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Chapter 5
Screening is a "Must Have" Tool for Effective Antitrust Compliance Programmes

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I. Introduction

Over the last decade, screening has had a significant impact on the early stages of litigation. Empirical evidence has helped shape complaints, motions to dismiss, court decisions, and agency investigations on collusion and manipulation matters. Yet to date it has played almost no role in corporate antitrust compliance programmes. Why might this have been the case? Arguably, the primary reason is that authorities did not, until relatively recently, offer meaningful consideration to corporations' compliance programmes when violations were found. Specifically with respect to screening, corporations were unwilling to spend any money to implement screens, whether because they did not believe screening could be effective or whether it was just part of a general unwillingness to invest in compliance tools.

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We have long expected that the high penalties for cartels, the expansion of leniency programmes and the increased use of screening methods by competition authorities and private litigants would motivate corporations to enhance their antitrust compliance programmes and incorporate screens as part of such improvements. Leniency is extended to the first to report a violation, so it naturally follows that it would be advantageous to be the first to detect violations. Antitrust compliance programmes should play very important roles in detection and self-reporting, as well as in deterrence, and screening should have had a major role within such programmes, but to date this has not been the case.

However, we expect this is about to change. The US Department of Justice's (DOJ) 2019 change in policy towards compliance programmes is likely to encourage meaningful investments in this area. The DOJ now offers formal incentives for "effective" compliance programmes, directing prosecutors to evaluate in-place compliance programmes as part of every corporate charge recommendation. Furthermore, throughout its evaluation, the DOJ's Antitrust Division explicitly considers whether screens and statistical analyses are elements of the corporation's antitrust compliance programme.

II. Screening Basics

The ability to flag unlawful behaviour through economic and statistical analyses is commonly known as screening. A screen is an empirical analysis based on a statistical model or hypothesis and a theory of the alleged illegal behaviour. It is designed to (i) identify whether collusion, manipulation, or any other type of cheating may exist in a particular market; (ii) who may be involved; and (iii) how long it may have lasted. 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 under a theory of competition.[1]

There are essentially two different types of economic analyses used to flag the possibility of a conspiracy or other types of market abuse.[2] The first can be classified as a "structural approach", which looks at the structure of the industry at hand and scores the likelihood of collusion based on factors such as the homogeneity of the product, number of competitors, stability of demand and other commonly used collusive markers.[3] The second is empirical and uses what

1 Rosa Abrantes-Metz & Patrick Bajari, "Screens for Conspiracies and their Multiple Applications" (2009) 24(1) Antitrust Magazine.

2 Joseph Harrington, "Detecting Cartels" in Paolo Buccirossi (ed), *Handbook of Antitrust Economics*, (MIT Press 2008); Michael Doane and others, "Screening for Collusion as a Problem of Inference" in Roger Blair and D Daniel Sokol (eds), *Oxford Handbook of International Antitrust Economics*, (OUP 2015).

3 A non-exhaustive checklist of characteristics that influence the susceptibility of a market to tacit or explicit collusion includes: number of firms and market concentration, differences among competitors, product heterogeneity, demand volatility, barriers to entry, benefits of cheating, transparency, and multi-market contact. See Rosa Abrantes-Metz, "Regional Center for Competition in Latin America: Antitrust

have become commonly known as "screens," or sometimes called "empirical screens". These analyses use data on variables that measure market outcomes – including prices, volumes and market shares – to detect potential anticompetitive behaviour. This is called a "behavioural" or "outcomes" approach, in which economists look at market and participant behaviour as translated into observable data and apply screens to address whether the observed behaviour is more or less likely to have been produced under an explicit agreement. A proposed market-monitoring programme combining both structural and empirical components is outlined in Friederiszick and Maier-Rigaud.[4]

As an example of an empirical screen, Abrantes-Metz, Froeb, Geweke and Taylor argue that typical price-fixing cartels are not only likely to increase average prices, but also to make them less responsive to cost changes, resulting in lower price variance (or more stable prices).[5] They first proposed using low price variance as a screen for traditional price-fixing and applying it to retail gasoline stations in Louisville, KY. In 2006, The US Federal Trade Commission (FTC) also applied this screen to observed gasoline price increases when investigating possible price manipulation post-Hurricane Katrina.[6]

We and other economists, lawyers and reporters have been advocating for the use of screens by all sides involved in litigation and pre-litigation for over a decade.[7]

As a consequence, economic analyses in general, and empirical screens in particular, have become increasingly important in uncovering some of the largest

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Guidelines for Horizontal Collaborations among Competitors for Central and South American Countries" (First Conference, Santo Domingo, Dominican Republic, 31 December 2013) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3291659>; see also *Proof of Conspiracy under Antitrust Federal Law* (American Bar Association Editions, April 2010), ch VIII; and Harrington (n 2), among others.

4 Hans Friederiszick and Frank Maier-Rigaud, "Trigging Inspections Ex Officio: Moving Beyond a Passive EU Cartel Policy" (2007) 4(1) JCL & E 89.

5 Rosa Abrantes-Metz, Luke Froeb, John Geweke and Chris Taylor, "A Variance Screen for Collusion" (2006) 24 Intl J Industrial Org 467. Curiously, this 2006 paper (as a 2004 FTC working paper) was the first to use the word "screen" with the meaning that has since then become known in the antitrust community.

