

Institution: University of Portsmouth		
Unit of Assessment: UoA 17: Business and Management Studies		
Title of case study: Defining, detecting and preventing manipulative and collusive behaviour in the global over-the-counter (OTC) markets		
Period when the underpinning research was undertaken: October 2009 - present		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Alexis Stenfors	Reader in Economics and Finance	01/01/2014 - date
Period when the claimed impact occurred: January 2014 - present		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact Alexis Stenfors' research investigates manipulative and collusive behaviour in the global fixed income, foreign exchange (FX) and money markets. The research underpinning this ICS has: • Been central in defining the legal boundaries in a [text removed for publication] FX price-fixing class action resulting in over [text removed for publication] million in settlements to date, and a landmark criminal prosecution of EURIBOR manipulation in the UK. This set a precedent for future potential prosecutions and trials by helping to define the line between legal (but perhaps unethical) and criminal wrongdoing by individuals working in the global fixed income, FX and money markets. • Provided the basis for legal arguments used in major financial litigation cases of LIBOR manipulation and collusion to reach significant financial settlements worth USD658 million with [text removed for publication] banks to date. • Defined new parameters and alerts, as well as developed new methodologies, within the world's leading surveillance system to detect, limit and prevent market manipulative and collusive behaviour to ensure the integrity of global financial markets.		
2. Underpinning research The global fixed income, FX and money markets are phenomenally large. For instance, the daily turnover in the global FX market is around USD6.6 trillion, and over USD300 trillion worth of financial contracts (bonds, loans, derivatives and mortgages) are linked to LIBOR – the world's most widely used interest rate benchmark. Prices in these markets affect everybody: from multinational companies buying and selling products abroad to households taking out mortgages. They also influence the cost of government borrowing and central bank policymaking. Indeed, financial crises are typically synonymous with crises within these markets. However, being international, dominated by banks and overwhelmingly traded OTC, the markets are opaque and more susceptible to manipulation and abuse than stock markets. Some of these issues became front-page news in 2013 when the so-called 'LIBOR and foreign exchange scandals' were uncovered. This revealed a widespread culture of manipulation and collusive practices among banks in relation to markets and benchmarks linked to money and FX. The consequences of these discoveries includes fines and settlements amounting to billions of pounds, criminal proceedings and stricter regulation across the world. More robust compliance mechanisms in the form of internal controls, oversight and surveillance have also been put in place to spot and, hopefully, prevent such behaviour in the future. Put together, these changes have been introduced to ensure that market participants behave in an ethical manner, and that future issues are identified and dealt with promptly. Ultimately, the aim is to protect consumers, restore trust in financial institutions and safeguard the financial system as a whole. Since 2014, Stenfors has published journal articles, book chapters and a book on manipulative and collusive behaviour in the global fixed income, currency and money markets. An underlying theme is that he emphasises the need to account for structures and social norms unique and central to OTC markets, but that are absent or significantly different in exchange-traded markets (e.g. stock markets). By doing so, Stenfors also reveals how manipulation and collusion in OTC markets have different structural and behavioural underpinnings – having significant implications		

for lawmakers, regulators, compliance officers and trade surveillance systems. The key findings can be summarised as follows:

1. Stenfors' research demonstrates how banks involved in the LIBOR (and EURIBOR) rate-setting process, and employees working for these, had means, opportunities and incentives to manipulate the benchmark. Moreover, it also shows that whereas the system was flawed in itself, it also created a side effect: deceptive behaviour could sometimes be unconscious and without harmful intent. Stenfors' research findings help to distinguish appropriate and legitimate behaviour from what could be classified as unethical or even illegal conduct by employees at financial institutions. **(R1, R2, R3, R5).**

2. Social norms, unwritten rules and conventions are important in the global fixed income, FX and money markets – particularly in terms of how banks provide market liquidity to each other. This requires mutual trust, for without liquidity provision, the markets would dry up and ultimately harm the financial system as a whole. Communication and sharing of information are natural ways to restore and maintain trust. However, banks should also compete with each other. Stenfors' research clarifies the grey zones and distinctions between information sharing that is convention-based (and ethical) and anti-competitive (and subject to antitrust law). **(R3, R4).**

3. The global fixed income, currency and money markets are decentralised and opaque. This makes manipulation, abuse and unethical behaviour difficult to detect. Technological developments and the increasing use of computer algorithms have resulted in new forms of manipulative strategies being implemented, which are even harder to spot by compliance officers and regulators. Using a vast high-frequency dataset with millisecond timestamps, Stenfors' research shows how such strategies can be examined retrospectively. By doing so, he proposes new approaches and methodologies to identify and detect harmful trading behaviour. **(R6).**

3. References to the research

(R1) **Stenfors, A.** (2014). LIBOR as a Keynesian beauty contest: a process of endogenous deception. *Review of Political Economy*, 26(3), 392–407.

