FOLLOWING LIBOR:

FINANCIAL BENCHMARKS, LAW, AND THE GOVERNMENT OF ECONOMIC LIFE



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by

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Abstract

Libor is a financial benchmark – a daily published number incorporated into financial contracts of all kinds for the purposes of establishing financial valuations. It has played a vital role in global finance for decades, with an influence that extends beyond the markets in which it is created and serves its primary purposes, and into everyday economic life. The global financial crisis of 2007/8 sparked a set of debates that has seen Libor's reform, and ultimately replacement, top the financial regulatory agenda. But while these issues have attracted interest from social scientists and legal scholars alike, existing scholarship tends to take for granted the ruling conception of a benchmark as a calculative device. Libor's effects on the distribution of wealth and power in society are seen as having to do with 'underlying' market realities or else sociological factors such as status, networks, or social norms. The benchmark itself is often analytically invisible.

In contrast, this thesis asks how Libor has been made into an object of critique since the financial crisis – that is, how has Libor been made into a 'problem' in need of reform? The thesis uses an in-depth, qualitative case study of the UK aspects of Libor reform to analyse the nature and effects of this problematisation and thereby to illuminate the configuration of power relations entailed in contemporary financial governance. I show that a benchmark such as Libor is a legal artefact whose role is to obviate debate about what things are 'really' worth by providing a measure that allows transactions to take place as if that debate was resolved. I refer to this as the *benchmark form.* I argue that, as a modern-day benchmark form, Libor has its analogue and historical template in the institution of money as a technical means of commensurating values in economic exchange.

To Nan and Pop

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Table of Abbreviations

ACT	Association of Corporate Treasurers
BBA	British Bankers' Association
CAPM	Capital Asset Pricing Model
CFTC	Commodity Futures Trading Commission
CME	Chicago Mercantile Exchange
DOJ	Department of Justice
FCA	Financial Conduct Authority
FEMR	Fair and Effective Markets Review
FMLC	Financial Markets Law Committee
FSA	Financial Services Authority
FSB	Financial Stability Board
G20	Group of Twenty
IBA	ICE Benchmark Administration
IBOR	Interbank Offered Rate
ICE	Intercontinental Exchange, Inc.
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IOU	I Owe You (phonetically) – a promise to pay
ISDA	International Swaps and Derivatives Association
Libor	London Interbank Offered Rate

LMA	Loan Markets Association
MPG	Market Participants Group
OIS	Overnight Indexed Swap
OSSG	Official Sector Steering Group
RFR	Risk-Free Reference Rate
SARON	Swiss Average Rate Overnight
SFO	Serious Fraud Office
SOFR	Secured Overnight Financing Rate
SONIA	Sterling Overnight Index Average
WPR	What is the Problem Represented to be?

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I remembered, too, another axiom of Giovanni's, and I clung to it because it gave me great hope… Giovanni used to say you must never be in a hurry to close a transaction when you can't expect any gain: every transaction sooner or later arrives at its conclusion on its own, as is proved by the fact that the history of the world is so long and that so few transactions remain unsettled. Until the moment it is settled, any transaction may prove profitable.

I didn't remember that Giovanni had other axioms affirming the opposite, and I clung to that one. I had to cling to something.

—— ITALO SVEVO, Zeno's Conscience

1. Introduction: The '$350 Trillion Problem'

1.1 Overview and Research Aims

Financial benchmarks are published numbers that are referred to for the purposes of calculating interest payments or other sums due, or otherwise for establishing a reference value, in financial transactions. Among the best known is the London Interbank Offered Rate, or 'Libor', which has been a fixture of the global financial markets for decades. Often described as 'the world's most important number',[1] Libor is produced based on a daily poll of leading banks in London, who are asked to declare the rate of interest at which they could borrow from other banks. An administrator collates the responses, produces an average and disseminates the result as the benchmark.

Today, the trade in Libor-linked financial products is estimated to run into hundreds of trillions of dollars.[2] It is used around the world in transactions ranging from household mortgages to complex derivatives. Yet, despite its omnipresence in economic life, Libor has been largely overlooked in scholarly literature until recently. That changed with the global financial crisis of 2007-8, when Libor's calculation, along with the practices of its administrator and contributor banks, became matters of public scrutiny. In the aftermath of the crisis, coordinated regulatory and law enforcement investigations around the world led to admissions by several banks and other financial institutions of

[1] BBA, 'BBA LIBOR: The World's Most Important Number Now Tweets Daily' (*BBA archive site*, 21 May 2009) <http://www.bbatrent.com/news-releases/bba-libor-the-worlds-most-important-number-now-tweets-daily> accessed 25 February 2020.

[2] Luca Casiraghi, Luca Morreale and Silla Brush, 'Libor's Uncertain Succession Triggers $350 Trillion Headache' *Bloomberg* (27 July 2017) <https://www.bloomberg.com/news/articles/2017-07-27/libor-s-uncertain-succession-gives-debt-markets-a-headache> accessed 30 May 2021.

biasing the responses to the Libor poll to suit their own interests. The ensuing 'manipulation' scandal has seen billions of dollars paid out in financial settlements and penalties, a wave of litigation, political recriminations and the removal of senior executives, as well as a number of prosecutions of more junior financial professionals.[3] Legal proceedings relating to Libor continue in several countries.[4]

Even so, more than a decade on from the financial crisis, arguably the most consequential effects of the controversy surrounding Libor are still to be felt. The fallout has seen the initiation of a transnational programme of reforms to the oversight and operation of financial benchmarks in general, and Libor in particular. Having implemented a wide-ranging overhaul of the way Libor is set and administered, the ultimate goal of reformers is to see it discontinued altogether and replaced by alternative benchmarks after 2021.[5]

Described as 'the largest financial engineering project the world has ever seen',[6] the rationale for reforming, and ultimately replacing, Libor is largely taken for granted among regulators and scholars, and also many financial professionals. There is general

[3] Liam Vaughan and Gavin Finch, *The Fix: How Bankers Lied, Cheated and Colluded to Rig the World's Most Important Number* (John Wiley & Sons 2017); David Enrich, *The Spider Network: The Wild Story of a Maths Genius, a Gang of Backstabbing Bankers, and One of the Greatest Scams in Financial History* (WH Allen 2017).

[4] Eg Barclays Bank's 2020 annual report discloses ongoing civil proceedings relating to Libor and other interest rate benchmarks in the US and the UK, as well as in a number of other jurisdictions in Europe and Israel. Barclays PLC, 'Barclays PLC Annual Report 2020' (2020) 338 <https://home.barclays/content/dam/home-barclays/documents/investor-relations/reports-and-events/annual-reports/2020/Barclays-PLC-Annual-Report-2020.pdf> accessed 30 May 2021.

[5] Andrew Bailey, 'The Future of LIBOR - Speech by Andrew Bailey, Chief Executive of the FCA, at Bloomberg London' (26 July 2017) <https://www.fca.org.uk/news/speeches/the-future-of-libor> accessed 22 May 2021.

[6] Benjamin Purvis and Alex Harris, 'Libor's Looming Demise Is a Mammoth Financial Engineering Task' *Bloomberg* (25 April 2019) <https://www.bloomberg.com/news/articles/2019-04-25/libor-s-looming-demise-is-a-mammoth-financial-engineering-task> accessed 30 May 2021.

consensus that Libor's production depends overly on human judgement rather than quantitative transaction data, opening the door to inconsistency, irresponsibility, as well as deliberate fraud. What is more, reformers have determined, these flaws cannot be adequately remedied due to the 'secular decline' of the market for interbank loans on which the benchmark calculation is based.[7] Given the scale of Libor's use in financial contracts, the implications for financial stability are far-reaching – a '$350 trillion problem'.[8] The image that the reform discourse conjures up is one of an accident waiting to happen: an agglomeration of financial contracts balanced precariously on an unstable and insubstantial base. In the words of one reformer: 'At its core, the problem we face today is that the financial system has built a tremendously large edifice on a structurally impaired foundation'.[9]

There are strong elements here of a discourse of 'fundamental value' – the idea that there is an 'objective', foundational basis to value awaiting discovery in markets.[10] From a social science perspective, it is almost too easy to critique such a concept: 'It breaks all the rules of social theory. It is reductionist, essentialist and almost certainly economistic.'[11] Moreover, 'social relations embedded in finance mean that there can be

[7] Jerome Powell, 'Reforming U.S. Dollar LIBOR: The Path Forward - Speech By Federal Reserve Governor Jerome H. Powell at the Money Marketeers of New York University, New York' (4 September 2014) <https://www federalreserve.gov/newsevents/speech/powell20140904a htm> accessed 30 May 2021.

[8] Helen Bartholomew, 'The $350 Trillion Problem: Too Big to Solve?' *Risk.net* (15 October 2018) <https://www.risk net/node/6004331> accessed 14 June 2021.

[9] William C Dudley, 'The Transition to a Robust Reference Rate Regime: Remarks by Mr William C Dudley, President and Chief Executive Officer of the Federal Reserve Bank of New York, at the Bank of England's Markets Forum 2018, London' (24 May 2018) <https://www.bis.org/review/r180619a htm> accessed 30 May 2021.

[10] Dick Bryan and Michael Rafferty, 'Fundamental Value: A Category in Transformation' (2013) 42 Economy and Society 130.

[11] Bryan and Rafferty (n 10) 131.

no objective measures of markets if the measures themselves are products of market processes.'[12]

But what such critiques tend to overlook is the profound ambivalence of a discourse that constitutes Libor as both infrastructural, 'at the heart of the plumbing of the financial system',[13] and an epiphenomenon of more fundamental market forces – ie as both 'real' *and* constructed. This duality draws the sting from social constructivist perspectives on Libor reform, since the benchmark's artefactual character is not really in issue in the reform debate. Both realist/ economics-based perspectives and critical social science perspectives can agree that Libor's preeminent role in contemporary financial markets is an 'accident of history'.[14] Both tend to assume that the aim of critique should be to consider 'what went wrong' with Libor from the point of view of its construction. Where they differ, sometimes only implicitly, is on what this process of (social) construction entails and what it is directed towards. In one view, the outcome of the benchmark calculation can, and should, stand as a realistic representation of its 'underlying' market. In the other, this representation is inseparable from the politics of its construction, but useful, nonetheless, for as long as it is believed.[15]

[12] Dick Bryan and Michael Rafferty, 'The Unaccountable Risks of LIBOR' (2016) 67 The British Journal of Sociology 71, 75.

[13] Guy Debelle, 'Benchmarks: Speech by Guy Debelle, Assistant Governor (Financial Markets) of the Reserve Bank of Australia, at the Bloomberg Summit, Sydney' (18 November 2015) <http://www.bis.org/review/r151120g htm> accessed 30 May 2021.

[14] Darrell Duffie and Jeremy C Stein, 'Reforming LIBOR and Other Financial Market Benchmarks' (2015) 29 The Journal of Economic Perspectives 191, 192; See also eg Alexis Stenfors and Duncan Lindo, 'Libor 1986–2021: The Making and Unmaking of "the World's Most Important Price"' (2018) 0 Distinktion: Journal of Social Theory 1.

[15] I discuss the existing scholarship in this area by reference to specific examples in part 1.6.

In sum, both realist/ economics-based and social constructivist/ critical perspectives on benchmark reform take for granted that a benchmark such as Libor is a device for coordinating economic action which works by 'representing' economic reality in a meaningful way. This tacit convergence between realist and constructivist critiques can be seen clearly in the way that existing academic literature in this area tends to take the notion of benchmark 'manipulation' as its point of departure. The concept of 'manipulation' implies that a benchmark's representation of economic reality must meet a certain standard of adequacy.[16] But how is this standard to be defined, if not by reference to some notion of 'fundamentals'? Critical perspectives on benchmark reform may reject market fundamentalism as 'essentialist' and 'reductionist', but in starting from the premise of 'manipulation' they themselves make implicit value judgements about what the benchmark should 'represent', and how, which often converge with those of economics-based approaches eg in calls for greater accountability in benchmark-setting (as I discuss in Chapter 4).

As a consequence, the existing literature in this area fails to get to grips with some of the most puzzling questions raised by benchmark reform. To what can we attribute the apparent hegemony of the reform discourse and the colossal investments (political, economic, and intellectual) that have gone into its reproduction? If finance is a domain ruled by the invisible hand of the market, how should we understand the need for a totemic representation to govern the basics of price, value, and risk? How can its effects be both internal *and* external to market action? Seen in this broader perspective, benchmark reform discourse is a window onto the wider discourses and practices that

[16] Donald MacKenzie, 'The Material Production of Virtuality: Innovation, Cultural Geography and Facticity in Derivatives Markets' (2007) 36 Economy and Society 355, 368.

constitute and sustain the 'edifice' of an organised global financial system. By reflecting critically on what makes a benchmark such as Libor appear as a natural and self-evident target for reform it becomes possible to expose and disentangle these discourses and practices and the ideas and assumptions on which they are based.

In this thesis, therefore, I do not take for granted what benchmarks are for and how they work. Instead, my research starts from the post-structuralist premise that discourse about benchmark reform constitutes and reproduces a way of thinking and of doing things that makes sense of a 'benchmark' as a particular kind of phenomenon, which is made the subject of particular kinds of knowledge and is invested thereby with certain meanings and capacities. While my data indicate that the 'manipulation' scandal is an important stage in reform discourse, the purpose of considering those events is to understand the conditions under which it becomes possible to talk of Libor as being 'manipulable', and the kind of 'problem' this implies for reform. The use of single quote marks in this thesis in respect of terms such as 'problem' and 'manipulation' is thus a reminder that the concept in question is historically-situated, and that its meaning is not taken to be natural or inevitable.

As outlined in more detail in part 1.3 below, my approach draws on Foucauldian-influenced analytical techniques, linked to a set of empirically oriented research questions concerning how Libor has been defamiliarised and made into an object of critique in the period since the 2007-8 financial crisis. Studying the reform process provides an opportunity to explore how actors in the field think and talk about these issues in an area in which the barriers to research access (eg the scope and scale of Libor's use in financial transactions; the often confidential and sensitive nature of its applications in pricing and valuation practices; ongoing legal and political sensitivities concerning 'manipulation')

are otherwise high. As I discuss in Chapter 2, there are good grounds for treating the UK aspects of Libor reform as both a critical and a paradigmatic case study of the key features and effects of benchmark reform discourse, the principal actors and sites involved in its reproduction, and the ideas and assumptions that underpin it.

The insights yielded by my empirical data also point to the importance of situating the present reforms in their wider historical context, illuminating the tensions and continuities between contemporary critiques of Libor and older discourses, eg about how to account for money in managing the economy, and the interrelationship between money and law. Hence, for both strategic and analytical reasons a focus on the reform discourse is uniquely suited to bring out fundamental ideas and assumptions concerning how Libor works and its role in economic life.

1.2 Core Research Questions

In light of the above, from the point of view of my thesis, Libor reform discourse is not oriented towards a problem 'out there' that is presumed to come before it historically and analytically. My core research strategy is rather to analyse how the reform discourse colours a way of thinking and talking about Libor as a particular *kind* of 'problem', while disqualifying or obscuring others. For example, making sense of Libor as a representation of market forces has the effect of naturalising the manner in which interest payments on trillions of dollars' worth of financial products around the world rise or fall depending on movements in the benchmark. That is, it gives effect to a specific configuration of relations of power, which I understand here in the Foucauldian sense of the term. For Foucault, power in contemporary Western societies is not something that is possessed by some and exercised over others. Rather, liberal and neoliberal forms of

governing (or 'governmentalities') consist in a type of power that works by acting on actions throughout the social body – 'a form of power which makes individuals subjects'.[17] It encompasses more or less coercive mechanisms, such as the relations between creditors and debtors and between regulators and those they regulate, but also what Foucault calls 'technologies of the self', meaning the motivations, methods, and regimes of self-knowledge by which individuals govern themselves.[18] These include eg the techniques and practices through which debtors and creditors recognise themselves as bound by the promises they make by reference to the benchmark, and which constitute its valuations as truths.

Discourse about Libor reform reanimates the relations of power in which the benchmark is embedded and helps to make their specific arrangement visible and accessible to research. If Libor is a representation of market forces, how can the adequacy of the representation be evaluated? What kind of market should it 'represent'? How should the benchmark be used in financial transactions? By asking and answering these questions, the reform discourse assumes and activates certain kinds of knowledge, such as a theory of how benchmarks work, and techniques for applying theory to practice, and mobilises actors who produce and are equipped with this knowledge and made responsible for conducting themselves by it. It also highlights gaps, tensions, and points of resistance, illuminating those areas where the projects of reform do not go as intended (eg where actors continue to use Libor in preference to other benchmarks in spite of its 'inadequacies'). The overarching objective of my thesis is to use my analysis of these

[17] Michel Foucault, 'The Subject and Power' (1982) 8 Critical Inquiry 777, 781.

[18] Michel Foucault, 'Technologies of the Self' in Huck Gutman, Patrick H Hutton and Luther H Martin (eds), *Technologies of the self: a seminar with Michel Foucault* (University of Massachusetts Press 1988).

various effects as a way to understand and interrogate the relations of power through which financial transactions today are governed.

The core research questions with which my thesis is concerned are therefore: How are benchmarks constituted as a 'problem' in benchmark reform discourse? What does this reveal about how financial transactions are governed today? In particular, what does an analysis of the various aspects of the UK-based Libor reform discourse – including eg policy debates concerning the creation of alternative benchmarks, regulatory rules about the administration of benchmarks, and the attitudes and assumptions of financial actors themselves – say about the specific configuration of power relations presupposed and reinforced by the central role of benchmarks in economic life?

1.3 Analytical Approach

I address the overarching research questions set out above through an in-depth qualitative, empirical case study focusing on the UK-based debates relating to Libor reform (I outline what this means in empirical terms in part 1.5 below). In conducting this study I have found it particularly relevant to draw on Foucauldian-influenced analytical techniques – notably the work of political scientist Carol Bacchi.

Bacchi's approach to post-structural policy analysis is premised on the idea that 'what we propose to do about something indicates what we think needs to change and hence what we think the "problem" is'.[19] Challenging conventional ideas of

[19] Carol Bacchi and Susan Goodwin, *Poststructural Policy Analysis: A Guide to Practice* (Palgrave Macmillan 2016) 16.

policymaking as a reaction to a 'problem' already 'out there', Bacchi understands any given policy as containing and constituting its own 'problem representation'.

These problem representations, or 'problematisations', to use the Foucauldian term, are enormously consequential. They open up particular ways of thinking and acting while closing down others, shaping what makes sense as a 'solution' and what does not, and creating particular kinds of roles for people to inhabit. As Bacchi puts it: 'We are governed through problematisations'.[20] In the context of Libor reform, this means that the relevant analytical question becomes: what kind of 'problem' does the reform discourse represent Libor to be?

The purpose of this kind of analysis is not to go in search of the hidden agendas or unconscious biases of reformers or to catalogue the elements of a particular decision-making process. Rather, problematisations are understood to be immanent in the policies themselves. The analytical task is to 'work backwards' from the reform discourse to the problematisation it implies.[21] What I am referring to as the Foucauldian-influenced approach of this thesis is accordingly both a critical ethos and a set of empirically oriented research questions that begin with understanding 'problematisations'.

[20] Carol Bacchi, *Analysing Policy: What's the Problem Represented to Be?* (Pearson Australia 2009) 47.

[21] Bacchi and Goodwin (n 19) 17.

1.3.1 WPR analysis

Bacchi's analytical scheme, called 'What is the Problem Represented to be?' or WPR analysis,[22] sets out six questions:

1. What is the 'problem' represented to be in a specific policy?
2. What presuppositions or assumptions underlie this representation of the 'problem'?
3. How has this representation of the 'problem' come about?
4. What is left unproblematic in this problem representation? Where are the silences? Can the 'problem' be thought about differently?
5. What effects are produced by this representation of the 'problem'?
6. How/where has this representation of the 'problem' been produced, disseminated and defended? How could it be questioned, disrupted and replaced?

I have found this a useful framework for reflecting on my own research questions. At the same time, I do not follow the WPR approach mechanically. This is for a number of reasons.

First, Bacchi's approach was developed in the field of social policy analysis. Her step-by-step approach offers a useful way to analyse social policy 'problems', such as gender equality and substance abuse, whose problematisations may often originate in a public policy or advocacy setting. However, the idea that problematisations start with public policies (understood as proposals for change) does not map directly onto a situation, as in Libor's case, where important elements of the reform discourse were already in place prior to being taken up in a policy setting. For example, as I discuss in

[22] Bacchi (n 20).

Chapter 3, Libor's representation as a 'problem' in need of reform has been conditioned by how it emerged as a target of critique during the financial crisis of 2007-8. These crisis-era critiques were not initially recognised as a matter of general public policy significance, and their main effects remained confined to certain areas of financial markets and those who practised in, regulated, and theorised about them.[23] Subsequently, after the manipulation scandal emerged in 2012, a public policy agenda also developed around these critiques (Chapter 4).

In that sense, my approach is closer to that of Foucault, who sees problematisation as a process of defamiliarisation, in which a phenomenon is given to thought in certain aspects 'which are defined for it by a situation or a context, and which hold true as a possible question'.[24] In the WPR perspective, every public policy initiative implies a corresponding problematisation: they are, by definition, 'ubiquitous'.[25] In the Foucauldian conception, by contrast, problematisations come about in a particular historical conjuncture and hence 'are something relatively rare'.[26]

This latter way of looking at Libor reform is also more in tune with my empirical data, including the perspectives of my interviewees. Overall, they tended to remember the defining moment in Libor's emergence as a 'problem' in need of reform as the 2007-8 financial crisis, whose effects encompassed changes to the economic, regulatory, and

[23] Taylor Spears, 'Discounting Collateral: Quants, Derivatives and the Reconstruction of the "Risk-Free Rate" after the Financial Crisis' (2019) 48 Economy and Society 342.