6 FTC, *Investigation of Gasoline Price Manipulation and Post-Katrina Gasoline Price Increases* (FTC 2006) <www.ftc.gov/sites/default/files/documents/reports/federal-trade-commission-investigation-gasoline-price-manipulation-and-post-katrina-gasoline-price/060518publicgasolinepricesinvestigationreportfinal.pdf>.

7 See, for example, Harrington (n 2); Donald Klawiter, "Conspiracy Screens: Practical Defense Perspectives" (March 2012) 1 CPI Antitrust Chronicle; Carlos Ragazzo, "Screens in the Gas Retail Market: The Brazilian Experience" (March 2012) 1 CPI Antitrust Chronicle; Carlos Mena-Labarthe, "Mexican Experience in Screens for Bid Rigging" (March 2012) 1 CPI Antitrust Chronicle; Submissions by Invited Panellists Rosa Abrantes-Metz, Bill Kovacic and M Peter Schinkel are contained in OECD, "Ex officio cartel investigations and the use of screens to detect cartels" (DAF/COMP(2013)27, OECD 2013) <www.oecd.org/daf/competition/exofficio-cartel-investigation-2013.pdf> (2013 OECD Roundtable on Screens); Rosa Abrantes-Metz & Luke Froeb, "Competition Authorities are Screening for Conspiracies: What are they Likely to Find?" (Spring 2008) 8(1) American Bar Association Section of Antitrust Law Economics Committee Newsletter 10; Abrantes-Metz and Bajari (n 1); Doane and others (n 2); Rosa Abrantes-Metz, "Time to rethink deficient market structures" *Financial Times* (London, 11 April 2016) <www.ft.com/content/f95648f8-d499-11e5-829b-8564e7528e54>; among others.

collusion and conspiracy cases of modern times, as we will briefly discuss in the next section.[8] Competition authorities and other agencies worldwide are using screens to detect possible market conspiracies and manipulations. This was already true by 2013, as detailed in member countries' submissions to the 2013 OECD Roundtable on Screens in which Abrantes-Metz, Professors Bill Kovacic and Martin P Schinkel were the three invited panellists.[9]

III. Examples of Screening Successes

A veritable "who's who" of high-profile financial benchmarks have been under investigation. The first was USD LIBOR. In 2008 two *Wall Street Journal* articles used an empirical screen to report possible manipulation intended to artificially depress the LIBOR rate.[10] These reports were quickly followed by the co-authors' own research presenting evidence of possible collusion among many of the participating banks well before the financial crisis,[11] as explained in a Bloomberg opinion article in February 2013.[12] Investigations then extended to other "Ibors" including Euribor, Yen LIBOR and TIBOR, and banks have been fined several billion dollars, with several civil cases still ongoing.[13]

After LIBOR came foreign exchange (FX), when in mid-2013 Bloomberg presented evidence of a possible manipulation based on screening of price movements.[14]

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8 See generally Testimony of Rosa Abrantes-Metz on behalf of the Office of Enforcement Staff, Federal Energy Regulatory Commission (22 September 2014) <http://elibrary.ferc.gov/idmws/doc_info.asp?document_id=14274590>; Testimony of Margaret Levenstein, University of Michigan, to Senate Committee on the Judiciary Subcommittee on Antitrust, Competition Policy and Consumer Rights On "Cartel Prosecution: Stopping Price Fixers and Protecting Consumers" (14 November 2013) <www.judiciary.senate.gov/imo/media/doc/11-14-13LevensteinTestimony.pdf>; Abrantes-Metz and Froeb (n 7); Abrantes-Metz and Bajari (n 1); Kai Hüschelrath, "Economist's Note: How are Cartels Detected? The Increasing Use of Proactive Methods to Establish Antitrust Infringements" (2010) JECL & Pract 1; Doane and others (n 2).

9 2013 OECD Roundtable on Screens (n 7).

10 Carrick Mollenkamp and Laurence Norman, "British bankers group steps up review of widely used Libor" *Wall St Journal* (New York, 17 April 2008), C7; Carrick Mollenkamp and Mark Whitehouse, "Study casts doubt on key rate; WSJ analysis suggests banks may have reported flawed interest data for Libor" *Wall St Journal* (New York, 29 May 2008), A1.

11 Rosa Abrantes-Metz and others, "LIBOR Manipulation?" (2012) 36(1) J Banking and Finance 136, first draft dated 4 August 2008 <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1201389>; Rosa Abrantes-Metz, George Judge and Sofia Villas-Boas, "Tracking the Libor Rate" (2011) 18 Applied Economics Letters 893; Rosa Abrantes-Metz and Albert Metz, "How Far Can Screens Go in Detecting Explicit Collusion? New Evidence From the Libor Setting" (March 2012) 1 CPI Antitrust Chronicle <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2021515>; Rosa Abrantes-Metz and D Daniel Sokol, "Lessons from Libor for Detection and Deterrence of Cartel Wrongdoing" (2012) 3 Harv Bus L Rev Online 10 <www.hblr.org/2012/10/the-lessons-from-libor-for-detection-and-deterrence-of-cartel-wrongdoing/>.