<https://doi.org/10.1080/09538259.2014.917824>

(R2) **Stenfors, A.** (2014). LIBOR deception and central bank forward (mis-)guidance: evidence from Norway during 2007–2011. *Journal of International Financial Markets, Institutions and Money*, 32, 452–472. <https://doi.org/10.1016/j.intfin.2014.07.006>

(R3) **Stenfors, A.** (2017). *Barometer of fear: an insider's account of rogue trading and the greatest banking scandal in history*. London: Zed Books. ISBN: 978-1-78360-928-4. In Finnish: Stenfors, A. (2018). *Riskitekijä – Pankkimailman pimeä puoli*. Tampere: Vastapaino. ISBN: 978-951-768-621-1.

(R4) **Stenfors, A.** (2018). Bid-ask spread determination in the FX swap market: competition, collusion or a convention? *Journal of International Financial Markets, Institutions and Money*, 54, 78–97. <https://doi.org/10.1016/j.intfin.2017.08.001>

(R5) **Stenfors, A.** & Lindo, D. (2018). Libor 1986–2021: the making and unmaking of 'the world's most important price'. *Distinktion: Journal of Social Theory*, 19(2), 172–190.

<https://doi.org/10.1080/1600910X.2018.1430599>

(R6) **Stenfors, A.** & Susai, M. (2020). Spoofing and pinging in foreign exchange markets. *Journal of International Financial Markets, Institutions and Money*, 70, 101278

<https://doi.org/10.1016/j.intfin.2020.101278>

The references above contain five peer-reviewed journal articles (R1, R2, R4, R5 and R6) and one book (R3). Three articles (R2, R4 and R6) were published in CABS 3* journals and, following peer-review, adjudged as of 3* REF2021 quality. One article (R1) was published in an ABDC B journal and, following peer-review, adjudged as of 2* REF2021 quality.

4. Details of the impact

The research underpinning this ICS has been influential in class actions, criminal prosecutions, financial litigation cases and surveillance systems around the world - to help define, detect and prevent manipulative and collusive behaviour in the global OTC markets. The route from

publishing the research to engaging with key stakeholders has included an active dissemination agenda.

Stenfors' research has attracted widespread interest. To raise general awareness of the problems and the need for change, Stenfors actively engaged with the media through op-eds and interviews. His research (particularly **R1, R2 and R3**) has been referred to in multi-page in-depth interviews in the Wall Street Journal (30.04.2016 / Circulation: 2,617,000), The Guardian 07.05.2017 / 134,000), The Times (09.05.2017 / 417,000) and Helsingin Sanomat (16.07.2017 / 365,000). Furthermore, he discussed and explained the issues on the radio (e.g. Newshour BBC World Service, Today Programme BBC Radio 4, Eye of the Storm BBC Radio 5 Live) and TV (e.g. CNBC, YLE Uutiset, BBC One Show).

To inform and educate more specialist audiences, Stenfors shared his research findings in leading industry magazines (e.g. Chartered Banker, FX Week) and gave talks and keynote speeches at major professional conferences. Keynotes include V-FI: Valuation of Financial Instruments Conference (London, June 2015; New York, October 2015 - the largest conference of its kind worldwide) (**S1**) and Association of Certified Fraud Examiners (ACFE) conferences (Frankfurt am Main, April 2018; London, November 2018; Dubai, February 2020). According to [text removed for publication] ACFE (with its 85,000 members, the world's largest anti-fraud organisation), Stenfors' participation in the ACFE Fraud Conference Europe was "*an integral part of making the event successful.*" (**S2**)

To contribute to changing practices and behaviour, Stenfors engaged more closely with key stakeholders through in-house seminars, workshops and conferences (such as Nasdaq, **S3**) and the Bar Association for Commerce, Finance & Industry (**S4**). This activity typically resulted in follow-up conference calls, conversations and meetings with a range of key stakeholders including financial institutions, law firms, regulators, exchanges and electronic trading platform providers, as well as NGOs across the world. This engagement led to three key material impacts:

1. The research has been central in defining the legal boundaries in a [text removed for publication] FX price-fixing class action and a landmark criminal prosecution of EURIBOR manipulation in the UK

Between May 2016 and March 2017, his research findings on market structure, conventions and social norms (**R3, R4**) were used by lawyers in the [text removed for publication] FX price-fixing class action. The action alleged that between [text removed for publication], banks (the defendants) conspired with each other to fix, raise, maintain, stabilise, control, or enhance unreasonably prices in the FX market. Stenfors assisted [text removed for publication] (acting on behalf of the claimants) to define the scope and limitations of the [text removed for publication] class action in terms of the jurisdictional and cross-border perspectives. He also assisted the law firm in the process of identifying the ways in which the market was susceptible to manipulation. [Text removed for publication] (**S5**) **To date, the case has resulted in over [text removed for publication] million (equivalent to over USD75 million) in settlements for [text removed for publication] institutions and investors.**