[24] Michel Foucault, 'Polemics, Politics, and Problematizations: An Interview with Michel Foucault' in Paul Rabinow (ed), *Ethics: subjectivity and truth - Essential works of Foucault 1954-1984*, vol 1 (Penguin 2000) 118.

[25] Carol Bacchi, '"Governmentality and WPR"' (*Carol Bacchi*, 19 November 2018) <https://carolbacchi.com/2018/11/19/governmentality-and-wpr/> accessed 30 May 2021.

[26] Mitchell Dean, *Governmentality : Power and Rule in Modern Society* (2nd edn, SAGE 2010) 38.

intellectual context in which Libor operates. As one former monetary policymaker told me: 'it was at that time that Libor started to matter in its own right'.[27] I modulated my analysis in order to be able to capture these dynamics. Accordingly, while the questions comprising the WPR analytical scheme broadly correspond to the themes and chapters of this thesis, when considered in light of my data the analysis did not lend itself to treating each question in sequence. Instead, I use Bacchi's approach as a heuristic, indicating for each thesis chapter the main WPR question(s) with which it engages.

1.4 Key Concepts

In addition to the terms 'relations of power', 'problem', and 'problematisation', my use of which I have outlined above, two further key concepts inform my analysis: 'benchmark reform discourse' and 'economic government'.

1.4.1 Benchmark reform discourse

The starting point for an analysis of how Libor is constituted as a 'problem' is to undertake a critical re-reading of the post-2007/8 crisis benchmark reform discourse. 'Discourse', for Foucault, refers to 'a certain "way of speaking"',[28] which encompasses the rules and practices regulating what can be said and thought as well as what is said.[29] Thus, from an analytical perspective, discourse is a repository of historically-specific

[27] Interview 42125, Economist (UK, 2018).

[28] Michel Foucault, *Archaeology of Knowledge* (Routledge 2002) 213; quoted in Clare O'Farrell, *Michel Foucault* (SAGE Publications 2005) 78.

[29] Michel Foucault, 'Politics and the Study of Discourse' in Graham Burchell, Colin Gordon and Peter Miller (eds), *The Foucault effect : studies in governmentality, with two lectures by and an interview with Michel Foucault* (University of Chicago Press 1991) 59–61; Bettina Lange, 'Researching Discourse and Behaviour as Elements of Law in Action' in Reza Banakar and Max Travers (eds), *Theory and Method in Socio-Legal Research* (Hart Publishing 2005) 177.

forms of knowledge which can be read as well for what they say about 'what counts as reasonable knowledge'.[30] It encompasses language and texts but these have to be studied in their relation to other things, such as material conditions and technologies.[31]

By 'benchmark reform discourse' I mean not just the more or less organised activities of policymakers, financial regulatory authorities and standard-setting bodies (known collectively by actors in the field as the 'official sector'). These are clearly important sites in which the 'problem' of Libor is made explicit as the target of particular public policy interventions. But while the existence of an active public policy agenda is a good indication of the degree to which a 'problem' has been produced and stabilised, the work entailed in constituting Libor as a particular kind of 'problem' is not confined to sites of policy expertise. Policies do not spring spontaneously from the minds of policymakers; nor do they take effect exactly as intended. It follows that, while the formation of public policy is a natural starting point for this research, I understand Libor's problematisation to be an effect of a broader set of actors and activities, and the forms of knowledge that go with them. These include legal and regulatory discourses, academic economics, legal expertise (eg the techniques and practices entailed in standardising contract documentation), and the ideas and assumptions of private market actors, as these were expressed to me by my UK-based interviewees, who included eg corporate

[30] Derek Hook, *Foucault, Psychology and the Analytics of Power* (Springer 2007) 132; quoted in Paul McIlvenny, Julia Zhukova Klausen and Laura Bang Lindegaard, 'New Perspectives on Discourse and Governmentality' in Paul McIlvenny, Julia Zhukhova Klausen and Laura Bang Lindegaard (eds), *Studies of Discourse and Governmentality: New perspectives and methods* (John Benjamins Publishing Company 2016) 11.

[31] Nikolas Rose, *Powers of Freedom: Reframing Political Thought* (Cambridge University Press 1999) 29–30.

treasurers working for companies in a range of different business sectors as well as professional financial actors working for banks and other financial institutions.

As I understand it, then, the reform discourse encompasses not only the purposeful activities and outputs of official sector programmes, but also how particular policy interventions (such as the promulgation of alternatives to Libor) become thinkable; the techniques and practices that mediate what is thinkable and what is possible; and how the effects of intervention are experienced and acted upon by those concerned.

1.4.2 Economic government

I use the term 'economic government' in this thesis to mean two things. On the one hand, I use it to refer to the substantive discourses, techniques and practices entailed with management of the economy, and specifically those concerned with governing financial transactions and financial markets, such as financial regulation and monetary policy. By 'financial transactions' I mean broadly those involving the opening and settling of accounts between debtors and creditors, including eg loans, mortgages, and financial derivatives,[32] and 'financial markets' the more or less determinate domains in which debtors and creditors 'meet' for this purpose.[33]

On the other hand, as Mitchell observes, the notion of 'the economy' as a quantifiable, self-contained totality, coextensive with the nation state, is actually a relatively recent phenomenon.[34] The invention of 'the economy' during the course of the

[32] I discuss Libor's uses in these different transaction types in Chapter 3.

[33] Massimo Amato and Luca Fantacci, *The End of Finance* (Polity 2011) x.

[34] Timothy Mitchell, 'Fixing the Economy' (1998) 12 Cultural Studies 82.

twentieth century coincided with the birth of the discipline of macroeconomics and the emergence of new statistical techniques for measuring economic aggregates on a national level. This configuration of elements did not take shape in a vacuum but presupposed and gave effect to a set of theories and presuppositions about the role of the State and the extent of its competences. Hence, the term 'economic government', as I use it, also names a historically-specific configuration of power relations within which the economic domain becomes thinkable as an autonomous reality with its own nature and laws, which calls for particular kinds of arrangements for governing that reality 'at a distance'.[35]

Indeed, for Foucault, economic government is liberal government. The advent of liberalism in the eighteenth century sees the self-regulating economic domain emerge as a discursive object which presents government with both a target and a model by which to evaluate its interventions:

> What basically must a government do? It must give way to everything due to natural mechanisms and make no other intervention, to start with at least, than that of supervision. Government, initially limited to the function of supervision, is only to intervene when it sees that something is not happening according to the general mechanics of behavior, exchange, and economic life.[36]

Thus, economic government, in this second sense, refers to the liberal art of acting on, directing and guiding how individuals govern themselves.[37]

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[35] Peter Miller and Nikolas Rose, 'Governing Economic Life' (1990) 19 Economy and Society 1.

[36] Michel Foucault, *The Birth of Biopolitics: Lectures at the Collège de France, 1978-79* (Palgrave Macmillan 2008) 67.

[37] Foucault, *The Birth of Biopolitics* (n 36) 1–26; Colin Gordon, 'Governmental Rationality: An Introduction' in Graham Burchell, Colin Gordon and Peter Miller (eds), *The Foucault effect : studies in governmentality, with two lectures by and an interview with Michel Foucault* (University of Chicago Press 1991).

Today, financial institutions and markets play a central role in how advanced-/neo-liberal societies are governed. As well as redefining business practices and 'patterns of accumulation' in these societies,[38] the rise of financial markets in recent decades has also seen the extension of forms of financial quantification into more and more of the social domain.[39] This set of phenomena is discussed in the literature under the rubric of 'financialisation'.[40]

In effect, in financialised societies the two meanings of economic government are increasingly fused together as the financial (creditor-debtor) relation has become a universal,[41] governing everything from international relations and the way that states tax and spend,[42] to the rhythms of household budgeting.[43] To explore Libor's problematisation is thus to investigate the core mechanisms by which the domains of economy and society, state and markets, are today delineated and articulated with respect to one another. In this thesis I signal my attention to the interdependence between the two meanings of economic government by referring to the 'government of economic life'. I develop this theme further by reference to the literature in part 1.6 below.

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[38] Greta R Krippner, 'The Financialization of the American Economy' (2005) 3 Socio-Economic Review 173.

[39] Eve Chiapello, 'Financialisation of Valuation' (2015) 38 Human Studies 13; see also eg Randy Martin, *Financialization of Daily Life* (Temple University Press 2002); Paul Langley, *The Everyday Life of Global Finance: Saving and Borrowing in Anglo-America* (Oxford University Press 2008).

[40] Natascha van der Zwan, 'Making Sense of Financialization' (2014) 12 Socio-Economic Review 99; Philip Mader, Daniel Mertens and Natascha van der Zwan, *The Routledge International Handbook of Financialization* (Routledge 2020).

[41] Maurizio Lazzarato, *The Making of the Indebted Man: An Essay on the Neoliberal Condition* (Semiotext(e) 2012).

[42] Odette Lienau, *Rethinking Sovereign Debt : Politics, Reputation, and Legitimacy in Modern Finance* (Harvard University Press 2014); Mark Blyth, *Austerity: The History of a Dangerous Idea* (Oxford University Press 2013).

[43] Lisa Adkins, *The Time of Money* (Stanford University Press 2018).

1.5 Empirical Focus

Libor reform is a transnational project in its conception but its implementation is devolved to public/ private working groups organised by currency area. The empirical focus for this research centres on the activities of the official UK benchmark reform working group established under the auspices of the Bank of England to work towards the replacement of Libor for Sterling-denominated transactions, known as the Working Group on Sterling Risk-Free Reference Rates ('Sterling RFR Working Group').[44] Participants in the Sterling RFR Working Group include financial professionals in trading and risk management roles (ie employees of banks and other financial institutions, such as asset managers), corporate treasurers, lawyers and other service providers to the financial industry, representatives of industry bodies, such as the Association of Corporate Treasurers ('ACT'), and official sector actors from the Bank of England and the UK Financial Conduct Authority ('FCA'). In this thesis I refer to these various actors collectively as 'financial actors'.

Orienting the empirical part of my research in this way means that the bounds of my case study are developed inductively by reference to the reform discourse. Focusing on the Sterling RFR Working Group enabled me to design and undertake a period of interview- and document-based fieldwork with a centre of gravity in the UK, especially London. This took place between March 2018 and December 2019 against the backdrop of the ongoing activities of the working group.

[44] Sterling RFR Working Group, 'Working Group on Sterling Risk-Free Reference Rates' (*Bank of England*) <http://www.bankofengland.co.uk/markets/transition-to-sterling-risk-free-rates-from-libor/working-group-on-sterling-risk-free-reference-rates> accessed 29 May 2021.

I conducted thirty-seven interviews with a total of forty participants.[45] The financial actors I spoke to understood themselves to be working in a particular historical context (in which the financial crisis of 2007-8 was an important reference point) and performed roles that tended to cover a wide variety of products and markets, often with a transnational dimension. This meant that I was able to build up a rich picture of the UK-based reform debates through the contemporaneous accounts of my interviewees, while paying attention to the broader historical and geographic context in which those debates are understood to be situated. I set out a full description of my research methodology and design in Chapter 2.

1.6 Contribution to the Academic Literature

In this part I give an account of how my thesis engages with existing scholarship by setting out the critical contributions I make in three main areas: (i) by highlighting the need to go beyond existing realist and constructivist approaches to the study of benchmarks, and showing empirically how these accounts fail to engage key aspects of the reform discourse I aim to critique; in doing so, (ii) complementing and building on scholarship on the character and role of legal expertise in financial markets and their governance; and (iii) complicating existing accounts of financial power and its role in contemporary forms of political rule.

[45] One research participant preferred to receive and respond to specific questions in writing.

1.6.1 Going beyond realist/ constructivist debates

My thesis makes an important and original contribution to the academic literature by adopting a fresh approach to the study of financial benchmarks and in particular Libor. The existing scholarship mostly post-dates Libor's problematisation in the reform discourse and tends to be oriented towards diagnosing 'what went wrong'. It is also largely theoretical in nature. In contrast, my approach involves building up an empirically rich picture of how Libor is made into a particular kind of 'problem' to be reformed, as a means of thinking otherwise about how benchmarks work and their role in economic life.

I distinguish below broadly two sets of approaches in the existing scholarship about benchmarks, which I refer to using the categorisation discussed in part 1.1 above as realist/ economics-based and constructivist/ critical perspectives.

1.6.1.1 Realist/ economics-based approaches

What I am calling realist and economics-based approaches are largely one and the same inasmuch as they contain a theory of what a benchmark is for that typically goes unexamined and is invariably economistic. They encompass a body of explicitly reform-minded, policy-oriented scholarship from a range of disciplinary perspectives including

legal and regulatory,[46] white collar crime,[47] as well as economics literatures.[48] An additional strand of statistical and econometric work concerns itself with modelling and detecting benchmark 'manipulation'.[49]

At the more formal, economic-scientific end of the spectrum is a body of scholarship and academically-informed policy literature rooted in the principles and techniques of finance theory, a branch of mathematicised economics that emerged in tandem with the financial markets it studies.[50] In this literature, the use of a benchmark

[46] See eg Milson C Yu, 'Libor Integrity and Holistic Domestic Enforcement' (2013) 98 Cornell Law Review 1271; Rebecca Tabb and Joseph Grundfest, 'Alternatives to LIBOR' (2013) 8 Capital Markets Law Journal 229; Justin O'Brien, 'Fixing the Fix: Governance, Culture, Ethics and the Extending Perimeter of Financial Regulation' (2014) 8 Law and Financial Markets Review 373; Samuel Konchar, 'The 2012 LIBOR Scandal: An Analysis of the Lack of Institutional Oversight and Incentives to Deter Manipulation of the World's Most Important Number' (2014) 23 Transnational Law and Contemporary Problems 173; Seumas Miller, 'The Corruption of Financial Benchmarks: Financial Markets, Collective Goods and Institutional Purposes' (2014) 8 Law and Financial Markets Review 155; Gabriela Pirana, 'The Wheatley Report on Reforming LIBOR: A Step in the Right Direction?' (2014) 68 University of Miami Law Review 883; PM Vasudev and Diriana Rodriguez Guerrero, 'Corporate Governance in Banks – A View through the LIBOR Lens' (2014) 15 Journal of Banking Regulation 325; Iris HY Chiu, 'Financial Benchmarks: Proposing a Governance Framework Based on Stakeholders and the Public Interest' (2015) 9 Law and Financial Markets Review 223; Robert C Hockett and Saule T Omarova, 'Systemically Significant Prices' (2016) 2 Journal of Financial Regulation 1; Christopher Click, 'Death of a Benchmark: The Fall of LIBOR and the Rise of Alternative Rates in the United Kingdom and United States' (2018) 22 North Carolina Banking Institute 283.

[47] Brandon L Garrett, *Too Big to Jail* (Harvard University Press 2014) ch 10; Nicholas Ryder, *The Financial Crisis and White Collar Crime: The Perfect Storm?* (Edward Elgar Publishing 2014) ch 3; Aleksandra Jordanoska and Nicholas Lord, 'Scripting the Mechanics of the Benchmark Manipulation Corporate Scandals: The "Guardian" Paradox' (2020) 17 European Journal of Criminology 9.

[48] Vincent Brousseau, Alexandre Chailloux and Alain Durré, 'The LIBOR Scandal: What's next? A Possible Way Forward' (*VoxEU.org*, 9 December 2013) <https://voxeu.org/article/libor-scandal-and-reform> accessed 30 May 2021; A Durré, Alexandre Chailloux and V Brousseau, 'Fixing the Fixings: What Road to a More Representative Money Market Benchmark?' (2013) IMF Working Paper WP/13/131 <https://www.imf.org/external/pubs/cat/longres.aspx?sk=40596.0> accessed 30 May 2021; Marianne Ojo, 'LIBOR, EURIBOR, and the Regulation of Capital Markets: A Review of the Efficient Markets Hypothesis' (2014) 23 Strategic Change 119; Divya Kirti, 'What Are Reference Rates For?' (2017) IMF Working Paper WP/17/13 <http://www.imf.org/en/Publications/WP/Issues/2017/01/27/What-Are-Reference-Rates-For-44592> accessed 30 May 2021.

[49] Rosa M Abrantes-Metz and others, 'Libor Manipulation?' (2012) 36 Journal of Banking & Finance 136; Julien Fouquau and Philippe K Spieser, 'Statistical Evidence about LIBOR Manipulation: A "Sherlock Holmes" Investigation' (2015) 50 Journal of Banking & Finance 632; Aurelio Fernandez Bariviera and others, 'The (in)Visible Hand in the Libor Market: An Information Theory Approach' (2015) 88 The European Physical Journal B 208.

[50] Peter L Bernstein, *Capital Ideas: The Improbable Origins of Modern Wall Street* (Free Press 1999); Donald MacKenzie, *An Engine, Not a Camera: How Financial Models Shape Markets* (MIT Press 2006).

in financial transactions is assumed to have certain efficiency-enhancing effects, such as lowering transaction costs through standardisation and reducing information asymmetries between financial actors. According to the theory, these effects are dependent on matching the 'right' kind of benchmark to the transaction. This involves evaluating a given benchmark as a representation of the risk profile of its 'underlying' market.[51] As I discuss in Chapter 3, this was initially a relatively esoteric, technical perspective, which has assumed wider currency in Libor's problematisation. Today it forms a key plank of the reform discourse and I engage with it on those terms in this thesis.

1.6.1.2 Constructivist/ critical approaches

The constructivist/ critical literature on benchmarks spans fields including political economy, economic sociology, and socio-legal studies, as well as some of the more critically minded legal and regulatory scholarship.[52] It can be distinguished from the economics-based literature by its generally more critical analytical orientation and a more sceptical attitude towards economic theory.

[51] See eg Duffie and Stein (n 14); Darrell Duffie, Piotr Dworczak and Haoxiang Zhu, 'Benchmarks in Search Markets' (2017) 72 The Journal of Finance 1983; BIS, 'Towards Better Reference Rate Practices: A Central Bank Perspective - A Report by a Working Group Established by the BIS Economic Consultative Committee (ECC) and Chaired by Hiroshi Nakaso, Assistant Governor, Bank of Japan' (2013) <http://www.bis.org/publ/othp19 htm> accessed 30 May 2021.

[52] See eg Gabriel Rauterberg and Andrew Verstein, 'Index Theory: The Law, Promise and Failure of Financial Indices' (2012) 30 Yale Journal on Regulation; Andrew Verstein, 'Benchmark Manipulation' (2015) 56 Boston College Law Review 215; Ramaa Vasudevan, ''Libor'Ing Under the Market Illusion' (2013) 64 Monthly Review <http://monthlyreview.org/2013/01/01/liboring-under-the-market-illusion/> accessed 30 May 2021; Philip Ashton and Brett Christophers, 'On Arbitration, Arbitrage and Arbitrariness in Financial Markets and Their Governance: Unpacking LIBOR and the LIBOR Scandal' (2015) 44 Economy and Society 188; Daniel Seabra Lopes, 'Libor and Euribor: From Normal Banking Practice to Manipulation to the Potential for Reform' in Ismail Ertürk and Daniela Gabor (eds), *The Routledge Companion to Banking Regulation and Reform* (Routledge 2016); Bryan and Rafferty (n 12); Thomas Angeletti, 'The Differential Management of Financial Illegalisms: Assigning Responsibilities in the Libor Scandal' (2019) 53 Law & Society Review 1233; Stenfors and Lindo (n 14).

I include within this category the contribution of sociologist of markets, Donald MacKenzie, who undertook a rare empirical study of the practices and routines entailed with the daily Libor calculation based on twelve interviews and observations collected during 2005/6 (also the only scholarly study of which I am aware that pre-dates the events of the 2007/8 financial crisis).[53] MacKenzie's work forms part of the influential social studies of finance corpus, which applies the insights of science and technology studies to the study of financial markets.[54]

Characteristic of the social studies of finance is its refusal of a priori distinctions between the material/ technical and the social/ political, and its view of the economy as a performative domain whose reality is shaped by the processes through which it is known and represented, especially by economists.[55] From this perspective, Libor is exemplary of the way that calculative processes in financial markets are 'distributed' in sociotechnical 'assemblages' (made up of eg banks, financial models, pricing quotes, computer screens, human faculties) whose effects (the benchmark number) circulate as 'facts' about the world that conceal the relational work that has gone into producing them.[56]

[53] MacKenzie, 'The Material Production of Virtuality' (n 16) 359. See also Donald MacKenzie, 'What's in a Number?' *London Review of Books* (25 September 2008) 11; Donald MacKenzie, *Material Markets : How Economic Agents Are Constructed* (Oxford University Press 2009).

[54] Alex Preda, 'Pandora's Box: Opening Up Finance to STS Investigations' (2013) 3 TECNOSCIENZA: Italian Journal of Science & Technology Studies 23.

[55] Michel Callon, 'Introduction: The Embeddedness of Economic Markets in Economics' (1998) 46 The Sociological Review 1; MacKenzie, *An Engine, Not a Camera* (n 50); Donald MacKenzie, Fabian Muniesa and Lucia Siu (eds), *Do Economists Make Markets?: On the Performativity of Economics* (Princeton University Press 2007).

[56] MacKenzie, *Material Markets : How Economic Agents Are Constructed* (n 53).