12 Rosa Abrantes-Metz, "How to Use Statistics to Seek Out Criminals" (*Bloomberg*, 26 February 2013) <www.bloomberg.com/news/2013-02-26/how-to-use-statistics-to-seek-out-criminals.html>.

13 See also Connan Snider and Thomas Youle, "Diagnosing the Libor: Strategic Manipulation Member Portfolio Positions" (2009) Working Paper; Connan Snider and Thomas Youle, "Does the Libor Reflect Banks' Borrowing Costs?" (2010) Working Paper.

14 Liam Vaughan and Gavin Finch, "Currency Spikes at 4 P.M. in London Provide Rigging Clues" (*Bloomberg*, 27 August 2013) <www.bloomberg.com/news/2013-08-27/currency-spikes-at-4-p-m-in-

Banks have subsequently been fined many billions of dollars in the United States and abroad in relation to this market.

The London gold and silver fixings were next. In a Bloomberg opinion article from December 2013, Abrantes-Metz first argued that the large price declines observed around the time of the London gold and silver fixings – when the "price of gold and silver" for the day are determined for the purposes of many derivative contracts – were consistent with collusion to manipulate these benchmarks.[15] A *Bloomberg* article by Liam Vaughan followed on 28 February 2014 outlining additional results from Abrantes-Metz's & Metz's research on gold,[16] which was promptly followed by approximately 30 lawsuits in the United States alone[17] with additional complaints filed abroad, and investigations by competition authorities around the world on these metals, including by the DOJ. Investigations continue and have extended beyond the London fixings to the metals futures markets, namely conduct involving alleged spoofing in metals markets.[18]

Economic analysis and empirical screening also assisted in the flagging of an Italian cartel in baby milk and a Dutch cartel in the shrimp industry. Screens have for almost two decades been used to identify potential anticompetitive behaviour in gasoline markets by the US FTC, and to prioritise complaints in the Brazilian gasoline retail market, leading to raids and the ultimate finding of direct evidence of collusion.[19] In Mexico, the competition authority also successfully flagged a conspiracy in pharmaceutical markets through the use of bid-rigging screens,[20] while in India screens were applied to detect a cement cartel. Market-monitoring and screening programmes have been adopted by several other competition authorities, as reported by OECD members and their submissions during the 2013 OECD Roundtable on Screens.[21]

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london-provide-rigging-clues.html>. Abrantes-Metz's work on FX was contained in a December 2013 complaint filed in New York, which extended Bloomberg's analysis and showed further evidence of highly anomalous price spikes at key times of the day when certain benchmarks are set. See the CPI Cartel Column on the Uncovering of the FX Rigging, "From Collusion to Competition" – 15th Issue" (*CPI*, 31 January 2014) <www.competitionpolicyinternational.com/from-collusion-to-competition-15th-issue/>.

15 Rosa Abrantes-Metz, "How to Keep Banks from Rigging Gold Prices" (*Bloomberg*, 19 December 2013) <www.bloomberg.com/news/2013-12-19/how-to-keep-banks-from-rigging-gold-prices.html>.

16 Liam Vaughan, "Gold Fix Study Shows Signs of Decade of Bank Manipulation" (*Bloomberg*, 28 February 2014) <www.bloomberg.com/news/2014-02-28/gold-fix-study-shows-signs-of-decade-of-bank-manipulation.html>.

17 Nicholas Larkin, "London Gold Broker Says Swings in Prices No Sign of Manipulation" (*Bloomberg*, 5 March 2014) <www.bloomberg.com/news/2014-03-05/london-gold-broker-says-swings-in-prices-no-sign-of-manipulation.html>. See also "Gold lawsuit sparks concerns of market manipulation, collusion" (*Fortune*, 8 March 2014) <https://fortune.com/2014/03/07/gold-lawsuit-sparks-concerns-of-market-manipulation-collusion/>; among other similar news.

18 Another example is the ISDAfix benchmark for swaps, for which Abrantes-Metz's screens played an important role in supporting plausible evidence of manipulation and in uncovering previously unknown evidence consistent with collusion. See, for example, CPI Cartel Column, "ISDAfix Decision" (*CPI*, 15 June 2016) <www.competitionpolicyinternational.com/isdafix-decision/>.

19 Ragazzo (n 7).

20 Mena-Labarthe (n 7).

21 2013 OECD Roundtable on Screens (n 7).. See also ABA, "Beyond Leniency: Empirical Methods of Cartel Detection" (American Bar Association Brown Bag Series, 15 December 2011), presentations, slides and audio available at <www.americanbar.org>.

Other regulatory agencies worldwide routinely use screens to help detect illegal conduct such as various types of manipulation and fraud, including the US Securities and Exchange Commission and the US Commodities Futures Trading Commission. Other examples of the power of these screens to flag anticompetitive behaviour in financial markets include the stock options backdating and spring-loading cases from the mid-2000s, and the 1994 break of an alleged conspiracy by NASDAQ dealers in which odd-eighths quotes were avoided.[22] Both of these were triggered by the application of screens by academics and consultants to financial data and generated large-scale public investigations as well as private litigation.

These are only some examples of the successful applications of screens to assist in the initial detection of rigging of financial benchmarks, but certainly not the only ones. There should be little doubt that monitoring the data through appropriately developed and implemented screens is powerful and effective in identifying potential illegal conduct.