Between December 2017 and June 2018, Stenfors' research findings on market structure, conventions and social norms (**R1, R3, R5**), and on the internal and external communication and signalling process between market participants (**R2, R4**) were used in the world's first criminal trial related to EURIBOR. EURIBOR is the Brussels-based version of LIBOR and used in financial instruments with a notional value of approximately EUR300 trillion. More specifically, the research was used to clarify the burden of guilt of bank employees involved in the EURIBOR rate-setting process. In the highly complex landmark trial (with senior bankers sentenced to more than 13 years in prison), the findings were crucial for legal arguments in securing the acquittal of a [text removed for publication] trader who was charged by the Serious Fraud Office with conspiracy to manipulate EURIBOR between [text removed for publication]. Legal arguments presented to the judge and jury at the Southwark Crown Court in London were prepared by [text removed for publication] (**S6**) **The impact is significant because the defendant received a fair and fact-based trial and was the only acquitted person among the accused.** An identical logic was used, and the same outcome reached, in a similar trial in 2019. **It not only set a precedent for future potential prosecutions and trials, but also helped to define the line between legal**

(but perhaps unethical) and criminal wrongdoing by individuals working in the global fixed income, FX and money markets. By doing so, it has clarified clearly to financial institutions their responsibilities to educate, supervise and monitor the behaviour of their employees.

2. The research has underpinned legal arguments in major financial litigation cases of LIBOR manipulation and collusion to reach significant financial settlements [text removed for publication]

Stenfors' research findings on the LIBOR fixing mechanism (**R1, R3**), the communication and signalling process in OTC markets (**R1, R4**), and the competition and anti-trust aspects of LIBOR and its underlying interbank money market (**R2, R4**) have been crucial in a multi-class lawsuit alleging a global conspiracy by some of the world's largest banks to manipulate the LIBOR. The lawsuit brought in [text removed for publication] is one of the largest ever filed against financial institutions.

Stenfors was contacted by [text removed for publication] (the claimants) in April 2013, after having read an op-ed on LIBOR that he had written in the Financial Times. Since 2014, Stenfors' research findings have influenced legal arguments and been used to define what kind of data (indicative prices, transactions, transcripts of conversations etc.) would be needed for the case, to interpret the data to determine if, how, when and by whom claimants have suffered as a result of the actions by the defendants and to quantify damages and appropriate financial settlements. [text removed for publication] (**S7**). **From 2016 to date, the [text removed for publication] Plaintiffs have reached proposed settlements exceeding USD68 million [text removed for publication].**

Within the same multi-class lawsuit, the research has also been used by the [text removed for publication] Class. [Text removed for publication] (**S8**). **From 2015 to date, the [text removed for publication] Class has secured settlements totalling USD590 million [text removed for publication].**

3. The research has defined new parameters and alerts, as well as developed new methodologies, within the world's leading surveillance system to detect, limit and prevent market manipulative and collusive behaviour

Since 2015, there has been a strong push by regulators for market participants to put in place more robust and systematic OTC surveillance systems generally, and fixed income specifically. To this end, Stenfors was approached by [text removed for publication] to significantly improve their fixed income surveillance platform. [Text removed for publication] is the world's leading market surveillance service, being used by stock exchanges, financial regulators and over [text removed for publication] banks worldwide to detect, and ultimately prevent, trading behaviours that may represent market abuse or other forms of irregular trading.

Between May 2019 and August 2020, Stenfors helped [text removed for publication] define and document risks, data inputs, metrics, logics and approaches in [text removed for publication] based on his research findings on manipulative and collusive practices (**R3, R4**) and new forms of market manipulation (**R6**). [Text removed for publication] (**S9**).

5. Sources to corroborate the impact

(S1) V-FI Valuation of Financial Instruments Americas 2015 programme, New York, USA, 21-22.10.2015.

(S2) Written statement by [text removed for publication], 11.07.2018.

(S3) NASDAQ Surveillance Conference 2019 Agenda, Paris, France, 14-16.10.2019.

(S4) The Bar Association for Commerce, Finance and Industry Seminar programme, London, UK, 17.05.2017.

(S5) Statement by [text removed for publication], 28.2.2020 and accompanying settlement documents in the public domain.

(S6) Statement by [text removed for publication], 15.01.2020 and accompanying official documents on the EURIBOR trial.

(S7) Statement by [text removed for publication], 04.03.2020 and accompanying settlement documents in the public domain.

(S8) Statement by [text removed for publication], 29.07.2020 and accompanying settlement documents in the public domain.

(S9) Statement by [text removed for publication], 05.08.2020.