For all its descriptive power, however, such an approach remains wedded to the assumption that Libor works by 'representing' economic reality meaningfully to its users (whose perspectives did not form part of MacKenzie's study) – only now the theory embedded in the calculation process takes centre stage, *performing* Libor as the output of this process.[57] The effect is oddly tautological in the same way as the reform discourse: MacKenzie sees Libor as an emergent property of the processes of knowledge production through which complex hybrid assemblages, such as banks and the markets in which they interact, are stabilised and reproduced. Yet, already presupposed by the same processes are the affordances of a benchmark, which, as MacKenzie puts it: 'condenses all that complication into a single set of numbers'.[58] In effect, the benchmark 'performs' the conditions for its own emergence and reproduction.

Later constructivist/ critical scholarship adds to the impression of an analytical blindspot in this area. For example, political economists Bryan and Rafferty argue: 'This is the sense in which LIBOR is performative: that if market actors believe LIBOR provides a foundational measure, then, in effect, it does.'[59] In this view, what Libor performs is a 'fictional' representation of reality,[60] enabling financial actors to coordinate their activities and make purposeful decisions under conditions of uncertainty. In

[57] MacKenzie, 'The Material Production of Virtuality' (n 16) 371. Similarly, Pickering argues that the performative and representational critical 'idioms' are not incompatible with one another but differ on the conception of agency that each employs. As he puts it: 'The performative idiom includes the representational one'. Andy Pickering, 'After Representation: Science Studies in the Performative Idiom' (1994) 1994 PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association 413, 414, quoted in Andrew Lang, 'International Lawyers and the Study of Expertise: Representationalism and Performativity' in Moshe Hirsch and Andrew Lang (eds), Research Handbook on the Sociology of International Law (Edward Elgar Publishing 2018) 125.

[58] MacKenzie, *Material Markets : How Economic Agents Are Constructed* (n 53) 3.

[59] Bryan and Rafferty (n 12) 74.

[60] Ashton and Christophers (n 52) 196.

constituting Libor as a benchmark, financial actors govern themselves through a kind of collective story-telling, in which they act along *as if* the story were true.[61]

But, here too, important questions go unasked. In the context of benchmark reform, how should we understand the power and durability of this *particular* story for financial actors (and for those who study them)? What is it about the idea of a market interest rate that makes it worthy of the vast collective investments necessary to sustain the 'fiction' of a benchmark, such that it is apparently unimaginable for financial transactions to be governed otherwise? In circumstances where Libor's own 'fictionality' is at stake in debates about reform, how does it continue to convince? In other words, these accounts fail to reflect on how they themselves represent Libor as a particular kind of 'problem' – as part of a mode of governing financial transactions whose logic does not seem to be fully captured by the language of emergence, assemblage, and coordination.

As a Foucauldian-influenced post-structuralist critique, this thesis is in dialogue with the critical perspectives discussed above but it extends and nuances their depiction of Libor, and of benchmarks generally, by building up an empirically rich picture of how Libor is constituted as a particular kind of 'problem' to be reformed. I use the insights yielded by my data as a means of thinking otherwise about how benchmarks work and their role in financial governance. This approach brings me into a deeper engagement with two distinct themes in the wider literature on finance and financial market governance, which are underdeveloped in the existing scholarship on benchmarks – namely, the role of law in financial market governance, and the relationship between

[61] Stenfors and Lindo (n 14).

financial practices and broader discourses and practices of political rule. I consider each of these below in turn.

1.6.2 Widening the lens: benchmarks, law, and governance

The literature on law and governance in financial markets is wide-ranging, encompassing mainstream legal and regulatory scholarship (with which I engage principally as part of the economics-based literature on benchmarks discussed above), as well as more heterodox approaches. The latter have increasingly gained ground since the 2007/8 financial crisis and include perspectives from legal institutionalism,[62] as well as political economy, sociology and anthropology, among others.[63]

In this thesis, I have been steered towards particular themes and debates within this body of literature as my analysis of the Libor reform discourse has unfolded by reference to the WPR framework of empirically oriented research questions discussed above. For example, by exploring the main sites and actors involved in the reproduction and stabilisation of this discourse, I identify the emergence of a distinctive 'market-led' model of benchmark governance, in which ultimate accountability for how the benchmark is calculated is diffused and decentralised such that the outcome can be treated as if it is the effect of unguided market forces (Chapter 5). As well as contributing an empirically informed picture of the key features of this governance model, I use this

[62] Katharina Pistor, 'A Legal Theory of Finance' (2013) 41 Journal of Comparative Economics 315; Katharina Pistor, *The Code of Capital: How the Law Creates Wealth and Inequality* (Princeton University Press 2019); Simon Deakin and others, 'Legal Institutionalism: Capitalism and the Constitutive Role of Law' (2017) 45 Journal of Comparative Economics 188.

[63] See eg Ismail Ertürk and Daniela Gabor, *The Routledge Companion to Banking Regulation and Reform* (Routledge, Taylor & Francis Group 2017); Lienau (n 42); Nina Boy and Daniela Gabor, 'Collateral Times' (2019) 48 Economy and Society 295.

insight as a way to engage key conversations in the literature which bear on the picture emerging from my data. I discuss these in turn below.

1.6.2.1 Theories of private governance

One of the debates to which I contribute concerns how to understand the rise of new and diverse forms of private rule-making beyond the nation state.[64] The techniques and practices of financial market governance are often treated as exemplary of this phenomenon, which goes under the rubric of 'transnational law'.[65] In particular, transnational law theorists point to the governance effects of standard form contracts and technical standards promulgated by industry bodies such as the International Swaps and Derivatives Association ('ISDA').

Although the orientation of my research is different, the analysis in this thesis speaks to these debates since the governance effects of a benchmark such as Libor are closely linked to those of the network of contracts in which it is cited (indeed, this is one of the key factors motivating reform). However, they are not one and the same. The picture that emerges from my data is one in which the stability of a documentation regime such as ISDA's is predicated on finding a world that is *already* made governable in certain respects by the availability of a benchmark (which establishes a common format for calculations, for example). Hence, a further contribution of this thesis is to add nuance and empirical colour to a critique of certain scholarly assumptions in this area, such as

[64] Gunther Teubner, 'Global Bukowina: Legal Pluralism in the World-Society' in Gunther Teubner (ed), *Global Law Without a State* (Dartmouth 1997).

[65] Roger Cotterrell, 'What Is Transnational Law' (2012) 37 Law & Social Inquiry 500.

the idea that standard-setting and documentation regimes in financial markets reflect the group norms of privileged insiders (Chapter 6).

1.6.2.2 Literature on legal knowledge and legal form

A further key body of work to which my research contributes is scholarship concerned with the 'technicalities' of legal knowledge.[66] The central insight of this scholarship is that legal knowledge is not simply a means for the accomplishment of (social, economic, etc) ends that lie outside of it and are given for it. What lawyers know, and how they put their knowledge to work, produces real world effects beyond the merely instrumental and representational. Attending to these effects means studying the mundane, technical features of the lawyers' craft that reveal themselves in the material technologies of legal work such as documents and case files,[67] lists,[68] and textual and typographic practices;[69] and the routines and practical techniques entailed with proceduralising cases,[70] drafting legislation,[71] putting together corporate transactions,[72] and resolving disputes.[73]

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[66] Annelise Riles, 'A New Agenda for the Cultural Study of Law: Taking on the Technicalities' (2005) 53 Buffalo Law Review 973.

[67] Annelise Riles, *Documents: Artifacts of Modern Knowledge* (University of Michigan Press 2006); Bruno Latour, *The Making of Law: An Ethnography of the Conseil d'Etat* (John Wiley & Sons 2013).

[68] Fleur Johns, 'Global Governance through the Pairing of List and Algorithm' (2016) 34 Environment and Planning D: Society and Space 126.

[69] Marie-Andrée Jacob, 'The Strikethrough: An Approach to Regulatory Writing and Professional Discipline' (2017) 37 Legal Studies 137; Annelise Riles, 'Infinity within the Brackets' (1998) 25 American Ethnologist 378.

[70] Mariana Valverde, 'Jurisdiction and Scale: Legal "Technicalities" as Resources for Theory' (2009) 18 Social & Legal Studies 139.

[71] Emily Grabham, *Brewing Legal Times: Things, Form, and the Enactment of Law* (University of Toronto Press 2016).

[72] Fleur Johns, 'Financing as Governance' (2011) 31 Oxford Journal of Legal Studies 391.

[73] Andrew Lang, 'Governing "As If": Global Subsidies Regulation and the Benchmark Problem' (2014) 67 Current Legal Problems 135.

An influential contributor to this field is legal anthropologist Annelise Riles, whose work in a financial markets setting, in particular, I draw on in this thesis.[74] For Riles, legal knowledge is 'a constellation of theoretical, material and aesthetic features' embedded in particular ways of knowing and doing things, such as documentary practices.[75] While ostensibly neutral and non-normative, it is immensely productive. What is more, legal experts know this. What appears to the non-expert as legal 'technicality', at one remove from real world problems, is appreciated by its practitioners for its own sake, as a kind of performance that can be judged on its *form;* as technique.

My thesis contributes to this literature by developing and extending its insights in the context of Libor reform. I show how reform work is shaped by the concerns of lawyers with 'technicalities' such as contract mechanics and document management. But my analysis also shows how the productive capacities of legal technique can become naturalised in ways that enable legal logics to 'travel', quietly colonising 'non-legal'[76] areas of expertise.

For example, Libor is incorporated into contracts by legal techniques of standardisation which generate certain aesthetic and temporal effects, such as the ability for the parties to know what they should pay or receive in advance of the period to which the payment relates. These effects are supported and reinforced by legitimising (economic) ideas and assumptions. Efforts by reformers to reverse the epistemological order of priority by creating benchmarks that privilege theoretical suitability over

[74] Annelise Riles, 'Collateral Expertise: Legal Knowledge in the Global Financial Markets' (2010) 51 Current Anthropology 795; Annelise Riles, *Collateral Knowledge: Legal Reasoning in the Global Financial Markets* (University of Chicago Press 2011).

[75] Riles, *Collateral Knowledge* (n 74) 61.

[76] Fleur Johns, *Non-Legality in International Law: Unruly Law* (Cambridge University Press 2013).

material and aesthetic considerations have run into complications and resistance. I use my analysis of these issues to isolate the elements constituting the specific agency of legal knowledge in this context, which I refer to as Libor's legal form (Chapter 7).

Extending Riles' ideas in a new direction, I further show that an appreciation of the agency of Libor's legal form seems to come naturally to non-lawyers, from traders to corporate treasurers. Benchmark reformers have also sought to reappropriate and instrumentalise its effects in the service of their goals. The analysis I present in this thesis suggests that, for these financial actors, working within Libor's legal form is not about performing technique for its own sake but a means of constituting value judgements as self-evident and universal. This insight opens up a new perspective on the agency of legal form, which I understand not just in terms of the subtle politics and performative power of legal knowledge, but also the wider exploitation of these effects by financial actors and what this says about the configuration of power relations which benchmarks animate and of which they are a product.

1.6.3 Reframing financial power

In light of the above, a further original contribution of my research is that I use the analysis of my empirical data concerning Libor's problematisation in reform discourse to trace the coordinates and historical antecedents of the wider configuration of power relations through which financial transactions are governed by benchmarks. In taking Libor's problematisation for granted (ie through the lens of 'manipulation'), the existing scholarship on benchmarks tends to locate the source of the 'problem' in financial power. In hindsight, Libor's emergence, diffusion, and crisis appear as stages in a process of financialisation that has its own logic and momentum. For example, Stenfors and Lindo

argue that 'markets and benchmarks are made, in this case by banks seeking profits in the circumstances transmitted from the past (and often made by themselves)'.[77] However, my own findings in respect of Libor's problematisation complicate this story of 'self-propelling'[78] financialisation. The account I present in this thesis shows that financialised logics and calculative practices are themselves based on and articulated with a mode of organising economic life around a benchmark whose utility and availability are assured.

In developing an analysis of this way of thinking and doing financial transactions and how it has come about, I engage with longstanding themes and debates in social science literature regarding the relationship between state and markets. However, my analytical approach to these issues means that my thesis is mainly in dialogue with post-structuralist elements of this literature, in which the historical contingency of its received categories and distinctions (eg 'public' and 'private'/ finance and society) is itself in issue.[79] In particular, the analysis in this thesis speaks to two themes of the post-structuralist critical agenda which are inspired by Foucault's thought and writings at different points in his career: (i) studies of governmentality, and (ii) genealogies of money and finance.

1.6.3.1 Governmentality studies

I have already mentioned my use of the Foucauldian concept of economic government as part of my analytical approach. Drawing on these ideas in my own research brings me

[77] Stenfors and Lindo (n 14) 188.

[78] Marieke de Goede, *Virtue, Fortune, and Faith* (University of Minnesota Press 2005) 17.

[79] Marieke de Goede, 'Introduction: International Political Economy and the Promises of Poststructuralism' in Marieke de Goede (ed), *International Political Economy and Poststructural Politics* (Palgrave Macmillan 2006).

into conversation with a diverse Foucauldian-influenced governmentality literature which examines different aspects of the relationship between finance and society.

For example, for social theorists, Maurizio Lazzarato and William Davies, whose elaboration of Lazzarato's work I draw on in this thesis, what characterises contemporary/ advanced neoliberal governmentality is the making of subjects who govern themselves through the intermediation of financial markets.[80] Neoliberal government, Lazzarato argues, 'aims at structuring all social relationships in terms of credit dynamics.'[81]

Other scholars working in the governmentality tradition have explored the concrete mechanisms through which these dynamics are stabilised and reproduced. A central concern of this scholarship is the analysis of calculative practices as core technologies of government which shape the capacities of individuals to govern themselves.[82] For example, for critical accounting scholars such as Peter Miller and Michael Power, accounting is a form of 'economisation', broadly understood as 'the processes and practices through which individuals, activities, and organizations are constituted as economic actors and entities'.[83] Studies of financialisation have gone on to explore the 'colonisation' of the same processes by financial expertise,[84] such as risk-based approaches to valuation, thereby producing financialised subjects, from asset

[80] Lazzarato (n 41); Maurizio Lazzarato, *Governing by Debt* (Semiotext(e) 2015); William Davies, 'Elite Power under Advanced Neoliberalism' (2017) 34 Theory, Culture & Society 227.

[81] Mathieu Charbonneau and Magnus Paulsen Hansen, 'Debt, Neoliberalism and Crisis: Interview with Maurizio Lazzarato on the Indebted Condition' (2014) 48 Sociology 1039, 1045.

[82] Miller and Rose (n 35); Peter Miller, 'Governing by Numbers: Why Calculative Practices Matter' (2001) 68 Social Research; New York 379; Peter Miller, 'Calculating Economic Life' (2008) 1 Journal of Cultural Economy 51.

[83] Peter Miller and Michael Power, 'Accounting, Organizing, and Economizing: Connecting Accounting Research and Organization Theory' (2013) 7 Academy of Management Annals 557, 560.

[84] Chiapello (n 39).

managers to everyday savers and investors, who govern themselves through techniques of financial self-discipline.[85]

Yet, valuable though these studies are in showing how finance is an apparatus for shaping the world and making certain things happen, my findings suggest that they underestimate the ways in which financial actors also 'find' certain things and affordances in situ – such as a benchmark that tells them what to value and how – and hence participate in a mode of governing that is already 'in the making'[86] (Chapter 8). In problematising the 'givenness' of benchmarks for financial actors, my thesis therefore complements other Foucauldian-inspired 'genealogies' of money and finance, as discussed below, which seek to defamiliarise established concepts and categories by attending to the historical conditions under which they emerge and come to be experienced as natural and necessary.

1.6.3.2 Genealogies of money and finance

A genealogy is first and foremost an analytical technique. In an influential exposition of the cultural and moral history of modern finance, political scientist Marieke de Goede describes genealogy as 'a practice of criticism that is motivated by finding insecurities and uncertainties in that which is represented as stable, coherent, and self-perpetuating'.[87] It forms part of the WPR toolkit that I adopt to investigate Libor's problematisation, in the form of the question: how has this representation of the 'problem' come about? In the scheme of my thesis, therefore, genealogical critique is the culmination of the

[85] Langley (n 39).

[86] Judith Butler, 'Performative Agency' (2010) 3 Journal of Cultural Economy 147.

[87] de Goede (n 78) 14.

analytical project, after first defining the 'problem' and its supporting ideas and assumptions whose history I then trace (Chapter 9).

Crucially, however, genealogy as Foucault uses the term, in its Nietzschean derivation,[88] is not only an analytical tool but also a philosophical intervention. It says something about the *purpose* of critique, which in Nietzsche's view is to reevaluate human value systems: 'the value of… values'.[89] As Deleuze puts it: 'The problem of critique is that of the value of values, of the evaluation from which their value arises, thus the problem of their creation.'[90] Hence, in different ways, genealogies of modern finance examine the same phenomenon: how financial valuations have come to be (highly) valued. As such, these critiques share an emphasis on reevaluating how value is represented and mediated by financial discourses and practices, paradigmatically in the form of money.[91]

The insights yielded by my analysis of my empirical data open up a novel perspective on the value of financial values. Instead of starting from the premise that Libor 'represents' financial value, a key empirical finding of this thesis is that ultimately Libor's problematisation does not turn on questions of valuation but on the effort to *bypass* such questions for the time being. By pointing to the ways in which Libor's legal

[88] Michel Foucault, 'Nietzsche, Genealogy, History' in Donald F Bouchard (ed), *Language, counter-memory, practice: selected essays and interviews* (Basil Blackwell 1977).

[89] Friedrich Nietzsche, *On the Genealogy of Morals: A Polemic. By Way of Clarification and Supplement to My Last Book Beyond Good and Evil* (Douglas Smith tr, Oxford University Press 2008) 8.

[90] Gilles Deleuze, *Nietzsche and Philosophy* (Columbia University Press 2006) 1.

[91] de Goede (n 78); Mary Poovey, *Genres of the Credit Economy : Mediating Value in Eighteenth- and Nineteenth-Century Britain* (University of Chicago Press 2008); Samuel Knafo, *The Making of Modern Finance: Liberal Governance and the Gold Standard* (Routledge 2013); Ute Tellmann, *Life and Money: The Genealogy of the Liberal Economy and the Displacement of Politics* (Columbia University Press 2018).

form is valued by financial actors in preference to its representational content, I argue that a benchmark such as Libor is a certain way of acknowledging the philosophical problem of what and how to value in economic life and then getting past it. It is a way of formatting knowledge of value which skirts questions of philosophical proofs or prior 'evaluations' and treats them as if they were resolved.

As such, Libor is paradigmatic of what I call the benchmark form. In place of an ideal, transcendent, fundamental measure of value, the benchmark form underwrites the value of the measure we have. Drawing on Foucault's early writings on the genealogy of knowledge in the West, I argue that the benchmark form is a device for stabilising economic life through a discourse of measure and moderation whose counterpart and original instrument is money. I further show how governing the measure of money has been a perennial 'problem' for economic government, producing different iterations of the benchmark form of which the most recent is the rate of interest. Hence, I argue, benchmark reform discourse updates a debate about monetary measure that is at least two centuries old.

1.7 Chapter Summary

Chapter 1. Introduction: The '$350 Trillion Problem'

In this chapter I have provided an introduction to my research project and set out my research questions. I have introduced my analytical approach, for which a key reference point is Foucauldian-influenced policy analysis, notably the work of Carol Bacchi, and outlined the key concepts I am using, such as 'problematisation', 'benchmark reform discourse', and 'economic government'. I defined the empirical focus for this research by reference to the contemporary UK-based debates on Libor reform. I also summarised

the contribution of this thesis to the academic literature and the state of existing scholarship in this area.

Chapter 2 – Research Methodology and Design

In this chapter, I set out my reasons for choosing to focus on Libor reform as a single case study of the general phenomenon I am investigating, ie the constitution of benchmarks as a 'problem' in need of reform. I then provide an account of the scope and limitations of my research methodology, including how I went about my data collection and my approach to organising and analysing my data. Finally, I describe how I used the results of my data collection and analysis, along with relevant literature, to inform the chapters in this thesis.

Chapter 3 – Anatomy of a Benchmark

This chapter presents a critical discussion of the defining features of a 'benchmark' as they are articulated in benchmark reform discourse, namely: (i) a set of techniques for producing market knowledge, (ii) the 'underlying' market to which that knowledge is understood to relate, and (iii) the uses to which the knowledge can be put. I show how these features apply in Libor's case, situating my account by reference to relevant institutions and practices in financial markets over the past half century, such as the role of banks in money markets and the emergence of markets for financial derivatives and associated pricing and valuation practices. The chapter extends this account to encompass the events of the global financial crisis of 2007-8 and its immediate aftermath, which laid the ground for Libor's problematisation in the reform discourse as part of a wider loss of faith in economic and financial regulatory expertise.

Chapter 4 – Accounting for Libor: The Making of a 'Problem'

In this chapter I address the first question in the WPR scheme: 'What is the 'problem' represented to be?' The focus of the chapter is the Wheatley Review of Libor – a UK government review commissioned in response to the emerging 'manipulation' scandal in 2012, which set the agenda for subsequent benchmark reform work. I show that what had been a crisis of expertise now assumed a more urgent political dimension in the form of a discourse of accountability concerning Libor's 'public' role as a benchmark in financial transactions. I further show how this discourse of 'public' accountability is modulated by a different kind of accountability talk concerning the conditions under which financial actors account to themselves for their use of the benchmark in their transactions and the wealth effects it produces. Overall, I show how the 'problem' to which benchmark reform is addressed has to do with creating a reformed benchmark regime which 'publicly' legitimises the valuations that it produces, while leaving intact the relations of power based on 'private' accountability that Libor constitutes and sustains.