IV. The Case for Screening in Antitrust Compliance

Corporate antitrust compliance programmes largely revolve around training. While compliance training is a necessary tool, the history of major cartels suggests that it is not sufficient, and training alone would not be considered an acceptable programme. There are additional tools to enhance a compliance programme that are more objective and less dependent on people's good faith.[23] These include audits, direct monitoring and reviews.

While record reviews and personnel interviews may identify conduct that was otherwise hidden, these tools have limitations: they are somewhat disruptive and are typically very expensive. Moreover, if they are not focused on the highest-risk areas, their resource-intensive nature can generate management hostility.

Luckily, other options are also available, which can focus on targeted risk areas and which can be both effective and less resource-intensive: screens. The value-added by screens for antitrust compliance was first recognised in Abrantes-Metz and Bajari,[24] in more detail in Abrantes-Metz, Bajari and Murphy, and has continued since then.[25]

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22 A summary of these studies is presented in Rosa Abrantes-Metz, "The Power of Screens to Trigger Investigations" (2010) 7(10) Securities Lit Rep 17.

23 Joseph Murphy and William Kolasky, "The Role of Anti-Cartel Compliance Programs In Preventing Cartel Behavior" (Spring 2012) 26 Antitrust 61.

24 Abrantes-Metz and Bajari (n 1).

25 Rosa Abrantes-Metz, Pat Bajari and Joe Murphy, "Enhancing Compliance Programs Through Antitrust Screening" (2010) 4(5) Antitrust Counselor. This recognition continued through the last decade in various other articles including, among others, Rosa Abrantes-Metz, "Why and How to Use Empirical Screens in Antitrust Compliance?" (February 2012) 1 *CPI Antitrust Chronicle* <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2006576>; Rosa Abrantes-Metz and D Daniel Sokol, "Antitrust Corporate Governance and

Early on, in 2012, in its document titled "Competition Compliance Programs: Complying with Competition Law", the Chilean Competition Authority (FNE) also recognised the value of screens for the purpose of antitrust compliance.[26] Specifically, the FNE stated that: "Both monitoring and auditing can even incorporate techniques referred to as 'screening', which consists of the use of econometric tools that detect the existence of possible harmful practices that threaten competition. It is advisable, in principle, to hire specialised outside personnel for its implementation."[27]

So why use screens in antitrust compliance?

1. Screens are proven effective tools when using only public data, and they are expected to be even more powerful when using detailed internal data to the corporation

Screens and empirical analyses have become almost *de rigueur* in cartel and manipulation cases, and they have also been used in fraud matters. They have proven to be effective in flagging potentially illegal behaviour.[28]

Given their record of success, there should be little doubt that screens can, and should, be actively employed by companies as part of their antitrust compliance programmes. Furthermore, while screens have flagged illegal conduct using only publicly available data, their power will be enhanced when used with richer internal data and information. Furthermore, the implementation of screens can act as a deterrent to potential violators.

2. Screens are proactive tools and complementary to other compliance tools, and they are also likely to strengthen leniency applications

Before authorities investigate any sort of crime, the crime must be identified. The police will investigate every missing person report, but they do not knock on every door every day to make sure everyone is accounted for. Instead, they wait ("passively") until someone *informs* them that a person is missing.

Compliance" in Roger Blair and D Daniel Sokol (eds), *The Oxford Handbook of International Antitrust Economics* (OUP 2015), 586, working paper available at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2246564>; Rosa Abrantes-Metz and Elizabeth Prewitt, "Antitrust Compliance 2.0: The Use of Structural Analysis and Empirical Screens to Detect Collusion and Corruption in Bidding Procurement Processes" (June 2015) 2 CPI Antitrust Chronicle <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3291651>; Stefan Frübing and Kai Hüschelrath, "Competition Law Compliance Programmes: A Law and Economics Perspective" in Johannes Paha (ed), *Competition Law Compliance Programmes* (Springer 2016); Ulrich Schwalbe, "Antitrust Compliance and Abusive Behavior" in Johannes Paha (ed), *Competition Law Compliance Programmes* (Springer 2016); Florence Thépot, "Can Compliance Programmes Contribute to Effective Antitrust Enforcement?" in Johannes Paha (ed), *Competition Law Compliance Programmes* (Springer 2016).

26 See FNE, "Competition, Compliance Programs: Complying with Competition Law" (June 2012) <www.fne.gob.cl>.

27 ibid, 14.

28 See Rosa Abrantes-Metz's submission to the 2013 OECD Roundtable on Screens (n 7), available at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2343465>.

In general, most crime is reported by the victim. The challenge with many cartels is that the victims of the cartel are diffuse, and the victims may not *know* they are victims. Practically, who else but a member of the conspiracy is likely to report the crime, if even the victims do not know? Shouldn't such incentives be provided to corporations to monitor themselves in an effective manner, namely through internal screening?

Screens are more likely than other detection tools to flag cases where the market impact from the illegal conduct is the largest, where colluders are being most effective in terms of, for example, raising prices. Those are the cases more likely to be observed in the data, the most profitable to the colluders and the ones causing the most consumer harm. They are also the cases less likely to self-report, all else equal: if colluders are so happy enjoying their fat illegal profits, it is less likely they will be in a rush to self-report, for example, through the filing of a leniency application.

