a key option. Screens will identify the high-risk areas of a business and allow for better targeting of audits to those areas and to assist in monitor these in a more efficient way. They employ techniques designed to highlight which parts of the company merit closer scrutiny, where there should be intensive reviews, and which units may call for intensive monitoring of internal communications and other direct actions. Empirical screens can fulfill this role by looking at certain quantifiable red flags and applying statistical analysis to determine the priority areas for further focus and allow for a more efficient allocation of resources. Screens cost money, but in the end they will potentially save the corporation a whole lot more than their cost.

Screens can, and should, be actively employed by companies as part of their antitrust compliance programs.<sup>14</sup> Just as screens have flagged fraud externally, they can also flag a variety of activities within a company such as price-fixing, bid-rigging, market allocations and other non-collusive price manipulations, reimbursements fraud, trading fraud, revenue management and other account fraud, Foreign Corrupt Practices Act violations, and many other forms of data tampering and fraud. Additionally, the existence of screens can act as a deterrent to potential violators. In light of the risk environment facing companies, and the importance of effective compliance programs, companies need to engage in more proactive compliance approaches that include screens.

Despite the incentive explicit in the Sentencing Guidelines, the fact that the U.S. Department of Justice and the European Commission to date do not provide a reduction in penalties, or offer any other incentive to a corporation which engages in an appropriate compliance program, may discourage companies from enhancing and investing in such programs. Governments could get much better results if they took this step. But I argue that such improvements need to be undertaken independently of this. Corporations need to be the first to detect any possible wrongdoing so they can fully benefit from, for example, leniency applications in the case of cartel behavior. The costs of screening in compliance have no comparison to the risk associated with losing leniency.

#### **IV. WHAT CORPORATE COUNSEL NEEDS TO KNOW ABOUT IMPLEMENTING SCREENS**

It is clear that screens can detect alleged wrongdoing, even by outsiders to the corporations who do not benefit from the richer data often available internally. Presumably an internal screening program would be still more powerful. In this section I briefly explore some of the practical questions that corporate counsel may have on the use of screens in compliance.

##### ***A. What are the Factors That a Company Should Consider in Determining Whether, When, and How to Use Screens as Part of Its Compliance Program?***

The first consideration on whether to use screens is data availability. What types of data are available and for how long? Additionally, can other data start being collected so that screens

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<sup>13</sup> R. Abrantes-Metz, P. Bajari, & J. Murphy, *Enhancing Compliance Programs through Antitrust Screening*, 4(5) ANTITRUST COUNSELOR (2010).

<sup>14</sup> Abrantes-Metz, et al., *Id.*

can be applied moving forward? Other considerations include: Has the company been involved in a conspiracy before? Is this an industry where competition problems tend to exist, (i.e., history of violations or an industry with other characteristics such as overcapacity)? Are there several opportunities to rig bids and reach agreements with competitors (i.e., are frequent trade association meetings and other industry gatherings common)?

This does not mean that only when these characteristics are met, screens should be applied, but certainly in these cases they clearly should. When to apply screens? In my opinion, they should always be applied when data are available and there is a likelihood that wrongdoing may have occurred or may occur sometime in the future. Better to protect the company against future possible investigations and deter behavior from even getting started.

How to use screens depends on several factors, including the size of the company, the features of the industry in which it operates, the company's budget, and the frequency of problems typically occurring in the industry, among others. But in all cases one thing remains true: Screens require expertise and need to be properly developed and implemented. In a previous article I described in detail how to develop and implement a screen and the risks associated with the wrongful application of these methods.<sup>15</sup>

There are two golden rules of screens: (i) one size does not fit all; and (ii) if you put garbage in, you get garbage out. Developing screens requires expertise; without it, the attempt at screening will likely fail. Such failure should not be attributed to the screening methodology itself generally, but to the errors in development and application in a particular case.

There are six requirements to appropriately developing and implementing a screen: i) an understanding of the market at hand, including its key drivers, the nature of competition, and the potential incentives to cheat—both internally and externally—to the corporation; (ii) a theory on the nature of the cheating; (iii) a theory on how such cheating will affect market outcomes; (iv) the design of a statistic capable of capturing the key factors of the theory of collusion, fraud, or the relevant type of cheating; (v) empirical or theoretical support for the screen; and (vi) the identification of an appropriate non-tainted benchmark against which the evidence of collusion or relevant cheating can be compared.

### ***B. Is There an Example Where a Screen was Used Successfully and Proactively to Help Detect Illegal Conduct?***

As explained earlier in this article, the Mexican and Brazilian competition authorities have used screens to proactively detect bid-rigging in the pharmaceutical industry and price-fixing in gasoline markets, and so have various other agencies worldwide. Along with co-authors, I flagged the possibility of a conspiracy and manipulation of Libor three and a half years ago, preceding the current worldwide investigations in the matter.

In terms of detection through internal compliance programs, I am not aware of any example, but I would make three points: first, the successful external screens I just mentioned could have, in every case, been developed internally first, meaning there is no *a priori* reason an aggressive compliance screening program wouldn't be successful; second, corporations are not

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<sup>15</sup> R. Abrantes-Metz, *Design and Implementation of Screens and Their Use By Defendants*, 9(2) CPI ANTITRUST CHRONICLE, (September, 2011).

yet employing screens in their compliance programs, so there are not many chances for successful detections; and third, a strong compliance screen may deter inappropriate behavior, and such successes by their nature could never be identified.