Chapter 5 – The Art of Being 'Market-Led'

In this chapter I address the sixth and fifth questions in the WPR analytical scheme, respectively: how/ where has this representation of the 'problem' been produced, disseminated and defended? And: what effects are produced by this representation of the 'problem'? The chapter traces how Libor's problematisation has given rise to a distinctive 'market-led' model of benchmark governance. This is a regulatory approach characterised by techniques and strategies designed to ensure the appearance of 'public' accountability in the way that the benchmark is produced and used, while stopping short

of intervening in the relations between creditors and debtors that Libor underpins. As a result it tends to produce a contradictory dynamic. I first show how this approach was manifested in the arrangements for Libor's governance that were set in place after the Wheatley Review, centred on the role of the benchmark administrator. I then show how the same approach shaped the organisation and working practices of an extensive, transnational programme of reform under the auspices of the G20 in the period from 2013-17. In this way, Libor's problematisation has the effect of producing its objects (in the form of eg 'transaction-based' benchmarks) and subjects (eg 'benchmark users'). Overall, I argue, the art of being 'market-led' is to constitute the benchmark and the economic outcomes it produces as effects of unaccountable market forces rather than deliberate decision-making.

Chapter 6 – A World Without Libor?

From 2017 reform efforts turned to bringing about the 'transition' to a world without Libor. The focus of this chapter is the activities of the Sterling RFR Working Group over this period, which I use to explore a further aspect of the fifth question in the WPR analytical framework: what effects are produced by this representation of the 'problem'? I show how the 'problem' of accounting for Libor in view of its anticipated replacement has real-world, material effects on the way that financial actors understand their transactions, write their contracts, and organise their affairs. I then illustrate these effects by presenting a discussion of one of the most urgent items on the 'transition' agenda – the amendment of Libor-linked contracts to include language referring to alternative benchmarks in the event that Libor is discontinued (so-called 'contractual fallbacks'). As the global standard-setting body for the derivatives industry, ISDA has played a central role in this work. I use my analysis of ISDA's role in reform to show how the effects of

Libor's problematisation exposed insecurities in the established financial order. The chapter's contribution to the overall argument of this thesis is to show how much more complicated it becomes to govern financial transactions in Libor's absence. A world without Libor is a world whose reconstruction is a political project in which established relations of power are reiterated and subtly transformed.

Chapter 7 – Libor's Legal Form

In this chapter, I explore the fourth set of questions in the WPR analytical scheme: 'What is left unproblematic in this problem representation? Where are the silences? Can the 'problem' be thought about differently?' I do this by considering how, in attempting to secure an orderly 'transition' from Libor to alternative benchmarks, reformers have been obliged to recognise that for many financial actors reform is unwanted and unnecessary. I consider two key areas in which reformers have been forced into concessions to keep their policy agenda on track: (i) by endeavouring to create new 'term rates' (ie benchmarks published in a time series similar to Libor's), and (ii) by legislating to ensure the continuity of Libor-linked contracts that would otherwise be stranded after Libor's discontinuation. My main finding is that these sticking points reveal what goes unspoken in the reform discourse – namely, that the benchmark is an artefact of legal knowledge. I consider the implications of this analysis for understanding Libor's role in financial transactions and use my discussion of these issues to develop a three-part analysis of what I refer to as Libor's legal form.

Chapter 8 – Governing by Benchmark

In this chapter I develop my analysis of Libor's problematisation as it appears from my empirical findings by considering the second question in the WPR framework: What

presuppositions or assumptions underlie this representation of the 'problem'? I show how scholarly understandings of Libor's problematisation in terms of a power struggle between state and markets do not seem to fit my data. Rather, I argue, the tensions in benchmark reform discourse are better understood as effects of a neoliberal style of governing-by-benchmark *as if* financial actors were governed only by themselves. In considering what it means to govern, and to be governed, in this way, I find that, for financial actors, a benchmark is a technical device whose role is to obviate debate about what things are 'really' worth by providing a measure that allows transactions to take place as if that debate was resolved. I refer to this as the *benchmark form.* I develop the argument that, as a modern-day benchmark form, Libor has its analogue and historical template in the institution of money as a technical means of commensurating values in economic exchange.

Chapter 9 – The Measure of Money: A Genealogy of the Benchmark Form

This chapter takes the insights yielded by my empirical data concerning Libor's problematisation and its animating ideas and assumptions and traces their historical antecedents. In this way I address the third question in the WPR sequence: How has this representation of the 'problem' come about? I approach this question by presenting a genealogical inquiry into the benchmark form, focusing on how money has entered into liberal economic thinking since the eighteenth century. I show that periods of crisis and flux in monetary representation are moments when economic government is mobilised towards securing the benchmark form. What is distinctive about contemporary neoliberal societies, I argue, is that money's capacity to create measure in economic life is literalised and adapted as a tool of government. I show how, over the past half century, a style of governing has emerged that is oriented towards obviating debate about the measure of

money by a new technical discourse of the rate of interest of which benchmarks such as Libor form part. The analysis in this chapter helps to contextualise benchmark reform discourse as one more iteration of a two-hundred-year-old debate about how to determine the measure of money.

Chapter 10 - Conclusions

I conclude by reviewing my findings and discussing their implications. My main finding is that Libor's problematisation in benchmark reform discourse is a by-product of a special kind of problem for economic government: how to evaluate economic value. Over time, this question has been asked and answered in different ways according to the way money has been managed under different liberal rationalities of rule. In neoliberal societies, benchmarks such as Libor are a crucial technology of government that obviates debates about monetary measure by enabling financial actors to govern themselves *as if* they had been resolved, by means of a technical discourse of the rate of interest which is underpinned and extended by its interactions with legal knowledge. I consider how this thesis contributes to the academic literature and consider possible avenues for future research.

2. Research Methodology and Design

2.1 Overview

In the first part of this chapter, I set out my reasons for choosing to focus on Libor reform as a single case study of the general phenomenon I am investigating, ie the emergence of financial benchmarks as a 'problem' in need of reform. In part 2.3, I set out the rationale for defining the empirical focus of the case study by reference to the activities of the Sterling RFR Working Group. I then provide in parts 2.4 and 2.5 an account of how I went about my data collection and my approach to organising and analysing my data. Finally, I describe how I used the results of my data collection and analysis, along with relevant literature, to inform the chapters that follow.

2.2 Case Study Approach

As set out in the Introduction, the overarching aim of my thesis is to understand the role that financial benchmarks play in governing economic life by analysing the empirical effects of Libor's problematisation in contemporary benchmark reform discourse. In order to conduct this analysis I undertook an in-depth, exploratory case study focusing on the UK aspects of the ongoing transnational programme of benchmark reform as it relates to Libor.

There are good grounds for treating Libor reform as both a 'critical' and a 'paradigmatic' case of the more general 'problem' of benchmarks in the reform discourse. A critical case is one that has strategic significance for the research, given its particular characteristics relative to the class of phenomena to which it belongs. A paradigmatic

case is one that uniquely makes sense of the general characteristics of a class of phenomena. It is not representative of its class, as such, but definitive of it. These case types are not mutually exclusive. A case that offers more than one justification for its selection can help engender a richer analysis.[1]

One reason Libor reform is a critical case is because of Libor's pervasiveness in financial markets. Benchmark reform work distinguishes classes of financial benchmarks according to the type of financial interest to which each corresponds. For example, there are benchmarks relating to foreign exchange, precious metals, oil and other commodities, and stocks and shares. As an interest rate benchmark, Libor forms part of a class of benchmarks linked to money markets. As I discuss more fully in Chapter 3, these are used extensively in financial transactions of all kinds to determine the calculation of payments due in settlement of contractual obligations. They also have a more general importance for the techniques of valuation used in financial markets around the world and for monetary policymaking.

The oldest and most widespread group of interest rate benchmarks are known as Interbank Offered Rates or IBORs, of which Libor is the archetype. Reforms to Libor and other IBORs have also been prioritised over those of other classes of benchmark. Hence, to study Libor reform is to study a benchmark that is considered (quite literally, in regulatory terms) a critical benchmark for economic life. On that basis, studying how Libor reform work constructs the dimensions of the 'problem' it is seeking to address

[1] Bent Flyvbjerg, 'Five Misunderstandings About Case-Study Research' (2006) 12 Qualitative Inquiry 219, 229–233.

might be expected to yield empirical insights that are generalisable, at least with respect to the role in economic life of interest rate benchmarks as a class.

At the same time, the paradigmatic quality of the case further enhances the validity of the data for theory-building. Libor was among the first benchmarks to come under regulatory scrutiny after the financial crisis of 2007-8. Its problematisation has also been the most highly publicised (and polemicised). As a result, Libor reform has '[set] the standard'[2] according to which financial benchmarks are grasped as 'problems' to be fixed. For example, strategies and techniques developed in the course of the investigation and prosecution of Libor 'manipulation' (such as mechanisms of accountability) have been codified and generalised through the process of reform. Moreover, benchmark reform work in other areas of financial markets, such as the FX Global Code,[3] has followed a distinctive 'market-led' governance model whose central features – a set of normative assumptions, regulatory practices and institutional arrangements – were set in place in the context of Libor's problematisation.

The 'problem' of Libor has accordingly provided both a political precedent and a conceptual template for benchmark reform (not to mention more general changes in the regulation of financial markets). It might be expected, therefore, that the findings of the present study have a measure of external validity not only with respect to other benchmarks of the same type but also other types of financial benchmark, such as foreign exchange benchmarks. That said, as I do not investigate this broader comparative

[2] Flyvbjerg (n 1) 232.

[3] A 'set of global principles of good practice in the foreign exchange market'. Global Foreign Exchange Committee, 'FX Global Code' (2018) 1 <https://www.globalfxc.org/docs/fx_global.pdf> accessed 29 May 2021.

dimension directly, my principal findings relate to interest rate benchmarks. I indicate in the Conclusions areas in which future research might build on my findings in this thesis.

To avoid repetition, I do not qualify the term 'benchmark' each time it appears. References to a/ the 'benchmark' and 'benchmarks' in this thesis should accordingly be read, depending on the context, as either a reference to Libor or other interest rate benchmarks, unless otherwise indicated.

2.3 Bounding the Case

As noted in the Introduction, in order to conduct this research I designed and carried out a period of fieldwork centred on the activities of the official UK working group on Libor reform, the Sterling RFR Working Group. My fieldwork took place between March 2018 and December 2019. This period also coincided with the start of a new phase of reform work, for which the working group was reconstituted with a new membership and new terms of reference (I discuss these developments in detail in Chapter 6). Hence, rather than rely on preconceived ideas as to the kinds of activities and actors likely to be most relevant, by orienting my data collection and analysis on the activities of this group I was able to develop the bounds of my case study inductively by reference to the UK aspects of the reform discourse and a UK-based population of financial actors, such as bankers, asset managers, and corporate treasurers, who self-identified as participants in this discourse.

This approach has certain potential limitations, which I discuss below. But it enabled me to overcome a number of methodological challenges, in particular with research access. The ramifications of the Libor manipulation scandal and other similar benchmark scandals in financial markets have been far-reaching and continue to be felt.

After several years of negative publicity, investigations, disciplinary actions, court cases, and inquiries, Libor carries stigmatising associations which can create a distinct reticence, especially among certain groups of financial actors most affected by the political, regulatory, and institutional fallout (ie financial professionals, such as bank employees and traders). As a result, gaining access to financial actors willing to discuss Libor was often challenging. Several bank employees did not respond to requests for interview. On one occasion a positive response was withdrawn after consulting senior management. On another occasion, an email declining a request for interview was copied to the bank's internal legal representative.

However, the possibility of reimagining Libor as a research subject beyond the circumstances of its 'manipulation' has been given legitimacy by the reform process, as well as by the desire of supervisory and regulatory authorities to enlist academic opinion. As I discuss in Chapter 5, academic economists have played a prominent role in benchmark reform. The announcement in 2017 of Libor's expected discontinuation further galvanised the debate and gave questions about the role and significance of benchmarks a new currency and intelligibility for some financial actors.[4] In mid-2018, one interviewee commented that such questions may not have been readily countenanced even six months earlier. Others invited to participate in the project have remarked on the importance and timeliness of this kind of research.

A further methodological advantage to focusing on the reforms was that it made it possible to explore how actors in the field thought and talked about their use of

[4] Andrew Bailey, 'The Future of LIBOR - Speech by Andrew Bailey, Chief Executive of the FCA, at Bloomberg London' (26 July 2017) <https://www.fca.org.uk/news/speeches/the-future-of-libor> accessed 22 May 2021.

benchmarks in areas of financial practice, such as pricing and valuation, which would otherwise be likely to complicate research access on grounds of confidentiality or commercial sensitivity.[5] The nature of benchmark reform work is such that it has normalised a level of public discourse in these areas. The Sterling RFR Working Group's terms of reference include stipulations as to eg confidentiality and competition law considerations which meant those involved were used to talking about their work having taken note of such concerns.

The formal organisation of the Sterling RFR Working Group also had a number of practical advantages in terms of gaining access to potential research participants. The group publishes the names of its members on an overall and a meeting-by-meeting basis. Through desk-based research I was able to augment this information with other publicly available data such as details of job roles, memberships and affiliations, publications, and media appearances, in order to build up a list of possible interview targets.

In addition, the official selection criteria for membership of the group set out an expectation that individual attendees should have 'sufficient seniority and technical understanding to be able to engage effectively on the Group and represent their organisation'.[6] In other words, not only should members be technically expert, but those individuals should be capable of *mobilising* their expertise in a certain way. In general, I found that active working group members tended to be more open to participating in the

[5] On the challenges of conducting fieldwork in financial markets see eg Daniel Tischer, Bill Maurer and Adam Leaver, 'Finance as "Bizarre Bazaar": Using Documents as a Source of Ethnographic Knowledge' (2019) 26 Organization 553.

[6] Sterling RFR Working Group, 'Criteria for Membership Selection' <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/working-group-on-sterling-risk-free-reference-rates-criteria-for-membership-selection.pdf?la=en&hash=10213674BD06EA1AB37DCF4B927259C4D9C48431> accessed 29 May 2021.

research – not only in terms of making time available and obtaining any necessary approvals (their employer's, for example), but also in their readiness to see the value of research in this area and to provide ongoing assistance.

A possible criticism of this approach to defining the empirical focus of my case study is that it privileges the views of those financial actors identifying themselves as having a stake in benchmark reform, and, moreover, those who are most capable of mobilising around their interests. By its own estimation, one of the main challenges for the Sterling RFR Working Group has been lack of awareness among those potentially affected by Libor reform. Hence, it could be argued, to focus on the working group is to focus on a small cohort of financial market actors who are highly organised and aware relative to their peers (let alone relative to retail investors and other non-professional financial actors). I sought to address these potential limitations by augmenting my data collection in a number of ways, as set out below.

2.4 Data Collection

During my fieldwork, I collected data from a mixture of documentary and interview sources. My document review encompassed materials relating to the Sterling RFR Working Group such as meeting minutes, public consultations, and reports, as well as conference papers, speeches, newsletters and media coverage. Much of this material was published on the working group's webpage hosted by the Bank of England, which performed a secretariat function for the group.[7] In order to keep abreast of ongoing developments, I used web monitoring tools and signed up for email alerts. This also

[7] Sterling RFR Working Group, 'Working Group on Sterling Risk-Free Reference Rates' (*Bank of England*) <http://www.bankofengland.co.uk/markets/transition-to-sterling-risk-free-rates-from-libor/working-group-on-sterling-risk-free-reference-rates> accessed 29 May 2021.

enabled me to keep track of the progress of working groups in other jurisdictions, such as the US, as well as views and commentary on the reforms from a range of different perspectives, including legal experts, industry groups, and financial actors not directly involved in reform work.

I conducted thirty-seven qualitative semi-structured interviews with a total of thirty-nine interviewees. One other research participant preferred to receive and respond to questions in writing. Interviews were typically one-on-one and lasted between around forty-five minutes and two hours. All but four took place in London. I did not follow a rigid questionnaire, which enabled me to explore how individual financial actors understood and evaluated the reform proposals, as well as their personal experiences and understandings of Libor in the context of their expectations of benchmark reform for their own work.

I used theoretical sampling to define my interview population.[8] Initially a technique associated with grounded theory, the aim of theoretical sampling in a more general sense is to maximise the responsiveness of the data collected to the concepts and themes that appear to offer the most analytical purchase on the research questions as the research progresses.[9] This type of sampling method is designed to ensure that the analysis develops inductively from the data.[10] Using this approach, I extended my interview

[8] Juliet Corbin and Anselm Strauss, *Basics of Qualitative Research (3rd Ed.): Techniques and Procedures for Developing Grounded Theory* (SAGE Publications, Inc 2008) ch 7.

[9] Jennifer Mason, *Qualitative Researching* (Second Edition, SAGE 2002) 124.

[10] Mason (n 9) 138.

sample over the course of my fieldwork to include a number of financial actors who were not involved in the Sterling RFR Working Group but were:

1. otherwise engaged in the wider reform debate; for example, through their participation in transnational reform work, media commentary, industry events and conferences, or in a representative capacity. I included lawyers and other professional advisers in this category;

2. individuals with expertise of relevance to the developing analysis which was not represented on the working group – namely benchmark administrators, financial journalists, and monetary policymakers; or

3. other individuals working in the same or similar institutional settings, and with the same or similar expertise, as members of the working group.

Interview targets in these groups were identified using a combination of snowball sampling and desk-based research. On a couple of occasions, non-working group members whom I approached to interview preferred to refer me instead to a working group representative for their institution. I also attended a number of industry conferences and events on benchmark reform, both online and one an in-person event held in London in 2018 which led to a number of contacts and one interview.

By defining my interview sample in this way I was able to probe perceptions of a reform discourse in which my interviewees had widely differing degrees of fluency. Some had not reflected in any detail on the benchmark reforms prior to my interviewing them. Among those close to the reform work, a combination of seniority and personal autonomy – as well as the assurance of non-attribution – helped to avoid responses that

simply ‘toed the line’. For example, one interviewee preferred not to be audio-recorded acknowledging the existence of mixed views on reform, including views that ran counter to the official working group position. In this way, I was able to build up a nuanced picture of Libor’s problematisation which attends to the ways in which a high-status discourse of benchmark reform, linked to an organised economic-scientific and regulatory apparatus, is apparently articulated with a no less cogent and influential set of ‘unofficial’ discourses and countervailing perspectives which found expression in the everyday understandings and mundane concerns of my interviewees regarding the impact of reform on their work.

Overall, I approached 102 potential research subjects by email and in one case by letter, meaning my recruitment rate was a little under 40%. Of the forty research participants in the sample, sixteen were or had been actively involved in the Sterling RFR Working Group, seven were in category (1), eight in category (2) and nine in category (3). Several others preferred to provide informal assistance such as general or ‘off the record’ comments, snowball referrals or directions to useful sources. Table 1 summarises the make-up of my sample by job role/ category.

Most of my interviewees performed roles that covered a variety of products and markets, which means this way of defining the empirical boundaries of my case study broadly maps onto the core domain of financial activities in which Libor is produced and consumed, as discussed in Chapter 3. Most also did jobs with a transnational dimension, which meant that, although my empirical focus was on the UK reform discourse, the analysis was led by the data and features the wider reform debate as it was occurring in other jurisdictions, especially the US, as a contextual element.

Table 1. Composition of interview sample by job role/ category.

Role/ category[11]	Number of interviewees	Description
Official sector actors	6	Policy advisers, central bankers, and monetary policymakers
Financial market professionals	14	Bankers, traders, and employees of non-bank financial institutions such as asset management companies
Corporate treasurers	6	Individuals responsible for managing money and financial risk on behalf of a company.[12] Those I spoke to worked in a range of sectors, from heavy industry to retail and pharmaceuticals
Professional services providers	8	Lawyers (6) and other professional advisers and consultants (2) to the financial services industry
Benchmark administrators	4	Individuals involved in the design, production, and oversight of benchmarks
Financial media	2	Journalists working for financial news outlets

[11] There is some overlap between categories eg where someone had moved roles. Most of the people I spoke to were interviewed about their experience in-role but some had relevant previous experience.

[12] ACT, 'What Is Treasury?' (*ACT*) <https://www.treasurers.org/hub/careers/what-is-treasury> accessed 29 May 2021.

2.5 Data Sorting and Analysis

All but five of my interviews were audio-recorded and transcribed. The others were transcribed from contemporaneous written notes. I used NVivo, a qualitative data analysis computer software package, to organise my interview data. At the first stage, this involved what Mason calls 'cross-sectional' indexing, where 'the researcher applies a uniform set of indexing categories systematically and consistently to their data'.[13] I used a mixture of 'literal', 'interpretive' and 'reflexive' indexing categories.[14] Literal indexing categories were based on a literal reading of the text, eg to identify answers to specific interview questions and thus facilitate comparison across the dataset, as well as points of substance, such as useful descriptions of historical events or job roles. Interpretive categories involved analysing the meanings, assumptions, attitudes, or perceptions conveyed or implied by the data, eg interviewees' ideas about the ideal attributes of a reformed benchmark, which also generated a series of sub-categories (such as 'continuity' and 'dynamism'). Reflexive categories denoted elements that helped to situate key concepts and premises of the research questions and avoid preconceptions, eg where interviewees were asked to define what they understood by Libor or a 'benchmark'.

The aim of this exercise was to build up a systematic overview of my data, and to start identifying key themes and concepts in a way that generated a roadmap to my material. As I added to my dataset I refined this indexing system by merging and/ or re-labelling certain categories and identifying new ones.