This complementary feature of screens to other detection tools can place the corporation in an advantage if it is the first to flag potential collusive behaviour, the first to self-report and the first to apply to leniency, with all of the benefits that provides.[29] This is what happened with the uncovering of at least LIBOR- and FX-rigging, initially flagged through screening used by reporters and economists, leading years later to leniency applications and many billions of dollars in settlements. It is possible that had screens not been used to flag rigging in these markets, wrongdoers would never have self-reported – what incentive would they have had? They were potentially making many hundreds of millions of dollars of extra illegal profits and did not seem at risk of being otherwise caught, but for screening.

3. Direct evidence of collusion is becoming harder to find, increasing the need for active screening

Direct evidence in the form of communications and explicit agreements is ever harder to find. Once collusion is identified, whether through leniency or screens, the successful prosecution of a cartel often relies on the paper trail left by its members such as emails, notes and other records documenting the intent to collude and the existence of an explicit agreement. Everyone – including the guilty – knows this. And everyone – especially the guilty – have learned their lessons from LIBOR and FX: that their incriminatory emails and chat messages may hang them.[30] Therefore, everyone, including the corporation, should expect cartel members to adopt new communication technologies that do not keep records, at least not as easily, and to be more cautious about leaving traces of

29 As discussed in, for example, Rosa Abrantes-Metz, "Proactive vs Reactive Anti-Cartel Policy: The Role of Empirical Screens" (June 2013) Working Paper <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2284740>; Rosa Abrantes-Metz & Albert Metz, "The Future of Cartel Deterrence and Detection" (January 2019) CPI Antitrust Journal <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3360615>.

30 Abrantes-Metz (n 7).

their explicit agreements. But if their collusion is in fact effective from their point of view, it will distort market outcomes and it will, in principle, be detectable in the data through the appropriate screens.

4. Screens help corporations in their risk assessments and in better complying with the requirements of the US Sentencing Guidelines for Organizations

Our view is that screening will help corporations in their risk assessments and in better complying with the requirements of the US Sentencing Guidelines for Organizations (Sentencing Guidelines), which have become the benchmark for compliance programmes in all areas, including antitrust. The Sentencing Guidelines provide an inventory of steps for companies if they are to get credit in sentencing in federal court, and effectively represent the starting point from which prosecutors assess company programmes to decide whether and how to proceed against a company.[31]

It is required by the Sentencing Guidelines for companies to "exercise due diligence to prevent and detect criminal conduct". These standards require that "… the organisation shall take reasonable steps … to ensure that the organisation's compliance and ethics programme is followed, including monitoring and auditing to detect criminal conduct …"[32] Thus, companies are advised to engage in purposeful and focused efforts, to be proactive in seeking out potential violations, and to not simply rely on training and manuals to prevent them.

Additionally, the Sentencing Guidelines also call on companies to conduct risk assessments,[33] as organisations have limited resources and need to focus them where the risk is greatest. This means that companies need to determine which risks are most likely to occur, and then which have the greatest impact. Of course, for any competitive 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, screens are a key option as they will identify the high-risk areas of a business, allow for better targeting of audits to those areas and assist in monitoring these in a more efficient way. Screens employ techniques designed to highlight the parts of a company that 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 fulfil this role by looking at certain quantifiable red flags and applying statistical analysis to determine the priority areas for further focus, allowing for a more efficient allocation of resources. Screens are not free, but the potential for their benefit to be greater than their cost is very high

31 See Abrantes-Metz, Bajari & Murphy (n 26).
32 Sentencing Guidelines, s 8B2.1(b)(5)(A).
33 Sentencing Guidelines, s 8B2.1(c).

5. The DOJ's "Wind of Change: A New Model for Incentivizing Antitrust Compliance Programs"[34]

We have long argued for the value and enhancement of antitrust compliance programmes in the fight against collusion and their most-needed encouragement by competition authorities. Incentives such as reduced fines or criminal prosecution need to be in place that are strong enough for corporations that have developed reliable compliance programmes. After all, such programmes may lead to the internal self-identification of collusion, and isn't that exactly what we want, for corporations to have a larger incentive to self-monitor and self-report? This is where deterrence starts. Furthermore, the stronger such a programme is, the more resources may end up being saved by authorities. Everything else being the same, high deterrence within the corporations and high likelihood of internal detection would reduce the need for as many resources to be put in place by authorities for deterrence and detection.[35]

Until relatively recently, despite the incentives explicit in the Sentencing Guidelines, the DOJ did not provide clear incentives to corporations to engage in effective compliance programmes. This likely discouraged companies from enhancing and investing in such programmes. We have certainly heard that from several corporate counsel over the years.

But that has changed. In his speech at New York University Law School on 11 July 2019, Assistant Attorney General Makan Delrahim explained that:[36]

> I believe the time has now come to improve the Antitrust Division's approach and recognize the efforts of companies that invest significantly in robust compliance programs. In the words of our former Deputy Attorney General Rod Rosenstein, "[t]he fact that some misconduct occurs shows that a program was not foolproof, but that does not necessarily mean that it was worthless. We can make objective assessments about whether programs were implemented in good faith."