### ***C. Could a Company That Lacks the Economic Resources to Retain an Econometrics Specialist be Placed at a Disadvantage? Or are There Things That Such a Company Could Do to Mitigate the Lack of Screens?***

There is the risk that a corporation not using any sort of screening will be placed at a disadvantage with respect to other corporations which do, especially in industries prone to anticompetitive behavior and for which appropriate data are available. While “more and better” can always be implemented with a larger budget, it may not always be necessary. Budget limitations should not stop companies from taking the first steps to enhance their compliance programs through screening. Having an expert take a look at the data, suggest how to organize it and possibly collect additional data, and train employees on the very basics of screening can represent a major and relatively inexpensive improvement.

Screens can be resource intensive, but they *do not have to be*. As an example, the work co-authors and I did in 2008, which involved pooling the data and running the first preliminary screens on the alleged Libor conspiracy and manipulation, took just a few days. This is a clear example of how powerful screens can be when relevant data are available and expertise is applied.

Of course, not all screens are so efficient neither all situations can be clearly flagged so promptly. When screens are more resource intensive, a cost-benefit analysis is called for, which in the context of antitrust compliance can only be undertaken on a case-by-case basis. That analysis should recognize that, while screens have a cost, if successful they will permit resources to be more efficiently directed against suspicious behavior. As with medical screens, not all patients are subject to the most extensive and expensive testing, only those who first screened positively.

### ***D. Are Advances in Technology Going to Make the Use of Screens Easier and More Affordable? Is There an “App” for That?***

Advances in technology coupled with more and better data have already allowed for more and better screens to be available and for more and larger alleged antitrust violations to be flagged by competition authorities, academics, and consultants. Training companies to understand how and when to use them and to properly apply them is now a critical next step.

There are no “apps” for screens. Screens cannot work as black boxes. As explained previously, if you put garbage in, you get garbage out. There are of course general theories on how particular behaviors are likely to translate into data. In a recent article, I described the dangers of improperly designed and implemented screens.<sup>16</sup> Corporations should not take this risk, there is too much to lose.

### ***E. What Does a Screen-Supported Compliance Program Look Like? How Often are Screens to be Used? How Much Should a Company Spend?***

The screening expert familiar with the antitrust field needs to diagnose where the potential antitrust violations may be occurring or may occur in the future, what type of behavior

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<sup>16</sup> *Id.*

is feasible to be detected with the data available, how to prepare the data to be used, and what further data need to be collected. He or she also needs to develop theories on how potential violations may occur and the way in which they would be translated into data, as well as set up econometric models capable of identifying suspicious behavior when compared to appropriate benchmarks. The appropriate screens need to be developed and applied to the situations at hand, and staff needs to be trained to run and interpret the screens. The screening expert needs to frequently update the data, and potentially the screen, and review results.

Corporations cannot and should not be screening every situation at every moment in time. A screening program should be set in place to regularly screen outcomes where potential problems are more likely to occur. The frequency of the screening depends on a variety of factors including the frequency of the data, the volume of data, the complexity of the method, the behavior being screened for, the industry, and the budget available. A company's compliance risk assessment will also help drive the direction of any screens, so that they are focused on the highest-risk areas. Updated documentation needs to be kept on the design and implementation of the screen, its results, flags identified, and what was done with respect to these.

There is room for improvement at every level of a company's budget. But the complexity of the markets and behavior to screen for are the major determinants of how much should be spent.

#### ***F. What Can Screens Do and What Can't They Do?***

Screens are not a panacea. They can provide extremely valuable circumstantial evidence for or against a possible antitrust violation, when appropriately developed and implemented. But just as with any other statistical test, screens have a margin of error: they may wrongly flag alleged wrongdoing, or fail to flag actual wrongdoing.

It is important to emphasize that screens merely isolate outcomes that are improbable or anomalous under the assumption of competition or no cheating and thus merit closer scrutiny. They cannot serve as the ultimate proof of the existence or absence of an antitrust violation. No purely empirical or statistical approach can ever do that.

#### **V. FINAL REMARKS**

There is both the room and the incentive to enhance antitrust compliance programs. Screens are an important tool for accomplishing that goal. With respect to cartels, leniency programs reward the first in a conspiracy to come forward; therefore, a company has the incentive to do everything at its disposal to be the first in line. Furthermore, if competition authorities are using these techniques, shouldn't companies at least use the same screens, if not even more elaborate ones? Screens enhance not only compliance programs but also companies' ability to convince authorities that all available compliance tools are being used proactively, helping protect the company if an investigation ends up being launched sometime in the future.

When properly designed and implemented, screens can be very powerful, but they do require expertise. Screens can provide valuable circumstantial evidence but are not a proof of either the presence or absence of wrongdoing. Given the vast amount of data now routinely collected, organized, and stored, and the evident power of screens to flag suspicious behavior, the role of screens in corporate compliance programs can only be expected to increase over time. Can any corporation afford to stay behind in this trend?