[13] Mason (n 9) 150–51.

[14] Mason (n 9) 154.

As Mason observes,[15] computer-aided cross-sectional categorisation can have its limits. I found that such an approach did not necessarily lend itself to capturing the complex processes and interactions that made up the social world that my interviewees inhabited. For example, I categorised my data initially so as to draw out different perceptions of the objects of benchmark reform, eg as a question of financial risk management, upgrading technical market infrastructure, securing a 'common starting point' for financial transactions, etc. However, I found that compartmentalising my data in this way tended to obscure how my interviewees could move between these standpoints, suggesting that less turned on the differences between these perspectives than on the way they were articulated and the tensions and dissonances to which this gave rise, which were only evident if one took a holistic view of the data.

This meant that the main aim of the first stage was to generate a 'retrieval mechanism' and a starting point for analysis.[16] At the next stage, I went on to organise and categorise my data manually, using the categories generated at the initial stage as a set of 'unfinished resources'.[17] I adopted what Mason calls a 'contextual' approach, meaning 'a practice guided by the search both for the *particular in context* rather than the common or consistent, and the *holistic* rather than the cross-sectional.'[18] This involved reviewing and revising my categories on an iterative basis by reference to my data, my research questions, and the literature informing my analytical approach, so as to develop a set of categories that mapped onto the key features of the reform discourse as I analysed

[15] Mason (n 9) 160–61.

[16] Mason (n 9) 158.

[17] Mason (n 9) 157.

[18] Mason (n 9) 165, original emphasis.

them. To do this I wrote fieldwork reports and descriptions of my categories and used diagrams and charts to map the concepts and themes emerging from my data and the relationships between them. I also used the emerging analysis to prioritise and fill in gaps in my data collection through the theoretical sampling approach discussed above.

The end result of this process was a dataset whose organising principle was part literal/ chronological and part interpretive/ mapping broadly to the WPR questions discussed in the Introduction (eg 'problem representations', 'solving the "problem"', 'subjects/ objects of reform'). This approach enabled me to integrate my categorisation with the larger analytical concerns of the thesis, while ensuring that my analysis was built up inductively and remained grounded in the data. I used the analysis generated in this way as a basis for organising the chapters in this thesis.

2.6 Organisation of the Thesis

Broadly speaking this thesis is organised in three parts. The first part (Chapters 1, 2 and 3) introduces the research project, its design and methodology, and situates Libor reform in its contemporary economic and institutional context. In Chapter 3, I give an account of Libor's characteristic features as a benchmark as they are typically represented in the reform discourse. For this I draw on relevant scholarly literature together with documentary sources (eg UK and EU legislation, policy documents, published policies, procedures and other resources on Libor's calculation methodology, reports of parliamentary and other inquiries, and news articles). In this way the chapter situates the reform discourse by reference to the key institutions and practices in financial markets (such as the role of banks in money markets) and events (such as the global financial crisis of 2007-8) from which it takes its coordinates.

In the second part (Chapters 4, 5, 6 and 7) I present a detailed, broadly chronological account of how Libor has been problematised in benchmark reform discourse; how this problematisation has been produced and maintained; and the effects it produces. Chapter 4 discusses the first notable policy intervention in the immediate aftermath of the Libor manipulation scandal in 2012. This took the form of a UK government review of Libor's oversight and operation, whose recommendations for reforming Libor while keeping it in place were the point of departure for subsequent reform work. Chapter 5 covers the period from 2013 to 2017, during which time the 'problem' for reform and its 'solution' were refined in the course of transnational benchmark reform work. By the end of 2017, the focus of reform efforts had turned to the goal of replacing Libor with alternative benchmarks.

In Chapters 6 and 7 I bring the analysis up to date with respect to the activities of the Sterling RFR Working Group since 2017 and its current agenda. Chapter 6 examines how the effects of Libor's problematisation have been manifested in a discourse of 'transition' oriented towards securing reform in a way that so far as possible leaves the political and economic status quo intact. Chapter 7 develops this insight by examining some of the key obstacles and reversals that reformers have encountered in attempting to secure a seamless transition to a post-Libor world, and explores what these say about the 'problem' to which reform discourse is addressed.

In each of these chapters I rely on documentary sources, such as working group meeting minutes, public consultations, and reports, as well as conference papers, speeches, and media coverage. I also supplement these materials with my interview data. I use the interview data in two ways. First, in some instances my interviewees were involved in and could speak directly to the matters under discussion. Secondly, in

conducting interviews, I explored how interviewees perceived the 'problem' to which reforms are addressed, and whether and how this 'problem' was manifested in their everyday work, as well as how they understood and evaluated the impact of the reforms on their work. I accordingly treated their reflections as part of a process of problematisation that remained ongoing, notwithstanding official efforts to determine it in particular ways.

The third part of the thesis (Chapters 8 and 9) develops the explanatory power of the analysis presented in the preceding parts with respect to my research questions. In Chapter 8 I present a discussion of further empirical material that helps to illuminate the specific configuration of power relations in which Libor's problematisation is embedded. I refer to documentary sources, such as central bank publications, speeches, and news coverage, as well as my interview data. However, the main focus of this chapter is an analysis of the key ideas and assumptions underpinning Libor's problematisation as they appear from my data. I draw on academic literature, including political economy, sociological, and philosophical texts, as a way to understand the themes emerging from my data.

Chapter 9 takes the results of the analysis in Chapter 8 and traces their historical antecedents. I do this by presenting a genealogical inquiry into what I call the benchmark form, the archetype of which is money. I refer to a combination of primary and secondary literatures concerning the role of money in economic thinking over the past two centuries. By primary literature I mean contemporaneous texts, speeches, and other published works by key economists and thinkers, which I read as part of the discourse I am investigating. I refer to secondary sources such as academic commentaries to inform my understanding of the primary sources and to add context.

Overall, the arc of the thesis traces the key features of Libor's problematisation, its effects and institutional and ideological underpinnings, and how it has come about. I use this analysis to interrogate and understand the configuration of power relations entailed in contemporary financial governance.

3. Anatomy of a Benchmark

3.1 Overview

As explained in the Introduction, the overarching research questions with which I am concerned in this thesis are: How is Libor constituted as a 'problem' in benchmark reform discourse? What does Libor's problematisation reveal about how financial transactions are governed? Having outlined my research methodology and design in the previous chapter, in this chapter I orient the research project by mapping the emergence of Libor reform discourse as a critical and paradigmatic case of the general phenomenon I am investigating, ie the constitution of benchmarks as a policy 'problem' since the 2007/8 financial crisis.

The chapter is structured in two main parts. In the first part I give an account of Libor's characteristics as a benchmark as they are commonly understood in the reform discourse – that is, in terms of three defining features: (i) a set of techniques for producing market knowledge, (ii) the 'underlying' market to which that knowledge is understood to relate, and (iii) the uses to which the knowledge can/ should be put.

Drawing mainly on secondary sources, including scholarly literature and documentary data, such as UK and EU legislation, policy documents, and published resources on Libor's calculation and administration, I situate this account by reference to a historical overview of key institutions and practices in financial markets since broadly the mid-twentieth century, such as the role of banks in money markets, the emergence and development of markets for financial derivatives, and the pricing and valuation practices which constitute and sustain them. The second part of the chapter extends this

historical overview to encompass the events of the financial crisis of 2007-8 and its immediate aftermath, which laid the ground for Libor's emergence as a policy 'problem'.

The contribution of this chapter to the overall plan of this thesis is to locate the reform discourse by reference to the economic and institutional context from which it has emerged rather than a presumptive 'problem' which precedes it. By presenting an anatomy of the dominant conception of Libor as a species of economic 'fact', I introduce the conceptual vocabulary of Libor's problematisation and draw out key elements which I explore by reference to my empirical data in the following chapters using the WPR analytical framework discussed in the Introduction. In doing so, I highlight ways in which this discourse can be denaturalised, opening the way for a more nuanced analysis of what the 'problem' is represented to be.

3.2 What is a Benchmark?

Defining what Libor '*is'* is a curiously difficult thing to do for such a ubiquitous phenomenon. In my interviews I found that Libor and, more generally, the term 'benchmark', has a wide range of interpretations among financial actors. Some people prefer to talk of 'reference rates' rather than benchmarks. It is common to hear Libor described as an 'index' or an 'indicator', and, somewhat less frequently, as a 'price' or 'pricing component'. Among the financial actors I spoke to, terminological discussions were treated with a certain agnosticism. To ask these financial actors how they would define what a benchmark/ Libor '*is*' was evidently to ask a question that was only made intelligible with hindsight, given Libor's reframing as an object of debate. Interviewees typically considered the question reflexively in the light of their knowledge of Libor's problematisation and the agenda for reform, most articulating a clear idea of what a

benchmark *should be* in light of that agenda (even if they often went on to qualify that understanding, as I discuss in the next chapter).

In particular, the emergence of benchmark regulation as a *sui generis* category of financial regulation since the 2007-8 financial crisis has stabilised a set of concepts and definitions that has become common currency in benchmark reform discourse. For example, the EU benchmark regulatory regime (the 'EU Benchmark Regulation')[1] uses a composite definition. A 'benchmark' is defined as an 'index'; another defined term meaning a published number that is the output of a regular production process, whose inputs are market data such as prices.[2] Hence a benchmark, as a type of index, is understood to be a means of producing market knowledge. An index becomes a benchmark when it is used for one or more specified purposes, such as pricing financial products. The EU Benchmark Regulation was 'onshored' in UK law after Brexit (creating the 'UK Benchmark Regulation')[3] and the same principles also underpin the concepts and definitions used in other benchmark regulations around the world.[4]

Broadly speaking, then, in formal reform discourse a benchmark is defined by reference to three distinct elements: (i) a means of knowledge production, (ii) the

[1] Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014 [2016] OJ L171/1.

[2] EU Benchmark Regulation, Article 3(1).

[3] The main onshoring instrument is The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019, SI 2019/657. For a detailed overview of the legislative changes constituting the UK Benchmark Regulation see Practical Law Financial Services, 'UK Benchmarks Regulation (UK BMR)' <Practical Law> accessed 22 May 2021.

[4] See, for example, the definition of 'financial benchmark' in Australia's Corporations Act. Corporations Act 2001 (Cth) s 908AB.

'underlying' market to which that knowledge is understood to relate, and (iii) the uses to which the knowledge is put. In this part, I examine each element in turn in Libor's case.

While I refer to the EU Benchmark Regulation as way of organising the text, I draw on a range of data sources in my analysis, including policy documents, published policies, procedures and other resources on Libor's production, and scholarly literature. I refer to pre-crisis scholarship (eg in economic history) mainly as source material regarding the historical events reviewed in this chapter. I also draw on post-crisis scholarship on Libor – in particular critical/ constructivist contributions, as discussed in the Introduction – to illustrate how scholarly assumptions about how Libor came to be, and how it works, have coalesced around a way of thinking about a benchmark as a 'fact' which 'must be an acceptable representation of the reality of which it speaks'.[5] The aim here is not to rewrite Libor's history but to 're-read' it,[6] and thereby to point up certain insecurities in accepted understandings.

3.2.1 Libor's production values

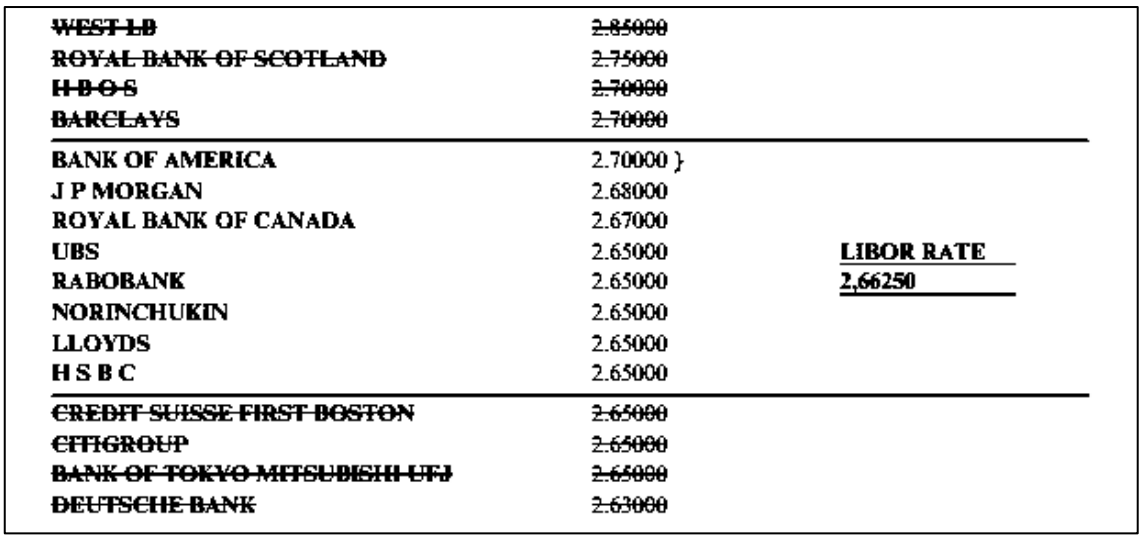
Libor's production follows a mundane choreography that has remained substantially unchanged for decades. At the same time each day, selected banks are polled on the rate of interest at which they could borrow money from other banks. The process is managed and overseen by a third party administrator, which collates the banks' responses, ranks

[5] Donald MacKenzie, *Material Markets : How Economic Agents Are Constructed* (Oxford University Press 2009) 66.

[6] Robert Castel, '"Problematization" as a Mode of Reading History' in Jan Goldstein (ed), *Foucault and the writing of history* (Blackwell 1994).

them in order of magnitude, discards the highest and lowest, and calculates an average based on the two middle quartiles in the range (Figure 1).[7]

The output of the calculation (also known as the 'fix' or 'fixing') is quoted to five decimal places. It is this value, upon its publication to users via authorised channels, which is known as Libor.[8]



~~WEST LB~~	~~2.85000~~	
~~ROYAL BANK OF SCOTLAND~~	~~2.75000~~	
~~H B O S~~	~~2.70000~~	
~~BARCLAYS~~	~~2.70000~~	
BANK OF AMERICA	2.70000 }	
J P MORGAN	2.68000	
ROYAL BANK OF CANADA	2.67000	
UBS	2.65000	LIBOR RATE
RABOBANK	2.65000	2,66250
NORINCHUKIN	2.65000	
LLOYDS	2.65000	
H S B C	2.65000	
~~CREDIT SUISSE FIRST BOSTON~~	~~2.65000~~	
~~CITIGROUP~~	~~2.65000~~	
~~BANK OF TOKYO MITSUBISHI UFJ~~	~~2.65000~~	
~~DEUTSCHE BANK~~	~~2.63000~~	

Figure 1. Example US dollar Libor calculation for a single maturity. Contains Parliamentary information licensed under the Open Parliament Licence v3.0.[9]

[7] IBA, 'ICE LIBOR Output Statement' (*ICE*) <https://www.theice.com/publicdocs/ICE_LIBOR_Output_Statement.pdf> accessed 19 May 2021.

[8] IBA, 'ICE LIBOR Methodology' (*ICE*) <https://www.theice.com/publicdocs/ICE_LIBOR_Methodology.pdf> accessed 19 May 2021.

[9] Treasury Committee, 'Supplementary Memorandum from the British Bankers' Association', *Financial Stability and Transparency* (HC 2007-08 536-Written Evidence) <https://publications.parliament.uk/pa/cm200708/cmselect/cmtreasy/536/536we05.htm> accessed 18 May 2021.

In fact, there is not one published Libor but several. There is a rate for each of five currencies – Pound sterling, US dollar, Euro, Swiss franc and Japanese yen – and, in respect of each currency, a series of rates corresponding to a standard range of loan periods or 'maturities'. This temporal feature, known as a 'term structure', consists of seven maturities: overnight, one week, one month, two month, three month, six month, and one year. Each currency/ maturity combination is calculated using the same process, meaning that in total, on a standard publication day, there are thirty-five iterations of Libor (down from a pre-reform peak of one hundred and fifty).[10]

Commercial use of these numbers is subject to licence from the administrator, with different price points for entities such as trading platforms and market data vendors who redistribute Libor or incorporate it into their own products or services.[11] As MacKenzie reflects, upon observing an occasion of Libor being published:

> Almost instantaneously, it was possible at more than half a million terminals across the globe to click a mouse a few times and/or strike a handful of computer keys, and prompt a flow of electrical signals that would cause the [Libor] numbers… to appear on screen.[12]

This curious daily ritual has acquired new legal and regulatory significance under benchmark reforms. For example, the EU Benchmark Regulation imposes a wide-ranging set of responsibilities on administrators, encompassing all aspects of the design, production, and oversight of benchmarks. Responsibility for Libor's administration was transferred at an early stage of the reform work from the British Bankers' Association

[10] Formerly ten currencies and fifteen maturities.

[11] Licences vary according to eg the number of currencies required and the timeliness of the data (real-time, intraday or with a 24 hour delay). IBA, 'ICE Benchmark Administration (IBA): Licensing & Data' (*ICE*) <https://www.theice.com/iba/licensing> accessed 18 May 2021.

[12] MacKenzie, *Material Markets : How Economic Agents Are Constructed* (n 5) 9.

('BBA'), the trade body of the UK banking industry,[13] to a private administrator, ICE Benchmark Administration ('IBA').[14] Since taking over this role, IBA has undertaken what it calls an 'evolution' of Libor, designed to bring its production into line with the new regulatory environment while ensuring that the rebadged 'ICE Libor' is continuous with its BBA predecessor.[15] Besides reducing drastically the number of published rates, IBA conducted a series of consultations and created a raft of policies and procedures governing different aspects of the calculation process.[16]

The EU Benchmark Regulation also provides a statutory basis on which regulators can compel the mandatory administration of a benchmark that is designated as 'critical', of which Libor is one.[17] Criticality, for these purposes, is understood in terms of what the failure or cessation of a benchmark could mean for 'market integrity, financial stability, consumers, the real economy, or the financing of households and businesses'.[18] In sum, 'critical' means critical for economic life. Hence, for example, the FCA has the power to force banks to participate in the Libor-setting process, if necessary, in order to secure Libor's continued production.[19] I consider the regulatory model that has grown

[13] From 1 July 2017 the BBA was superseded by a new industry association, UK Finance.

[14] IBA administers a range of benchmarks as part of a global market infrastructure group under ultimate parent company Intercontinental Exchange, Inc. ('ICE'), which also owns the New York Stock Exchange. IBA, 'ICE Benchmark Administration' (*ICE*) <https://www.theice.com/iba> accessed 24 May 2021.

[15] IBA, 'ICE LIBOR Evolution Report' (2018) <https://www.theice.com/publicdocs/ICE_LIBOR_Evolution_Report_25_April_2018.pdf> accessed 22 May 2021.

[16] IBA, 'ICE LIBOR' (*ICE*) <https://www.theice.com/iba/libor> accessed 18 May 2021.

[17] Commission Implementing Regulation (EU) 2019/482 of 22 March 2019 amending Commission Implementing Regulation (EU) 2016/1368 establishing a list of critical benchmarks used in financial markets pursuant to Regulation (EU) 2016/1011 of the European Parliament and of the Council [2019] OJ L82/26.

[18] EU Benchmark Regulation, recital 35.

[19] UK Benchmark Regulation, Article 23.

up around benchmarks in greater detail in Chapter 5. However, I now turn to consider the market in which Libor emerged, and which it is seen to 'represent', and the umbilical connection between Libor and banks.

3.2.2 The interbank market

Banks and interbank transactions have always been at the heart of the so-called 'money markets'. The money that changes hands in these markets is not cash but bank deposits and other short-term debt instruments (ie promises to pay) with periods ranging from overnight up to a year.[20] The London interbank market that gives Libor its name refers to the central mechanism of the world's biggest money market, known as the Eurodollar market, which emerged in the 1950s. Broadly speaking, this market involves the trading of monetary promises to pay in a given currency, *outside* of the regulatory reach of the jurisdiction in which the currency is issued.[21] For example, a Eurodollar is a dollar-denominated deposit held 'offshore' in a non-US regulated bank. Hence, although Eurodollars function as if they were state money, they are really a form of private- or bank money.

By the 1990s, estimates put the total size of the Eurodollar market at over four and a half trillion dollars, of which around three trillion was interbank.[22] Despite the

[20] Randall Dodd, 'Back to Basics: What Are Money Markets?' (2012) 49 *Finance & Development* <http://www.imf.org/external/pubs/ft/fandd/2012/06/basics htm> accessed 18 May 2021.

[21] In fact the Eurodollar market is a multicurrency market (there are also Euroyen, Eurosterling etc). I use the term Eurodollar as an umbrella term, consistent with common usage, since US dollars continue to make up the largest part of it. See eg Maurice D Levi, *International Finance 5th Edition* (Routledge 2009) ch 22.