From now on, the US DOJ Antitrust Division will take into consideration compliance programmes at the charging stage of criminal antitrust investigations, just as has been true for the rest of the DOJ in all other areas except antitrust. Specifically, Division prosecutors will consider "the adequacy and effectiveness of the corporation's compliance programme at the time of the offence, as well as at the time of the charging decision".[37]

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34 Assistant Attorney General Makan Delrahim, "Remarks" (New York University School of Law Program on Corporate Compliance and Enforcement, New York, 11 July 2019) <www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-remarks-new-york-university-school-l-0.>

35 Abrantes-Metz & Metz (n 30).

36 Delrahim (n 35).

37 DOJ, "Principles of Federal Prosecution of Business Organizations" (updated November 2018), 9-28-300 <www.justice.gov/jm/jm-9-28000-principles-federal-prosecution-business-organizations>.

Furthermore, and for the first time, public guidelines have been issued on how corporate compliance in criminal antitrust investigations will be evaluated. As stated in the Antitrust Division Manual updated in July 2019, prosecutors are directed to "evaluate all the Factors including pre-existing compliance programmes in every corporate charge recommendation".[38]

The additional clear incentives for enhanced antitrust compliance programmes provided by the DOJ is a most welcome evolution. As explained in the Antitrust Division's Guidelines on the "Evaluation of Corporate Compliance Programs in Criminal Antitrust Investigations" (Antitrust Division Manual) from July 2019, "a truly effective antitrust compliance program gives a company the best chance to obtain the significant benefits available under the Division's Corporate Leniency program".[39] Furthermore, under section 6 of the Antitrust Division Manual, covering "Periodic Review, Monitoring and Auditing", the Division asks as follows:[40]

> What monitoring or auditing mechanisms does the company have in place to detect antitrust violations? See U.S.S.G. § 8B2.1(b)(5)(A). For example, are there routine or unannounced audits (e.g. a periodic review of documents/communications from specific employees; performance evaluations and employee self-assessments for specific employees; interviews of specific employees)? *Does the company use any type of screen, communications monitoring tool, or statistical testing designed to identify potential antitrust violations?* [emphasis added]

The recognition of the value of screens and statistical analyses more generally to assist in the identification of potential antitrust violations, is long overdue. Our expectation is that this will help convince many of the remaining "corporate counsel sceptics" that screening is something their corporations should be doing. With that in mind, in the next section we address some of the key questions they may have.

V. What Corporate Counsel Needs to Know About Implementing Screens for Antitrust Compliance

It should be clear by now that screens can detect wrongdoing even when created by those outside the corporations who do not benefit from the richer data and other important information typically available internally. In this section we briefly explore some of the practical questions that corporate counsel may have on the use of screens in antitrust compliance.

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38 Delrahim (n 35).

39 DOJ Antitrust Division, "Evaluation of Corporate Compliance Programs in Criminal Antitrust Investigations" (July 2019) <www.justice.gov/atr/page/file/1182001/download>.

40 ibid, 10.

1. What are some of the key factors that a company should consider in determining the feasibility of screens as part of its compliance programme?

The first consideration on whether screens are feasible is data availability: what types of data are available, for what time periods and of what quality? Can data start being collected now to enable future screens? What public data is available, perhaps at a price? In this era of big data, particularly data to support pricing algorithms, we expect data restrictions to be less binding than even a few years ago, but certainly some limits will still exist.

Industry considerations are also important. Is this an industry where antitrust concerns tend to exist, i.e. an industry with a history of violations or an industry with characteristics associated with anticompetitive behaviour? Are there opportunities to rig bids or reach collusive agreements with competitors, such as frequent trade association meetings and other industry gatherings? Is the use of pricing algorithms prevalent, which might more easily lead to a coordination of prices? More fundamentally: is this an industry for which public data is sufficiently available that could allow a screening expert to independently detect wrongdoing? If information and data are publicly available that are good enough for "public screening", then adding internal data could only enhance the power of a screening programme. If external experts can do it, why cannot the company also do it, and better? This does not mean that only when these characteristics are met, screens must be applied, but certainly in these cases they are highly recommended.

In our opinion, screens should always be applied when data is available and there is a non-negligible likelihood that wrongdoing may have occurred or may occur sometime in the future. After all, deterrence should also be another goal. A robust screening programme can not only deter anticompetitive behaviour in the first place but, with the Antitrust Division's 2019 policy, the fact that such a programme is in place may help pave the way to reduce charges or penalties if there ever is a violation.

2. How should screens be used?

When it comes to deciding how to use screens, that 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 alleged illegal conduct typically occurring in the industry. But in all cases one thing remains true: screens require expertise and need to be properly developed and implemented. Two golden rules to remember: (i) one size does not fit all; and (ii) if you put garbage in, you get garbage out. Developing screens requires expertise: without it, attempts at screening will likely fail, meaning the company risks complacency from false negatives or overreaction to false positives.[41]

41 Rosa Abrantes-Metz, "Design and Implementation of Screens and Their Use by Defendants" (September 2011) 2 CPI Antitrust Chronicle, at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1943223>.

There are six key requirements to appropriately develop and implement 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 and the data available; (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.[42]

3. Is there an example where a screen was used successfully and proactively to help detect potential illegal conduct?

Yes. The co-authors of this chapter, reporters and other economists first flagged the possibility of collusion and manipulation in LIBOR, FX, gold and silver fixings and others. These have already led to many billions of dollars in government and private settlements, and more may still be to come. Other examples include those of the Mexican and Brazilian competition authorities. They used screens to proactively detect bid-rigging in the pharmaceutical industry and price-fixing in gasoline markets, as have various other agencies worldwide, leading to convictions.

In addition, in July 2013 in a Bloomberg opinion article titled "Banks' Role in Metal Trading Deserves Scrutiny",[43] Abrantes-Metz explains that a number of large users of aluminium in the US, including Coca-Cola Co and MillerCoors LLC, alleged that big banks – some of which own aluminium warehouses and play a central role in the market – intentionally created bottlenecks, with the end effect of driving up prices and boosting their profits. She shows that the empirical evidence suggested the possibility that big US banks colluded to drive up the price of aluminium and that it is worthy of authorities' attention. At the time, there were congressional hearings on the possibility of aluminium warehousing-rigging, followed by competition authority investigations and numerous private lawsuits, some of which are still ongoing.[44]

Importantly, in the case of aluminium the red flags were spotted by *aluminium users themselves*. While these may not have been generated by internal screening of the type we are discussing, they could easily have been. They were flagged by the companies themselves through their realisation that aluminium was not being released from warehouses as quickly as it used to be, thus creating a shortage of aluminium and an increase in prices which did not seem consistent with fundamental market conditions at the time.

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42 ibid.

43 Rosa Abrantes-Metz, "Banks' Role in Metal Trade Deserves Scrutiny" (*Bloomberg*, 31 July 2013) <www.bloomberg.com/news/2013-07-31/banks-role-in-metal-trade-deserves-scrutiny.html>.

44 See also Rosa M Abrantes-Metz, "Aluminum Market Dislocation: Evidence, Incentives and Reform" (September 2013) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2328902&download=yes>.

In terms of detection purely through internal screening programmes, while the authors of this chapter are not aware of any example, to date the incentives may have been too weak for companies to seriously embark on these efforts. Over the years several corporate counsel have asked, "why should we screen?" Companies saw little-to-no benefit from implementing screens for antitrust compliance, and in fact were more concerned with what they had to lose if something was detected. Hopefully the 2019 guidance and consideration on screens by the DOJ Antitrust Division will assist in tilting the scale favourably to antitrust compliance screening, as well as set a new standard to be followed by many more antitrust agencies around the world.

The successful external screens described in section III of this chapter could have been, in every case, developed internally first. In other words, there is no *a priori* reason why a corporate compliance screening programme would not be successful. That said, the real benefit of such programmes might lie in their deterrence effect; if so, cases where a compliance programme truly identifies anticompetitive behaviour may remain rare.

4. Can a helpful screening tool be developed with a small budget?

There is the risk that a corporation not using any sort of screening will be placed at a disadvantage with respect to those that do, especially in industries prone to anticompetitive conduct and for which appropriate data is available. There is also the risk that authorities will judge the company's compliance efforts as inadequate when penalties are ultimately assessed.

While "more and better" programmes can always be implemented with more and better budgets, any programme should be cost effective, and good programmes can still be developed with smaller budgets. Having an expert take a look at the data, suggest how to organise it and study it, and train employees on the very basics of screening can represent an important but fairly inexpensive one-time investment.

That said, all ongoing screening efforts should be periodically reviewed by a qualified expert, but in many cases that review may be infrequent – annual or biannual may suffice – and be fairly cursory, yet useful. At the other extreme, the co-authors know of some cases where models are updated virtually in real time. It would likely be unwise to let too much time pass before an expert reviewed the status of such intensive screening programmes.

While screens *can* be resource-intensive, they *do not hav*e to be. As an example, the co-authors' first preliminary screens on the alleged LIBOR conspiracy and manipulation took just a few days to develop. Of course, not all screens are so efficient, nor can all situations be flagged so promptly.

When screens are more resource-intensive, a cost–benefit analysis becomes more important, which in the context of antitrust compliance can only be undertaken on a case-by-case basis. That analysis should recognise that, while screens have

a cost, if successful they will permit resources to be more efficiently directed against suspicious behaviour. As with medical screens, not all patients are subject to the most extensive and expensive testing, only those who first screened positively. For example, Ragazzo explains that, for the Brazilian Competition Authority, the first application of the basic screens flagged 30 possible locations that should be given a closer look.[45] Of those 30, more advanced screens were applied, selecting the final set of 10 locations. For those, dawn raids were undertaken and direct proof of collusion was found for 6 out of the 10 cases flagged. We would call this a very successful application of screens!

The complexity of the markets and the availability of data are the major determinants of how expensive a robust programme will be.

5. 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. Many corporations now use pricing algorithms to set their prices; implementing a screen to detect possible anticompetitive behaviour is a closely related problem.[46]

Of course there is no all-purpose app for screens, nor do we think there could be. Screens cannot work as black boxes, and no screen is applicable to all cases. There are, of course, general theories on how particular behaviours are likely to be translated into observable data. Almost a decade ago, Abrantes-Metz described the dangers of improperly designed and implemented screens.[47] Corporations should not take this risk – there is too much to lose.