[22] Marvin Goodfriend, 'Eurodollars' in Timothy Q Cook and Robert K Laroche (eds), *Instruments of the Money Market* (7th edn, Federal Reserve Bank of Richmond 1993) 49 <https://www.richmondfed.org/publications/research/special_reports/instruments_of_the_money_market > accessed 18 May 2021.

impact of the financial crisis of 2007-8, according to some estimates offshore dollar borrowing alone is predicted to reach twenty to forty trillion by 2030.[23]

From the start, London was the main global centre for the business of banking Eurodollar deposits and 'recycling' them in the form of loans. London's interbank market in turn became the centrepiece of this recycling operation. When accepting Eurodollar deposits, for example, a bank in London could hold cash dollars or a dollar deposit with a US-domiciled (that is, US-regulated) bank in order to cover its liability to repay its customers when requested. However, in practice, the interbank mechanism became an informal means for participating banks to finance their operations by placing their unutilised deposit balances directly with one another, enabling one bank to place its excess funds with another who could redeposit them with a third bank or else put them to use by lending to non-bank customers or covering claims from its depositors.[24]

These interbank transactions were large and unsecured. And yet, as one legal commentator noted in the 1990s: 'Banks contract among themselves for the placing and taking of millions of dollars of deposits with little more documentation than an ordinary sales slip'.[25] In fact, the early Eurodollar market saw the proliferation of a range of practices and techniques aimed at satisfying a potential lender of the 'name' or creditworthiness of its counterparty, while the identities of the transactors were often

[23] The Economist, 'Thrills and Spills' [2015] *The Economist* <https://www.economist.com/special-report/2015/10/01/thrills-and-spills> accessed 18 May 2021.

[24] BIS, 'The International Interbank Market: A Descriptive Study' (1983) BIS Economic Papers No 8 <http://www.bis.org/publ/econ8 htm> accessed 14 June 2021.

[25] George H Windecker, Jr., 'The Eurodollar Deposit Market: Strategies for Regulation' (1993) 9 American University Journal of International Law and Policy 357, 366.

withheld until the last moment through the use of money market brokers.[26] As one observer noticed, writing in the 1970s, all of this manoeuvring:

> enables banks to avoid publicizing a firm bid-ask spread [ie price] at which less than first-rate credit risks may ask to trade, but it ultimately allows trade among established "names" at very close to a standard rate of interest. Indeed, "LIBOR" is the acronym for this standard London interbank offer [sic] rate of interest paid by name banks of the highest credit standing.[27]

Libor's rationalisation over the years has not altered this basic premise. Today, the banks participating in the Libor-setting process do so by appointment to a panel of between eleven and sixteen institutions chosen by the administrator according to criteria such as transaction activity, expertise, and size.[28]

Traditionally, Libor panel banks have been 'large, leading, internationally active' institutions undertaking a significant volume of money market transactions.[29] Their knowledge and standing among their peers means that these banks can generally expect to be offered the best rates. The individuals (known as 'submitters') responsible for providing the responses to the Libor poll on behalf of each panel member tend to be traders managing the bank's funding needs with specialist experience and knowledge of the relevant money markets.[30]

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[26] Paul Einzig, *The Euro-Dollar System : Practice and Theory of International Interest Rates* (Macmillan 1964) 19.

[27] Ronald McKinnon, 'The Eurocurrency Market', *Essays in International Finance, No.125* (International Finance Section, Dept of Economics, Princeton University 1977) 11 <https://ies.princeton.edu/pdf/E125.pdf> accessed 18 May 2021.

[28] IBA, 'Libor Panel Bank Criteria' (2021) <https://www.theice.com/publicdocs/Policy_Composition_ICE_LIBOR_Panels.pdf> accessed 19 May 2021.

[29] IBA, 'Libor Panel Bank Criteria' (n 28).

[30] MacKenzie, *Material Markets : How Economic Agents Are Constructed* (n 5) 81.

At each level, then, Libor codifies an informal hierarchy in financial markets: a ranking principle by which the most useful market knowledge is evaluated by those 'in the know'. Hence, Stenfors and Lindo conclude, Libor is a product of financial power: 'made by banks for banks'.[31] Yet, as Nietzsche cautions, 'there is a world of difference between the reason for something coming into existence in the first place and the ultimate use to which it is put'.[32] I turn now to look at the uses to which Libor is put, which have apparently become constitutive of contemporary understandings of its role in economic life.

3.2.3 The social life of Libor

The definition of a benchmark in the EU Benchmark Regulation refers to three kinds of instrumentality: (i) determining the amount payable under a financial instrument or a financial contract; (ii) determining the value of a financial instrument; and (iii) measuring financial performance. These functions can be mapped onto two broad areas of Libor's usefulness in financial transactions. The first refers to Libor's use as a variable or 'floating' benchmark in financial contracts, while the second refers to its use as a means of establishing a common standard of financial value. I consider each of these areas in turn.

[31] Alexis Stenfors and Duncan Lindo, 'Libor 1986–2021: The Making and Unmaking of "the World's Most Important Price"' (2018) 0 Distinktion: Journal of Social Theory 1, 178.

[32] Friedrich Nietzsche, *On the Genealogy of Morals: A Polemic. By Way of Clarification and Supplement to My Last Book Beyond Good and Evil* (Douglas Smith tr, Oxford University Press 2008) 57.

3.2.3.1 A 'floating' rate in contracts

As a way to determine amounts owing under financial contracts or define pricing commitments, Libor is used in much the same way in contracts of all kinds. Payments and prices under the contract are simply made subject to periodic recalculation using Libor as a point of reference. The payment or pricing provision typically takes the form of an algebraic expression, eg 'LIBOR + 3%', along with provisions prescribing the date on which the calculation is to be performed, the timing of each future recalculation, contingencies in the event that the rate is unavailable, etc. In this way, the availability of the benchmark makes it possible for financial actors to define their obligations and make commitments even though Libor's future value is variable and indeterminate at the time the agreement is made. In some contracts Libor's use extends beyond the core pricing terms to other provisions such as late payment clauses and compensation mechanisms.

Use of Libor as a floating rate benchmark is perhaps its most common application; in any case it is the earliest. As I describe below, its success in this role has contributed to a huge expansion of the types of contracts and contract provisions that rely on floating rate benchmarks, which has in turn shaped Libor's form and methods of production, as well as opening up other uses.

3.2.3.1.1 Prototypes of Libor

A popular account of Libor's historical origins in both journalistic and academic writing focuses on the market for Eurodollar loans, whose rapid growth during the 1960s is said

to have prompted the creation of an early Libor calculation mechanism.[33] In particular, sovereign lending (ie loans to states) often involved making large multi-year commitments that could expose the lending bank to losses if the borrowing government defaulted or the rate at which the bank was able to fund its operations in the interbank market exceeded the rate of interest received on the loan.[34] In the late 1960s sovereign deals began to be structured so as to share the loan between a group of banks formed for that purpose into a syndicate. At the same time, a practice developed by which the loan would be 'rolled over' at set intervals when the interest rate would be recalculated for the forthcoming period, allowing the syndicate to pass on any increase in costs to the borrower.[35] By polling syndicate members on their costs of funding ahead of rollover dates, an average rate could be calculated that could serve as a basis for repricing the loan.

With the emergence of financial derivatives markets starting in the early 1970s, Libor acquired a new range of applications. A derivative is a legal claim whose value is linked to the value of something else (known as the 'underlying'). In the case of an interest rate derivative the 'underlying' is a promise to pay, such as a bond or a Treasury

[33] Minos Zombanakis, 'I Devised the Formula That Came to Be Known as Libor' (*Financial Times*, 27 March 2012) <https://www.ft.com/content/9288f95e-6f80-11e1-b3f9-00144feab49a> accessed 19 May 2021; Kirstin Ridley and Huw Jones, 'Insight: A Greek Banker, the Shah and the Birth of Libor' *Reuters* (8 August 2012) <https://www.reuters.com/article/us-banking-libor-change-idUSBRE87702320120808> accessed 19 May 2021; Sean Vanatta, 'Libor's Risks Emerged From Clubby London Banking Culture' *Bloomberg* (14 August 2012) <https://www.bloombergview.com/articles/2012-08-14/libor-s-risks-emerged-from-clubby-london-banking-culture> accessed 19 May 2021; Philip Ashton and Brett Christophers, 'On Arbitration, Arbitrage and Arbitrariness in Financial Markets and Their Governance: Unpacking LIBOR and the LIBOR Scandal' (2015) 44 Economy and Society 188; Stenfors and Lindo (n 31).

[34] Ronald David Greenberg, 'The Eurodollar Market: The Case for Disclosure' (1983) 71 California Law Review 1492, 1500.

[35] Stephany Griffith-Jones, 'The Growth of Multinational Banking, the Euro-currency Market and Their Effects on Developing Countries' (1980) 16 The Journal of Development Studies 204, 209.

bill (so-called 'cash products'). The first interest rate derivatives were 'futures contracts' based on interest-bearing bonds. These were contracts enabling the purchase and sale of a given number of bonds at a specified price, for delivery on a specified future date. Since the market price of the bond fluctuates, entering into a futures contract exposed each party to the risk (or opportunity) that the price could move against (or for) them between the contract date and the date of delivery.

For the pioneers of these products, such as the Chicago Mercantile Exchange ('CME'), 'the big prize' was to develop Eurodollar futures.[36] However, unlike bonds, Eurodollar deposits are not physically deliverable: 'You can't deliver a rate of interest'.[37] This meant designing a mechanism that would enable Eurodollar futures to be settled in cash. CME's answer was to create what was in effect a prototypical version of Libor by doing its own periodic survey of London-based banks to establish the average rate for Eurodollar deposits and publishing the results. Contract settlement could then take place by paying '*in cash* the value of the differential in interest rates between the time of purchase and time of sale, or vice versa'.[38] The first Eurodollar futures were launched by CME in December 1981.[39]

[36] Russell Wasendorf Sr, 'Innovation Deserves More than 15 Minutes of Fame' [2003] *SFO Magazine* <https://www.leomelamed.com/articles/interview0603.pdf> accessed 7 June 2021.

[37] Leo Melamed and Bob Tamarkin, Leo Melamed: Escape to the Futures (Wiley 1996) 291.

[38] Melamed and Tamarkin (n 37) 291, original emphasis.

[39] As scholars of finance have shown, cash settlement is not merely a practical issue but raises complex epistemological questions. In particular it has meant redrawing the legal distinction between risk management and gambling. Donald MacKenzie, 'The Material Production of Virtuality: Innovation, Cultural Geography and Facticity in Derivatives Markets' (2007) 36 Economy and Society 355; Marieke de Goede, *Virtue, Fortune, and Faith* (University of Minnesota Press 2005).

By the early 1980s, then, insofar as the term Libor had already entered into use, it referred to a private form of market knowledge and a loosely related and highly situated set of practices and methods for producing that knowledge so that it could be used in contracts. There was not yet a standardised benchmark. The catalyst for this development was the advent of another type of cash-settled financial instrument, the interest rate swap.

3.2.3.1.2 The centre of the swap universe

A swap is a contract, the effect of which is that the parties agree to exchange payments with one another. There are various types; an interest rate swap is an exchange of interest payments, classically where one party is paying a fixed rate of interest and the other pays a floating rate based on a benchmark such as Libor.[40] The principal sum on which the interest is calculated is not exchanged, and moreover only net payments need to be made. This made the swap extremely attractive as a financial risk management tool. By entering into a swap, two financial actors with opposite exposures to future interest rate movements – ie one whose liabilities would increase if the interest rate were to rise and another who would be left tied into a disadvantageous arrangement if the rate fell – could set off their exposures with one another with little additional cost or risk. In practice, the difficulty of finding a counterparty whose exposure precisely mirrored your own meant that banks found a new role as intermediaries or 'market-makers' who stood ready to take the other side of swaps transactions; effectively treating a swap as if it were a loan and

[40] Andrew Sutherland and Jason Court, *The Front Office Manual: The Definitive Guide to Trading, Structuring and Sales* (Palgrave Macmillan 2013) ch 2.

applying risk management techniques developed in their lending businesses to monitor the creditworthiness of their counterparties.[41]

As banks became dealers as well as prolific users of interest rate derivatives, the growth of bespoke or 'over the counter' swaps markets saw a proliferation of variations on the classic swap contract with different risk profiles and payoffs.[42] From early on in the development of these markets, the most important among them was the US dollar-denominated market, and the most important benchmark was Libor. In one contemporaneous practitioner-oriented text, Libor is depicted as the centre of the 'swap universe'.[43] In effect, as a middle term in swap contracts, Libor acted as a relay between the various 'underlying' markets for cash products and their derivatives, and between markets in different currencies and geographic locations.[44]

Managing this expanding stock of contracts posed a particular set of problems for financial actors, especially swap dealers (ie banks). Transactions would be individually negotiated and documented in all of their aspects: 'Market participants fought about everything, even, for example, how to determine Libor and what to do if the primary source was not available'. Each bank had its own preferred way of doing things, resulting in a 'battle of the forms'.[45] On top of this, there was considerable duplication of time and

[41] Anatoli Kuprianov, 'The Role of Interest Rate Swaps in Corporate Finance' (1994) 80 Federal Reserve Bank of Richmond - Economic Quarterly 49, 51.

[42] For an overview see Rod Beckstrom, 'The Development of the Swap Market', *Swap Finance*, vol 1 (Euromoney Publications 1986); Kuprianov (n 41).

[43] Beckstrom (n 42) 33.

[44] For a political economy perspective see Stenfors and Lindo (n 31).

[45] Daniel Cunningham, Jeffrey Golden and John Berry, 'Lawyers in Agreement' (2005) ISDA 20th Anniversary Report *Risk Magazine* 20.

cost even when transactions concerned a course of dealings between the same two counterparties.

In response, in the mid-1980s, a working group of US swap dealers convened with their legal advisers in order to produce a standardised vocabulary for US dollar swap contracts. This group, the precursor of ISDA, was initially constituted as the International Swap Dealers Association before being established as a standard-setting body for the wider derivatives industry. ISDA's original swaps code,[46] first published in 1985, was updated and progressively elaborated into a set of standard form agreements for all kinds of derivatives transactions, known as the 'ISDA Master Agreement'. At around the same time, another group working under the auspices of the BBA produced its own set of recommended terms and conditions for interest rate swaps, intended for use in the London interbank market. The BBA's standardisation exercise also covered the Libor settlement mechanism. Thus, from early 1986, the BBA began publishing what is now recognised as Libor.[47] The unification of previously ad hoc definitions in the form of BBA Libor was effectively completed by ISDA's adoption of the BBA mechanism for its standard definition of Libor in the ISDA Master Agreement.

The dramatic expansion of swaps and derivatives markets over the past four decades has seen a concomitant expansion of the range of products and services referring to Libor. Many of these applications are mutually-reinforcing. For example, Libor-

[46] Known as the Code of Standard Wording Assumptions and Provisions for Swaps, or 'Code of SWAPS'. Cunningham, Golden and Berry (n 45) 20; Daniel Cunningham and Jeffrey Golden, 'A Practitioner's Guide to the Code of Swaps', *Swap Finance*, vol 2 (Euromoney Publications 1986).

[47] BBA, 'BBA Libor: Historical Perspective' (*BBA archive site*) <http://www.bbatrent.com/explained/historical-perspective> accessed 19 May 2021; Bob Blower, 'We Searched Our Souls over Libor' *Financial Times* (29 March 2012) <https://www.ft.com/content/76134c04-7834-11e1-b237-00144feab49a> accessed 19 May 2021.

linked derivatives are often used for the specific purpose of offsetting or 'hedging' exposures under Libor-linked loans. In those circumstances, a derivative linked to a different benchmark would create a mismatch, exposing the holder to the risk that payments under the derivative do not fully offset its liabilities under the loan (so-called 'basis risk'). The implications could also extend, for example, to the less advantageous treatment of both the derivative and the loan for accounting and tax purposes.[48]

Put simply, the more contracts refer to a given benchmark, the more it can make sense to use the same benchmark in other contracts – a tendency economists call 'benchmark tipping'.[49] This has not only led to the generalisation of what might be considered Libor's primary use as a floating rate benchmark but has also seen its extension into other areas of use, which I discuss below.

3.2.3.2 Standardising financial valuations

As noted above, the EU Benchmark Regulation lists two further uses to which a benchmark may be put other than providing a reference point for pricing, namely: determining the value of a financial instrument and measuring financial performance. These can broadly be grouped together as applications which depend on a common scale of value relative to which comparisons can be drawn and changes measured. As such,

[48] Nazneen Sherif, 'Libor Reform Threatens Hedge Accounting for Loans' *Risk.net* (21 June 2019) <https://www.risk net/node/6735276> accessed 19 May 2021; Philip Stafford, 'Accounting Body Proposes Relief on Libor Transition' *Financial Times* (3 May 2019) <https://www.ft.com/content/f54baa08-6ce6-11e9-80c7-60ee53e6681d> accessed 19 May 2021.

[49] 'Tipping denotes a strategic situation in which the benefits of a given choice to one player depend in a positive manner on a similar choice by other players.' Robert N McCauley, 'Benchmark Tipping in the Money and Bond Markets' (2001) March 2001 BIS Quarterly Review 39, 42.

they rest on a set of techniques, classifications and understandings, which Chiapello and Walter call 'financial quantification conventions'.[50]

3.2.3.2.1 Discounting

The longest established financial quantification convention rests on the idea that in order for an investor to part with their cash the value of a given asset or investment would have to reflect a 'discount' on its expected future return to account for the uncertainty of receiving it. As one investment guide puts it: 'Most people, given the choice between the receipt of a sum of money now and the same sum in the future will say "I'd rather have it now"'.[51] The measure of this preference, expressed in annualised terms, is an interest rate known as the 'discount rate'. For example, using a discount rate of 5%, a £105 dividend in one year's time has a present value of £100. The more uncertain the investor is about receiving the return promised, the higher the discount rate.

The choice of discount rate is a key assumption. Historically, a bank deposit rate tended to be used, representing the return an investor could expect to receive by opting to hold onto cash and earning interest instead (ie by playing safe and not investing).[52] However, with the emergence of a new financial quantification convention in the 1950s and early 1960s, the discount rate took on another set of meanings.

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[50] Eve Chiapello and Christian Walter, 'The Three Ages of Financial Quantification: A Conventionalist Approach to the Financiers' Metrology' (2016) 41 Historical Social Research 155.

[51] Glen Arnold, *The Financial Times Guide to Investing, 3rd Edition [Electronic Resource]* (3rd edition, FT Publishing International 2014) ch 12 <https://learning.oreilly.com/library/view/-/9781292005072/?ar> accessed 19 May 2021.

[52] Chiapello and Walter (n 50) 158; Liliana Doganova, 'Discounting the Future: A Political Technology' (2018) 19 *Economic sociology: European Electronic Newsletter* 4, 6.

3.2.3.2.2 The 'risk-free' rate

This second quantification convention is linked to the advent of financial economics, which applied the insight that rational investors do not put all of their eggs in one basket but trade off risk against return on a portfolio-wide basis. Managing one's financial affairs rationally meant that one's financial decision-making should be guided by gauging how a given investment contributes to optimising one's overall portfolio (so-called portfolio theory).[53]

The principles of portfolio theory were elaborated into a fully-fledged theory of financial value in the shape of the Capital Asset Pricing Model ('CAPM').[54] According to the model, a perfectly competitive market made up of investors all behaving rationally would tend towards an equilibrium in which 'there was only one optimal portfolio, the entire market'.[55] This meant that the 'correct' discount rate for valuing any investment could now be inferred statistically using the theoretical rate earned on the ideal market portfolio, known as the 'risk-free' rate. In general terms 'risk-free' in this context refers to the discount rate that would (in theory) be insisted upon by a rational investor in a world where returns were guaranteed to match expectations. As one of the pioneers of CAPM, William Sharpe, put it: 'there is some interest rate at which money can be lent

[53] Portfolio theory aimed to show how an investor should act to maximise the expected returns of a portfolio at a given level of risk, or minimise risk at a desired rate of return. In this theory, risk is assumed to be probabilisable – ie given by the variance or standard deviation of return around a statistical mean, where return is based on a weighted average of the expected returns on individual components of the portfolio (estimated by reference to historical data and analyst opinion). A pioneering work was Harry Markowitz, 'Portfolio Selection' (1952) 7 The Journal of Finance 77.

[54] William F Sharpe, 'Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk' (1964) 19 The Journal of Finance 425.

[55] Donald MacKenzie, *An Engine, Not a Camera: How Financial Models Shape Markets* (MIT Press 2006) 87.

with virtual assurance that both principal and interest will be returned; at the least, money can be buried in the ground'.[56]

The new paradigm established a scientific basis for assuming that it was impossible (on average) for investors to beat the market return, an intuition formalised by the efficient markets hypothesis, which holds that market prices are the best approximation of fundamental value.[57] In doing so, it revolutionised theoretical finance and contributed to the rise of mass investment schemes (what is now the global asset management industry).[58] This has ensured a prodigious demand for observable expressions of 'the market' in the form of benchmarks and indices.[59] It has also created a need to be able to approximate the 'risk-free' rate. Up until the mid-1980s, the most often used proxy was the return on government securities such as US Treasury bills.[60] However, as futures and swaps markets took off, financial actors in these markets increasingly turned to Libor.[61]

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[56] Quoted in Peter L Bernstein, *Capital Ideas: The Improbable Origins of Modern Wall Street* (Free Press 1999) 84.

[57] Dick Bryan and Michael Rafferty, 'Fundamental Value: A Category in Transformation' (2013) 42 Economy and Society 130, 132–133; Bernard Guerrien and Ozgur Gun, 'Efficient Market Hypothesis: What Are We Talking About?' [2011] Real-World Economics Review 19.

[58] Chiapello and Walter (n 50) 168–171.

[59] Chiapello and Walter (n 50) 162; de Goede (n 39) ch 4.

[60] Nina Boy, 'Sovereign Safety' (2015) 46 Security Dialogue 530.

[61] Don M Chance and Robert Edwin Brooks, *An Introduction to Derivatives and Risk Management* (Tenth edition, Cengage Learning 2016) 428; McCauley (n 49). It should be noted that Chiapello and Walter identify the rise of derivatives markets with a third financial quantification. Instead of starting out with the expected return of an asset and discounting to calculate its present value, the market value of an asset is assumed to always already represent its true discounted value. With this as given, both the risk and expected return of any asset become matters of statistical inference, making it possible to derive a common factor for use in pricing. I do not dwell on this so-called 'market-consistent' convention here since the fundamental importance of the 'risk-free' rate for the new generation of pricing models remains unchanged. See Chiapello and Walter (n 50).

Over the following three decades, Libor-based mathematical models became the default setting for the pricing and valuation tools and 'back office' systems used by banks and other financial actors all over the world.[62] While (as I discuss in the next part) the financial crisis of 2007-8 prompted many banks and other financial actors to reconsider their practice of Libor-based discounting, Libor is still widely used in this way. Indeed, in some circumstances, the use of Libor for discounting purposes remains mandatory, for example, in EU rules governing how insurance companies value their liabilities.[63]

* * *

The above outline depicts the key features of a certain, extremely influential way of thinking about benchmarks such as Libor in the reform discourse. It is an account that is recognisable from existing political economy and economic sociology scholarship in this area, which tends to see Libor's emergence and the expansion of its applications over recent decades as bound up with the calculative practices of modern financial markets.[64] As MacKenzie puts it: 'Like scientific facts, LIBOR is produced rather than stumbled upon…'[65] According to this view, the benchmark is a kind of calculative device that takes effect through a dense assemblage of actors (themselves also sociotechnical assemblages) – money markets, derivatives traders, computer terminals, pricing models,

[62] Taylor Spears, 'Discounting Collateral: Quants, Derivatives and the Reconstruction of the "Risk-Free Rate" after the Financial Crisis' (2019) 48 Economy and Society 342.

[63] EIOPA (European Insurance and Occupational Pensions Authority), 'EIOPA Consults on Interbank Offered Rates' (*Eiopa - European Commission*, 30 April 2021) <https://www.eiopa.europa.eu/content/eiopa-consults-interbank-offered-rates_en> accessed 10 June 2021.

[64] See eg MacKenzie, 'The Material Production of Virtuality' (n 39); Ashton and Christophers (n 33); Dick Bryan and Michael Rafferty, 'The Unaccountable Risks of LIBOR' (2016) 67 The British Journal of Sociology 71; Stenfors and Lindo (n 31).

[65] MacKenzie, *Material Markets : How Economic Agents Are Constructed* (n 5) 9.

loan agreements, accounting rules, economic theories, quantification conventions – whose combination performs Libor as a certain kind of market knowledge.

The overall effect is to constitute the benchmark with a 'facticity' that enables it to transcend the circumstances of its production.[66] For example, Stenfors and Lindo argue:

> propelled by the sheer volume of derivatives trading, the underlying benchmark gradually takes on an objectivity that enables the derivatives market to eclipse the Eurodollar market. This enables LIBOR to replace the Eurodollar market as an objective fact. Together, these consequences allow LIBOR to cement itself as an objective fact far beyond the specialist derivatives market.[67]

Yet, we can also notice how this conclusion passes over certain ways in which Libor's salience as a benchmark does *not* seem to depend on the processes of knowledge production in which it is entangled. Rather than being purely emergent properties of calculative practices, the affordances that Libor provides, such as the ability to bind the future, quantify the risk of transacting, and ascertain truths about financial value, also seem to be present before calculation begins, eluding the processes of assemblage which they set in train. They manifest themselves in eg the way that the existence of a 'standard' rate is already presupposed by Libor's construction; the algebra of contractual terms that enables transactions to be priced and commitments made *without* knowing what the numbers will be; and in the concept of the 'risk-free' rate which enters the models of

[66] See also Poovey's discussion of the epistemological ambiguity of the 'modern fact', as *both* pre-interpretive particulars (data) and part of a systematising logic (a calculative device). Mary Poovey, *A History of the Modern Fact: Problems of Knowledge in the Sciences of Wealth and Society* (University of Chicago Press 1998).

[67] Stenfors and Lindo (n 31) 184.

finance theory fully formed as an input and presupposition – ie as something stumbled upon rather than produced.

From a Foucauldian perspective, these discordant elements at the margins of the discourse are of particular interest for understanding Libor's problematisation. They suggest that the conception of a benchmark as a 'fact' may not be as stable and secure as it appears. They also raise questions about how, and to whom, this conception matters. I treat these as empirical questions, which I explore further by reference to my interview data in Chapter 4. In the remainder of this chapter I consider how the 2007/8 financial crisis saw Libor's 'facticity' called into question by a set of damaging critiques which laid the ground for its delineation as a 'problem' in need of reform.

3.3 Libor's Crisis of Credibility

Libor emerged as an object of debate in 2007, just as the financial crisis was approaching its height. At that time, rising levels of default on so-called 'subprime' mortgages in the US – loans to borrowers with low credit ratings – had generated losses and bankruptcies in the sector. The effects were also felt in related markets, including global markets for subprime mortgage-related derivatives, creating losses and failures among a much wider group of investors, notably banks and money market funds in the US and Europe. Borrowing in international money markets, including the interbank market, became much more constrained, meaning it was more expensive or simply not possible to borrow money, especially for maturities longer than overnight borrowing. The resulting 'credit crunch' exacerbated the acute funding difficulties being experienced by many banks and other financial institutions. In response, governments around the world made a series of

interventions in the financial markets, including emergency central bank lending and, in some cases, nationalisation.[68]

For practitioners and proponents of financial economics, such as the former Chairman of the US Federal Reserve, Alan Greenspan, the financial crisis was also an intellectual crisis: 'The whole intellectual edifice… collapsed in the summer of [2007].'[69] Lacking the tools to help understand what was going on in financial markets, policy-makers, practitioners, and media turned to Libor as 'a handy, visible litmus test of banking stress'.[70] As a senior Bank of England official later reflected:

> … from the summer of 2007 onwards… LIBOR became increasingly used as a summary statistic of what was going on in the market… Those [were] circumstances where everybody has less information about what is going on, and in those circumstances you place greater weight on the indicator that is available every day, which was LIBOR.[71]

I discuss in Chapter 8 how central banks and monetary authorities make use of benchmarks such as Libor as a monetary policymaking tool. During 2007-8, not only did the published benchmark number come under greater scrutiny, but also the published submissions of individual banks to the calculation process, which were read as indicators

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[68] For a detailed exposition of the events of the crisis, reflecting conventional wisdom, see Financial Crisis Inquiry Commission, 'The Financial Crisis Inquiry Report: Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States' (2011) <http://fcic.law.stanford.edu/report> accessed 22 May 2021.

[69] US House Committee on Oversight and Government Reform, 'Testimony of Alan Greenspan', *The Financial Crisis and the Role of Federal Regulators.* Hearing, 23 October 2008. (US GPO 2010) <https://www.govinfo.gov/content/pkg/CHRG-110hhrg55764/html/CHRG-110hhrg55764.htm> accessed 19 May 2021.

[70] Gillian Tett, 'Libor's Value Is Called into Question' *Financial Times* (25 September 2007) <https://www.ft.com/content/8c7dd45e-6b9c-11dc-863b-0000779fd2ac> accessed 21 May 2021; Neil Irwin, 'Mutual Distrust Freezes Lending Among Banks' *Washington Post* (1 October 2008) <http://www.washingtonpost.com/wp-dyn/content/article/2008/09/30/AR2008093002629 html> accessed 19 May 2021.

[71] Treasury Committee, 'Oral Evidence of Paul Tucker, Deputy Governor of the Bank of England', *Fixing LIBOR: Some Preliminary Findings* (HC 2012-13 481-II) Ev34.

of the contributors' financial health.[72] As one media observer put it: 'There's knowledge buried in the price that Barclays is being charged in the money markets. We just don't know what that knowledge is yet'.[73]

3.3.1 Early critiques

As the crisis deepened, financial media reports began to speculate that banks were deliberately understating or 'low-balling' their submissions in order to try to manage perceptions of their own financial position.[74] This coverage, in turn, ratcheted up the scrutiny and raised alarm bells with regulators. In June 2008, the President of the Federal Reserve Bank of New York, Timothy Geithner, wrote to the Governor of the Bank of England, Mervyn King, with a series of 'Recommendations for Enhancing the Credibility of Libor'.[75]

In sum, by mid-2008 Libor was at the centre of the kind of feedback loop that Espeland and Sauder call 'reactivity' – the idea that 'individuals alter their behavior in

[72] Tett (n 70); Carrick Mollenkamp, 'Libor Fog: Bankers Cast Doubt On Key Rate Amid Crisis' *Wall Street Journal* (16 April 2008) <https://www.proquest.com/newspapers/libor-fog-bankers-cast-doubt-on-key-rate-amid/docview/399070280/se-2?accountid=13042> accessed 19 May 2021; Michael Mackenzie and Gillian Tett, 'Libor Remarks Fail to Put Unease to Rest' *Financial Times* (2 June 2008) <https://www.ft.com/content/9b89fe4e-301a-11dd-86cc-000077b07658> accessed 19 May 2021; Carrick Mollenkamp and Mark Whitehouse, 'Study Casts Doubt on Key Rate' *Wall Street Journal* (29 May 2008) <http://www.wsj.com/articles/SB121200703762027135> accessed 19 May 2021.

[73] Mark Gilbert, 'Barclays Takes a Money-Market Beating' *Bloomberg* (3 September 2007) <https://bazaarmodel net/phorum/read.php?1,4817> accessed 19 May 2021, cited in FSA, 'Final Notice - Barclays Bank Plc' (FSA 2012) 25 <https://www.fca.org.uk/publication/final-notices/barclays-jun12.pdf> accessed 19 May 2021.

[74] Regulatory investigations later concluded that concerns about negative media perception had indeed weighed on banks' Libor submissions during the crisis. See eg FSA (n 73) 25.

[75] Federal Reserve Bank of New York, 'New York Fed Responds to Congressional Request for Information on Barclays - LIBOR Matter' (13 July 2012) <https://www.newyorkfed.org/newsevents/news/markets/2012/Barclays_LIBOR_Matter.html> accessed 19 May 2021.

reaction to being evaluated, observed, or measured'.[76] An internal Bank of England communication assessed the problem in these terms:

> … the fact that there is a fuss is a problem, because of (a) the effect on confidence and (b) feedback from the fuss into real volatility in the [Libor] fixing… But it is poor governance that allows there to be a fuss, hence governance needs fixing.[77]

In an effort to stem the mounting criticism, in June 2008 the BBA announced a number of changes to the Libor rate-setting process (such as additional monitoring of submissions) and trailed various other possible reforms, including widening panel membership and 'options for avoiding any stigma' attaching to banks' submissions.[78]

These early critiques of Libor's credibility also had wider ramifications. In light of the financial crisis, the appreciation of Libor as a gauge of conditions in the interbank market pointed to an implicit contradiction: 'if no banks were lending, what could the "London Interbank Lending Rate" [sic] possibly mean?'[79] More than just questioning the process by which Libor is produced, financial actors began to doubt the reality of that which the benchmark is assumed to represent.[80] As one senior US regulator later

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[76] Wendy Nelson Espeland and Michael Sauder, 'Rankings and Reactivity: How Public Measures Recreate Social Worlds' (2007) 113 American Journal of Sociology 1, 6.

[77] Treasury Committee, *Fixing LIBOR: Some Preliminary Findings, Vol. 1: Report, Together with Formal Minutes* (HC 481-I, 2012-13) 34.

[78] BBA, 'BBA Announces Steps to Strengthen LIBOR' (*BBA archive site*, 10 June 2008) 10 <http://www.bbatrent.com/archive/bba-announces-steps-to-strengthen-libor> accessed 19 May 2021; Mackenzie and Tett (n 72).

[79] Joseph E Stiglitz, *The Price of Inequality: How Today's Divided Society Endangers Our Future* (W W Norton & Company 2013) xxiv.

[80] Espeland and Sauder (n 76) 21.

remarked: 'if the benchmark isn't benchmarking something, what is it that we have here?'[81]

Yet, despite what one might expect, this damaging critique did not in itself constitute Libor as a policy 'problem'. Its immediate effects were rather more obscure. The question of what exactly Libor 'represents' was initially a technical preoccupation of a very specific group of financial actors: principally academic economists and experts in quantitative analysis working in investment banks, known as 'quants'.

3.3.2 Risky rates

The question exercising quants and finance theorists was what Libor's emerging problematisation meant for the valuation of derivatives. Led by banks such as Goldman Sachs, major derivatives dealers began to use benchmarks other than Libor for discounting purposes.[82] In particular, the longstanding practice of modelling the 'risk-free' rate using Libor came to be seen as untenable. This was because, not only did Libor 'represent' a market that was no longer considered 'risk-free', but the implicit knowledge of the standard that Libor provided was also breaking down. That banks borrowed from each other on a consistent basis, over a range of maturities which bore a predictable

[81] Gary Gensler, *CFTC Public Roundtable to Discuss IOSCO Consultation Report on Financial Benchmarks* (2013) at 1:53:48-53 <https://www.youtube.com/watch?v=duUODyMdnsE> accessed 7 June 2021; quoted in Daniel Seabra Lopes, 'Libor and Euribor: From Normal Banking Practice to Manipulation to the Potential for Reform' in Ismail Ertürk and Daniela Gabor (eds), *The Routledge Companion to Banking Regulation and Reform* (Routledge 2016) 236.

[82] Spears (n 62) 360.

relationship to one another, was simply no longer taken for granted. As one quant put it in the aftermath of the crisis:

> Once upon a time there was a classical financial world in which all the Libors were equal. Standard textbooks taught that simple relations held… and that Libor was a good proxy of the risk free rate required as [a] basic building block of [asset] pricing theory. Nowadays, in the modern financial world after the credit crunch, some Libors are more equal than others, depending on their [maturity], and classical formulas are history. Banks are not anymore "too big to fail", Libors are fixed by panels of risky banks, and they are risky rates themselves'.[83]

Along with a transformation of business practices, pricing models, and valuation systems,[84] this shift in thinking in derivatives markets was accompanied and underpinned by a reanimated theoretical conception of what a benchmark '*is*' – ie as the sum of the risks it 'represents'. Hence, Libor can be decomposed to give a series of risk components or 'premia' on top of the 'risk-free' rate, such as the risk that the counterparty bank defaults on the loan (credit risk), and the risk associated with the maturity of the loan (term risk).[85] By contrast, the benchmarks now preferred for discounting purposes in derivatives markets were derived from markets for the shortest possible term lending (ie overnight). By all-but eliminating the risk premia involved, these overnight rates, known as 'OIS' rates,[86] were seen to provide a closer approximation of the 'risk-free' rate, and hence a more suitable basis for pricing.

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[83] Marco Bianchetti, 'The Zeeman Effect in Finance: Libor Spectroscopy and Basis Risk Management' (Social Science Research Network 2011) SSRN Scholarly Paper ID 1951578 1 <https://papers.ssrn.com/abstract=1951578> accessed 19 May 2021.

[84] For a detailed discussion of these changes, see Spears (n 62).

[85] See eg BIS, 'Towards Better Reference Rate Practices: A Central Bank Perspective - A Report by a Working Group Established by the BIS Economic Consultative Committee (ECC) and Chaired by Hiroshi Nakaso, Assistant Governor, Bank of Japan' (2013) 5 <http://www.bis.org/publ/othp19 htm> accessed 30 May 2021.

[86] Short for Overnight Indexed Swap, a type of interest rate swap that uses an overnight rate as a floating rate benchmark.

Ironically, in fact, the shift to OIS discounting has only made derivatives valuation and pricing more difficult. Since transaction-specific risks, by definition, are no longer assumed to be internal to the benchmark, they now have to be specially factored into firms' pricing models. What is more, there remains no consensus on how to do so.[87] As Spears notes, this 'has led to an explosion of complexity' and 'greatly increased… opacity' in interest rate derivatives markets.[88]

As I discuss in Chapters 5 and 6, benchmark reform amounts to an effort by reformers to bring about the regular, internally consistent world envisaged by quants and finance theory textbooks. The mission of reformers is to see Libor replaced by 'near risk-free' rates, such as OIS rates, that bear a closer relationship to the theoretical ideal. However, this agenda has run into its own complications and lines of resistance, which have forced reformers into retaining and reproducing features of Libor, such as a term structure, that are theoretically redundant in a post-Libor world.

A key finding of this thesis is that attending to these seemingly obscure and technical aspects of the reform discourse helps to illuminate the dimensions of the 'problem' that benchmarks represent. In particular, I argue, they highlight the ways in which a benchmark's *legal form* – eg its rendering in standard contract documentation according to material, temporal, and aesthetic criteria – is valued by financial actors in preference to its theoretical 'content'. I explore these themes in detail by reference to my empirical data in Chapter 7.

[87] Laurie Carver, 'Traders v. Theorists' (2012) 25 Risk 19.

[88] Spears (n 62) 362–63.

3.3.3 A global scandal

A secondary, but ultimately decisive, effect of the crisis-era doubts over Libor's credibility came in the form of multiple national and international regulatory investigations into rate-setting by a coalition of regulators, law enforcement agencies, and supervisory authorities, including the UK Financial Services Authority ('FSA'),[89] the Japanese Financial Services Authority, the Monetary Authority of Singapore, the European Commission, the Swiss Competition Commission, US Department of Justice ('DOJ'), US Commodity Futures Trading Commission ('CFTC'), and many more. Launched in the wake of the crisis, these encompassed not only Libor but also other benchmarks.

Beginning in 2012, the findings of the coordinated investigations into Libor were announced through the publication of a series of corporate settlements and plea agreements in which banks and money market brokers admitted to actions amounting to efforts to 'manipulate' Libor, in exchange for a reduced penalty. These admissions included, in some instances, 'low-balling' of Libor submissions during the financial crisis in an effort to avoid negative publicity. They also included the revelation that derivative traders at several Libor panel banks had routinely sought to influence the Libor calculation to suit their own trading positions. Investigators found that traders dealing in interest rate swaps and other high value interest rate derivative contracts, 'were seeking to influence the fix by fractions of a basis point (1 basis point is 100th of 1%) where small

[89] The predecessor of the FCA, abolished in 2013. BBC, 'UK Financial Regulation Overhauled' *BBC News* (1 April 2013) <https://www.bbc.com/news/business-21987829> accessed 21 May 2021.

movements would have a material financial impact on those high value contracts'.[90] In many cases, these activities had gone on for years and predated the financial crisis.

The resulting scandal was extensive in its reach and impact. Sums paid out under Libor and other IBOR-related settlements are estimated to total around ten billion dollars, across more than a dozen institutions.[91] This figure excludes hundreds of millions more paid out in damages actions brought by private claimants following the publication of the investigators' findings. Many actions remain ongoing.[92]

Between the US DOJ and the UK's Serious Fraud Office ('SFO'), more than forty relatively junior individuals – mainly traders and submitters – have been charged with fraud offences in relation to the setting of Libor and other IBORs, although only about half of those charged have been convicted.[93] The FCA has issued a series of prohibition

[90] FSA, 'RBS Fined £87.5 Million for Significant Failings in Relation to LIBOR' (*FCA*, 6 February 2013) <https://www.fca.org.uk/news/press-releases/rbs-fined-%C2%A3875-million-significant-failings-relation-libor> accessed 19 May 2021.

[91] David Enrich, 'Libor's Demise Reflects Era of Runaway Greed' *Wall Street Journal* (28 July 2017) <https://search.proquest.com/docview/1923926492/abstract/4D86FD7188514D0DPQ/1> accessed 19 May 2021.

[92] For example, Deutsche Bank's 2020 annual report indicates that it is party to thirty-seven civil claims relating to Libor and other interest rate benchmarks in the US alone. Deutsche Bank, 'Deutsche Bank Annual Report 2020' 322 <https://www.db.com/ir/en/download/Annual_Report_2020.pdf> accessed 19 May 2021.

[93] The SFO issued criminal proceedings against a total of twenty-four individuals, of whom two pleaded guilty to conspiracy to defraud, seven others have been convicted, and eleven acquitted in a series of trials between 2015-17. As of early 2021, the DOJ had indicted a total of eighteen individuals on five separate sets of conspiracy charges. Six pleaded guilty as part of plea deals. Of four other individuals convicted at first instance, two had their convictions overturned on appeal in 2017 and the other two have appeals pending. A further three individuals had the proceedings against them dropped. For details of SFO cases see SFO, 'LIBOR' (*Serious Fraud Office*) <https://www.sfo.gov.uk/cases/libor-landing/> accessed 19 May 2021; SFO, 'EURIBOR' (*Serious Fraud Office*) <https://www.sfo.gov.uk/cases/euribor/> accessed 19 May 2021.. For DOJ cases, see DOJ, 'Financial Institution Fraud' (*US Department of Justice*, 9 June 2015) <https://www.justice.gov/criminal-fraud/financial-institution-fraud> accessed 19 May 2021.

orders to individuals in connection with Libor 'manipulation', which designate the recipient as not fit to carry on regulated financial activities in the UK.[94]

The investigations into Libor also prompted legal and regulatory probes into other benchmarks. As a result, the debate about Libor reform has unfolded against the backdrop of a catalogue of penalties, litigation, and attempted prosecutions for benchmark 'manipulation' in markets from gold to foreign exchange.[95] I analyse these legal and regulatory discourses of 'manipulation' in more detail in the next chapter, where I consider the emergence of a concerted public policy agenda around Libor reform. This agenda was set initially by authorities in the UK, as Libor's home jurisdiction, and catalysed by the announcement of the first settlements relating to Libor manipulation, which involved a British bank, Barclays.