6. How does the use of pricing algorithms by a company affect the design and/or implementation of internal screening?

Pricing algorithms offer a number of private advantages to firms, and they have great potential to introduce pro-competitive benefits to the market at large. However, they also have the potential to produce real or perceived anticompetitive results. The simplest example is the phenomenon of *price convergence*, where all market prices for a given product are exactly the same. Such price convergence is a prediction of both "perfect competition" and many models of price collusion.[48]

This introduces some complexities into the screening process. A common form of price-screening is to look for price convergence and price stability. Where pricing algorithms are employed, the former is likely less informative; the latter

45 Ragazzo (n 7).

46 Rosa Abrantes-Metz and Albert Metz, "Can Machine Learning Aid in Cartel Detection?" (July 2018) CPI Antitrust Chronicle, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3291633>; Rosa Abrantes-Metz, "Pricing Algorithms and Implications for Competition" (*CPI Cartel Column,* May 2019).

47 Abrantes-Metz (n 44).

48 ibid.

may still be. But the real issue is whether prices closely track input costs. That price should equal marginal cost is a unique implication of competitive markets. The ideal screen would be built around this observation: are profit margins narrow, relative to an appropriate benchmark?

Additional tests on the algorithm itself are likely warranted. How does the algorithm respond to different competitor pricing scenarios? Does it appear that the algorithm has adapted or "learned" to collude? Is the algorithm still operating within its intended parameters? Arguably such tests are not screens per se, but these are other questions that it would seem reasonable to ask periodically of any pricing algorithm.

7. What does a screen-supported compliance programme look like? How often are screens to be used?

The screening expert familiar with the antitrust field needs to diagnose where the largest risk areas are with the potential for antitrust violations to occur, what type of behaviour it is feasible to detect with the available data, how best to prepare the data and what additional data or other information needs to be collected. Just as importantly, the expert needs to develop theories on how potential violations may occur and the way in which they would be translated into the observable data, as well as to set up econometric models capable of identifying suspicious behaviour when compared with appropriate benchmarks.

The appropriate screens need to be developed and applied to the situations at hand, and staff need to be trained to run and interpret the screening results. In addition, data needs to be frequently updated, and models should also be frequently re-estimated. In the event a screen raises a flag, the subsequent review, which would include searching for legitimate explanations for whatever tripped the screen, is also a critical step of the screening process.

Corporations cannot and should not be screening every situation at every moment in time. A screening programme should be set in place to regularly screen outcomes where potential problems are more likely to occur, and are more likely to be detected. The frequency of the screening depends on a variety of factors including the frequency of the data and its volume, the complexity of the method, the behaviour 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, changes made over time, screen results, flags identified and what was done to address them.

8. 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 emphasise that screens merely isolate outcomes that are improbable to occur under a competitive environment and thus merit closer scrutiny. Standing alone, they cannot serve as the ultimate proof of the existence or absence of a cartel, though they can provide valuable assistance when combined with other such evidence. No purely empirical or statistical approach can be used as the *single* proof of collusion.

9. How can a company know that its antitrust compliance programme will be considered reliable by the DOJ?

In the absence of guidelines addressing this point specifically, our best advice is to (i) base screens on a coherent theory of competition and collusion for the industry; (ii) document that rationale; (iii) conduct and document a thorough review of available internal and external data; (iv) follow best practices to audit the implementation of the screen; (v) periodically review the screens and document the results; (vi) establish clear controls for proposing and approving changes to screens; and (vii) establish a clear process for addressing any red flags raised by the screens. Engaging a reputable third party with significant screening experience to periodically review the screens and the associated controls is highly recommended.

VI. Final Remarks

The co-authors have always argued that there was both the room and the incentive to enhance antitrust compliance programmes and the use of screens internally within corporations. The DOJ's most recent recognition of the value and importance of antitrust compliance programmes in general, and of screening methods in particular, provides the latest impetus.

Screens are an important tool for the enhancement of antitrust compliance. With respect to cartels, leniency programmes 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. Competition authorities are making increased use of these techniques; companies might want to do the same to minimise the risk of a surprise. Finally, incorporating screens not only offers substantive benefits, but may also help convince authorities that all available compliance tools are being used proactively; this can have real benefits if the company finds itself involved in an enforcement action.

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

Perspectives on Antitrust Compliance

Anne Riley, Andreas Stephan, Anny Tubbs

Foreword by John WH Denton AO

Companies around the world are arguably at a crossroads where global compliance challenges need attention as never before. Increasingly, antitrust compliance is seen by companies not as a standalone topic, but as part of a suite of compliance efforts needed by companies to ensure that they comply with societal and shareholder expectations.

This book makes an original and timely contribution to the important debate surrounding the function and design of antitrust compliance programmes. Crowding in the immense knowledge of a selection of renowned international antitrust compliance experts including academics, in-house counsel, private practitioners, economists, consulting firms and regulators, it seeks to embrace varied perspectives rather than championing one particular vision of what good antitrust compliance should look like. The publication is designed to assist all stakeholders, while appreciating that every industry and corporate entity faces unique compliance risks and that an approach that works well for one business may be less appropriate and effective for another.

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