3.4 Conclusion

In this chapter I have given an account of how Libor is commonly understood in the reform discourse as a way of 'representing' economic reality. In this conception the characteristic features of a benchmark are threefold: (i) a means of producing knowledge in the form of economic 'facts', (ii) the 'underlying' market to which this knowledge is understood to relate, and (iii) the uses to which the knowledge is put.

[94] See eg FCA, 'FCA Bans Former RBS LIBOR Submitter, Paul White' (*FCA*, 12 April 2016) <https://www.fca.org.uk/news/press-releases/fca-bans-former-rbs-libor-submitter-paul-white> accessed 19 May 2021.

[95] For an indicative overview of these inquiries, see Liam Vaughan, 'Broken Benchmarks' *Bloomberg* (7 December 2016) <https://www.bloomberg.com/view/quicktake/broken-benchmarks> accessed 19 May 2021.

I have situated this discourse by reference to its key points of anchorage in the ideas, institutional forms, and practices shaping the development of financial markets over broadly the past half century, including the advent of the Eurodollar market, the invention of swaps and derivatives since the 1970s, and the financial quantification conventions and calculative practices that have grown up around and helped shape these developments, such as discounting and the concept of the 'risk-free' rate in finance theory. In the second part of the chapter, I extended this historical overview to encompass the events of the financial crisis of 2007-8 and its immediate aftermath, when Libor became the target of a damaging set of critiques, laying the ground for its appearance as a policy 'problem'.

Overall, the discussion in this chapter has shown how contemporary understandings of Libor are intimately linked with the intellectual and technological supports of modern financial markets. The ruling conception of a benchmark as an economic 'fact' is bound up with a technoscientific vision of finance as a coherent, internally consistent domain – epitomised by the way that financial assets and their derivatives can be made perfectly commensurable through the intermediation of a benchmark that 'represents' the same economic reality everywhere.[96] However, as I have shown, this is a worldview whose epistemological authority and unexamined assumptions (such as the idea that banks were 'risk-free') were severely tested by the events of the financial crisis.

Situating Libor's 'facticity' in this way makes it possible to go beyond the existing critical/ constructivist literature on benchmarks in two ways. First, it suggests that

[96] MacKenzie, 'The Material Production of Virtuality' (n 39).

Libor's emergence as a policy 'problem' since the crisis has to be seen in the light of a wider loss of faith in economic and financial regulatory expertise.[97] From this perspective, reforming Libor has to do with resetting the conditions under which financial transactions can be governed according to rational, scientific principles, as part of 'a system defined by undeniable economic realities'.[98] Secondly, as I have suggested above, there are grounds to suppose that Libor's 'facticity' does not matter all the time and in all circumstances. When/ how/ to whom it matters are empirical questions that I explore further in the next chapter.

[97] Annelise Riles, 'Market Collaboration: Finance, Culture, and Ethnography after Neoliberalism' (2013) 115 American Anthropologist 555.

[98] de Goede (n 39) 5.

4. Accounting for Libor: The Making of a 'Problem'

4.1 Overview

In this chapter I examine how Libor is represented as a 'problem' in benchmark reform discourse, thereby addressing the first question in the WPR analytical framework: 'What is the 'problem' represented to be?' Building on the account I gave in the last chapter of the intellectual and institutional context from which the reform discourse takes its coordinates, the focus of this chapter is an analysis of the Wheatley Review of Libor (the 'Wheatley Review'). This was a review of the regulatory framework governing Libor's operation which was commissioned by the UK government in response to the emerging Libor 'manipulation' scandal in July 2012 and led by the managing director of the FSA and Chief Executive-designate of the FCA, Martin Wheatley. As the first concrete public policy intervention in Libor's problematisation, the Wheatley Review played a formative role in the reform discourse and set the agenda for subsequent reform work which I consider in later chapters.

I start by tracing the backdrop to the Wheatley Review and the debates surrounding it. I then turn to the Review itself, analysing its main themes and recommendations. As well as documents relating to the Review (such as its final report, consultation documents, and prepared remarks by the report's Chair), I draw on analysis of other documentary sources, including published decisions and other materials from regulatory investigations into Libor 'manipulation', scholarly literature, and contemporaneous media commentary.

In the last chapter, I showed how the critiques of Libor's credibility that emerged during the financial crisis of 2007/8 were a feature of a concomitant crisis of confidence in economic and financial regulatory expertise. Here, I show how, when added to the revelations of benchmark 'manipulation', what started as a crisis of expertise became a political crisis. The 'problem' that confronted the Wheatley Review was not just part of the arcana of financial markets but one that was understood to be emblematic of a broken financial system in which systematic failures of governance were liable to lead to iniquitous economic outcomes. 'Fixing' this 'problem' would mean rationalising how Libor was produced and consumed in order to ensure that its role in economic life could be properly accounted for.

Contrary to appearances, however, I find that this is by no means a homogeneous discourse. In fact, my analysis reveals two distinct strands of accountability talk, which I label 'public' and 'private'. 'Public' accountability talk is oriented towards making Libor more of a 'fact', eg by disciplining the use of judgement in Libor's production. However, this strand of the reform discourse is embedded in a discourse of 'private' accountability concerned with the conditions under which financial actors account to themselves for the promises they make and the wealth effects of their transactions. Drawing on analysis of my interviews with forty financial actors, in the final part of the chapter I build up an empirically rich picture of how these different strands of accountability talk are articulated in the reform discourse and the delicate tension that this produces.

Overall, the analysis presented in this chapter gives a nuanced depiction of the 'problem' to which benchmark reform discourse is addressed and the implications of this problematisation for the kind of 'solution' that reform work brings to bear. I find that, as

much as Libor is understood to make up a set of reasonable knowledge claims about the 'underlying' market etc, for financial actors a benchmark is something which always ultimately precedes and obviates its rationalisation as a 'fact' that has to be accounted for in particular ways. It is something to calculate *with* and *by*, not about, when doing financial transactions. The central 'problem' to which the Wheatley Review was addressed, which remains the essential project of benchmark reform today, is about how to create a reformed benchmark regime which engenders both 'public' and 'private' accountability, thereby enhancing the legitimacy of financialised forms of economic government, while ultimately leaving intact the relations of power that Libor constitutes and sustains.

4.2 'The Rotten Heart of Finance'

In the summer of 2012, as parts of the UK were hit by unseasonal storms and severe flash-flooding, the after-effects of the 2007-8 financial crisis were being experienced as a 'perfect storm' of depressed incomes, rising costs of living, and cuts in government spending.[1] In the years since the crisis, 'austerity' policies had touched off protests and civil unrest across Europe and in the US.[2] Banks were a prominent target of public anger, notably in the form of the Occupy movement, which took over public spaces beginning in New York's financial district, Wall Street, before spreading around the world.[3] By mid-2012, the last of the Occupy London encampments, in the city's Finsbury Square,

[1] Mousa Haddad, 'The Perfect Storm: Economic Stagnation, the Rising Cost of Living, Public Spending Cuts, and the Impact on UK Poverty' (2012) Oxfam Briefing Paper <https://policy-practice.oxfam.org.uk/publications/the-perfect-storm-economic-stagnation-the-rising-cost-of-living-public-spending-228591> accessed 21 May 2021.

[2] Mark Blyth, *Austerity: The History of a Dangerous Idea* (Oxford University Press 2013); Aaron Major, *Architects of Austerity: International Finance and the Politics of Growth* (Stanford University Press 2014).

[3] Craig Calhoun, 'Occupy Wall Street in Perspective' (2013) 64 The British Journal of Sociology 26.

had been removed by bailiffs after several months' of demonstrations.[4] Elsewhere, Spain had become the latest country to receive an EU bailout for its banks as part of a deepening European sovereign debt crisis.[5] On 27 June 2012 the first public admissions of efforts to 'manipulate' Libor surfaced.

UK-based Barclays Bank was the first to settle with UK and US regulators, in an initial round of resolutions involving fines of more than $450 million. The announcement was a media sensation.[6] In what would become a model for other benchmark-related corporate settlements, the settlement agreements, including a negotiated set of admissions and a 'statement of facts' specific to the circumstances of the settling institution, were published along with media notes and a catalogue of direct quotations from among the trove of evidence gathered, typically from electronic communications via email and industry-wide instant messenger apps (Figure 2). These showed (anonymised) individual traders routinely requesting high or low Libor submissions depending on their preference – some even working together to orchestrate the requests across different panel banks; submitters who were apparently happy to oblige; unguarded and offensive language; self-

[4] BBC, 'Occupy London Protesters Evicted' *BBC News* (14 June 2012) <https://www.bbc.com/news/uk-england-london-18437009> accessed 21 May 2021.

[5] David Randall and Alisdair Fotheringham, 'Spain Finally Asks for Bailout and Receives €100bn Lifeline' *The Independent* (10 June 2012) <http://www.independent.co.uk/news/world/europe/spain-finally-asks-for-bailout-and-receives-100bn-lifeline-7834237.html> accessed 21 May 2021.

[6] BBC, 'Barclays Fined for Attempts to Manipulate Libor Rates' *BBC News* (27 June 2012) <https://www.bbc.com/news/business-18612279> accessed 21 May 2021; Danielle Douglas, 'Barclays Fined for Manipulation of Libor' *Washington Post* (27 June 2012) <https://www.washingtonpost.com/business/economy/barclays-fined-for-manipulation-of-libor/2012/06/27/gJQACh8k7V_story html> accessed 21 May 2021; Australian Associated Press (AAP), 'Barclays Fined $451m for Rate Manipulation' *9News* (27 June 2012) <//finance nine.com.au/business-news/barclays-fined-451m-for-rate-manipulation/032e3d61-be01-4c53-ba2a-23d134aa9ee3> accessed 21 May 2021; EFE, 'Multan con 363 millones de euros a Barclays por manipular el Euribor' *El Mundo* (27 June 2012) <https://www.elmundo.es/elmundo/2012/06/27/economia/1340819077.html> accessed 21 May 2021; Associated Press, 'Barclays Boss Fights for Job amid UK Market-Fixing Probe' *France 24* (28 June 2012) <https://www.france24.com/en/20120628-barclays-boss-fights-job-uk-probes-market-rigging-bob-diamond-fine> accessed 21 May 2021.

interest; sometimes self-awareness, but more often a casual disregard for the wider consequences of their actions. [7]

UK Prime Minister, David Cameron, led a chorus of outrage: 'Who was responsible? Who was going to take responsibility? How are they being held accountable?'[8] Within days, Barclays' chairman and chief executive had been forced to resign and its share price had dropped steeply, along with those of other banks in anticipation of the scandal widening.[9]

[7] See eg FSA, 'Barclays Fined £59.5 Million for Significant Failings in Relation to LIBOR and EURIBOR' (27 June 2012) <https://www.fca.org.uk/news/press-releases/barclays-fined-%C2%A3595-million-significant-failings-relation-libor-and-euribor> accessed 21 May 2021; CFTC, 'CFTC Orders Barclays to Pay $200 Million Penalty for Attempted Manipulation of and False Reporting Concerning LIBOR and Euribor Benchmark Interest Rates' (*CFTC*, 27 June 2012) <http://www.cftc.gov/PressRoom/PressReleases/pr6289-12> accessed 21 May 2021; DOJ, 'Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay $160 Million Penalty' (*US Department of Justice*, 27 June 2012) <https://www.justice.gov/opa/pr/barclays-bank-plc-admits-misconduct-related-submissions-london-interbank-offered-rate-and> accessed 21 May 2021.

[8] Matt Falloon and Kirstin Ridley, 'UK Drafts in Fraud Squad as Libor Fine Hits Barclays' *Reuters* (28 June 2012) <https://www reuters.com/article/libor-barclays-idUSL6E8HSA5E20120628> accessed 21 May 2021.

[9] BBC, 'Barclays Bank Chairman Marcus Agius to Resign' *BBC News* (1 July 2012) <https://www.bbc.com/news/uk-18665719> accessed 21 May 2021; Jill Treanor, 'Barclays Chief Executive Bob Diamond Resigns' *The Guardian* (3 July 2012) <http://www.theguardian.com/business/2012/jul/03/bob-diamond-resigns-barclays> accessed 21 May 2021; Nick Fletcher, 'Barclays Drops More than 10% after Libor Scandal, with Other UK Banks Also Hit' *The Guardian* (28 June 2012) <http://www.theguardian.com/business/marketforceslive/2012/jun/28/barclays-uk-banks-libor-scandal> accessed 21 May 2021.

Trader "When I retire and write a book about this business, your name will be written in golden letters."

Submitter "I would prefer this [to] not be in any book!"

Submitter "Hi all, just as an FYI, I will be in noonish on Monday."

Trader "Noonish? Who's going to put my low fixings in? hehehe."

Submitter "[A manager has] asked me to put it lower than it was yesterday ... to send the message that we're not in the shit."

Submitter to manager: "We are therefore being dishonest by definition and are at risk of damaging our reputation in the market and with the regulators."

Trader to manager, complaining about a submitter: "[He is putting in] the highest Libor of anybody ... He's like, I think this is where it should be. I'm like, dude, you're killing us."

Manager to trader: "Just tell him to keep it, to put it low."

Submitter "[I will] see what I can do."

External trader to a Barclays trader, asking for a lower Libor submission: "If it comes in unchanged I'm a dead man."

Barclays' trader promises to "have a chat".

External trader to Barclays' trader later that day: "Dude. I owe you big time! Come over one day after work and I'm opening a bottle of Bollinger."

Trader "Coffees will be coming your way, either way, just to say thank you for your help in the past few weeks."

Submitter "Done ... for you big boy."

Figure 2. Media reporting of quotations from the FSA's Final Notice to Barclays in relation to Libor. Excerpted from the Guardian, 27 June 2012, 'Barclays trader talk: "I'm opening a bottle of Bollinger", under the byline 'Messages sent between Barclays traders and the bank's "submitters"'. Courtesy of Guardian News & Media.[10]

[10] Guardian staff, 'Barclays Trader Talk: "I'm Opening a Bottle of Bollinger"' *The Guardian* (27 June 2012) <http://www.theguardian.com/business/2012/jun/27/barclays-libor-trader-talk> accessed 22 May 2021.

The fierce public reaction tapped into a sense that the Barclays revelations amounted to more than just another case of financial misconduct.[11] They seemed to say something about the relations of power in financialised societies. If the financial crisis of 2007/8 was, above all, an epistemic crisis, undermining the notion of a coherent and rational financial domain characterised by system-like interactions, the Libor scandal apparently revealed the deep-lying effects of power that governed these interactions from the start: the 'rotten heart of finance' as one editorial put it.[12]

These critiques posed a new threat to the legitimacy of economic and financial regulatory expertise. In the UK, Libor setting was an unregulated activity, so there were no statutory rules governing the process for calculating the rate. Unable to point to law-breaking behaviour, the FSA's settlement with Barclays relied on breaches of the Authority's general 'Principles for Business', citing failures to observe 'proper standards of market conduct', to operate adequate risk management systems and controls, and to conduct business 'with due skill, care and diligence'.[13] The Conservative-led coalition government was quick to cast the scandal as an effect of the 'light-touch' financial

[11] Matthew O'Brien, '"Lie-Bor" Is an Existential Crisis for the Big Banks' *The Atlantic* (3 July 2012) <https://www.theatlantic.com/business/archive/2012/07/lie-bor-is-an-existential-crisis-for-the-big-banks/259384/> accessed 21 May 2021; David Rohde, 'The Libor Scandal and Capitalism's Moral Decay' *The Atlantic* (13 July 2012) <https://www.theatlantic.com/business/archive/2012/07/the-libor-scandal-and-capitalisms-moral-decay/259819/> accessed 21 May 2021; Eduardo Porter, 'The Spreading Scourge of Corporate Corruption' *The New York Times* (10 July 2012) <https://www.nytimes.com/2012/07/11/business/economy/the-spreading-scourge-of-corporate-corruption html> accessed 21 May 2021; Huguette Labelle, 'A Rare Chance to Fix the Rot in Banking' *CNN* (10 July 2012) <https://www.cnn.com/2012/07/10/opinion/labelle-libor-banking-culture/index html> accessed 21 May 2021; Scott Hamilton, 'King Says Libor Deceit Shows How Wrong U.K. Banking Became' *Bloomberg* (29 June 2012) <https://www.bloomberg.com/news/articles/2012-06-29/king-says-libor-deceit-shows-how-very-wrong-u-k-banking-became> accessed 21 May 2021.

[12] The Economist, 'The Rotten Heart of Finance' *The Economist* (7 July 2012) <https://www.economist.com/briefing/2012/07/07/the-rotten-heart-of-finance> accessed 25 February 2020.

[13] FSA, 'Final Notice - Barclays Bank Plc' (FSA 2012) Annex A <https://www.fca.org.uk/publication/final-notices/barclays-jun12.pdf> accessed 19 May 2021.

regulatory framework championed by successive Labour governments during the pre-2007/8 financial crisis era. As one commentator observed: 'For years the Conservatives used the Winter of Discontent to warn voters not to trust Labour again. They hope to do the same with debt, the banks and that obscure rate few of us understand, called LIBOR.'[14]

The FSA was by that time already designated for dissolution as part of post-crisis reforms to the UK financial regulatory regime.[15] Heavily criticised for failing to act sooner on Libor 'manipulation', it was later obliged to undertake an audit to assess the extent to which it should have been aware of 'inappropriate LIBOR submissions'.[16] The Bank of England, too, found itself dragged into the spotlight, forced to defend suggestions that it had ignored warnings and given tacit endorsement to the 'low-balling' of Libor submissions at the height of the financial crisis.[17]

However, the impact of these critiques went beyond the policy programmes and institutional arrangements in which economic and financial regulatory expertise was deployed. By pointing to Libor's wealth effects as mere effects of power, they threatened to undermine the legitimacy of financial valuations. What was more, the scandal showed

[14] Nick Robinson, 'Barclays Banks - A Whitehall Whodunit' *BBC News* (4 July 2012) <https://www.bbc.com/news/uk-politics-18701752> accessed 21 May 2021.

[15] Gonzalo Vina, 'U.K. Scraps FSA, Reversing System Set Up by Brown' *Bloomberg* (17 June 2010) <https://www.bloomberg.com/news/articles/2010-06-16/u-k-scraps-fsa-in-biggest-bank-regulation-overhaul-since-1997> accessed 21 May 2021.

[16] FSA, 'Internal Audit Report: A Review of the Extent of Awareness within the FSA of Inappropriate LIBOR Submissions' (2013) <https://www.fca.org.uk/publication/corporate/fsa-ia-libor-management-response.pdf> accessed 21 May 2021.

[17] Telegraph staff, 'Libor Emails "Show Bank of England's Efforts to Get Banks to Lower Rate"' *The Telegraph* (17 July 2012) <https://www.telegraph.co.uk/finance/newsbysector/banksandfinance/9405197/Libor-emails-show-Bank-of-Englands-efforts-to-get-banks-to-lower-rate.html> accessed 21 May 2021.

that these effects of power could manifest themselves in the mundane and everyday aspects of economic life, and not only the remote and abstract terrain inhabited by derivatives traders and finance theorists. 'Manipulating' interest rates was something that was made immediate and tangible by the repayments that people had to make on their mortgages and loans, the returns they received on their savings, and the performance of their pensions. As US Democratic Senate candidate, Elizabeth Warren, put it in an op-ed:

> In most markets, consumers could simply take their business elsewhere once they learned that the scales were rigged. But interest rates are different. Everyone who borrows money on a mortgage, credit card, student loan, car loan or small-business loan – basically, everyone – is affected by a crooked market on Libor.[18]

In this way, the critiques of Libor's 'manipulation' struck at the most basic unit of financialised economic government: the creditor-debtor relation itself. As one commentator put it: 'This is corruption at the molecular level of the economy ...'. The financial system, it seemed, was all along a 'rigged game'.[19]

This meant that the question of how to evaluate the wealth effects produced by Libor was no longer simply a theoretical preoccupation of quants and academic economists but an existential question for financialised understandings of the world. 'There are roughly $360 trillion reasons you should care about [Libor]', as another columnist put it.[20] In sum, at the centre of the emerging reform discourse was a political

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[18] Elizabeth Warren, 'Reforming a Corrupt Club' *The Washington Post* (20 July 2012) <http://search.ebscohost.com/login.aspx?direct=true&db=bwh&AN=wapo f0bca892-d036-11e1-8e56-dffbfbe1bd20&site=ehost-live> accessed 21 May 2021.

[19] Matt Taibbi, 'Everything Is Rigged: The Biggest Price-Fixing Scandal Ever' [2013] *Rolling Stone* <http://www.rollingstone.com/politics/news/everything-is-rigged-the-biggest-financial-scandal-yet-20130425> accessed 21 May 2021.

[20] O'Brien (n 11).

and an epistemological imperative to *account* for Libor's role in financial transactions, and to do so in a way that stabilised the financialised discourses and practices on which contemporary creditor-debtor relations are based.

4.2.1 Accountability talk

Based on my analysis of my empirical data, I distinguish between two types of accountability talk in the reform discourse, which I label 'public' and 'private'. Here, I briefly introduce what I mean by these terms.

Accountability talk has proliferated since the 1980s, linked to the 'explosion'[21] of audit practices and the spread of managerialism in public administration under neoliberal forms of government, such as New Public Management.[22] As governance scholars have observed, the concept of 'accountability' tends to be under-specified in these discourses, and can sometimes be used interchangeably with other terms such as 'responsibility' or 'control'.[23] It can encompass eg elected officials' responsibilities to voters, legal and regulatory rules, social or professional constraints such as codes of conduct, as well as market mechanisms.[24] Benchmark reform discourse has some of the same expansiveness. However, I am not concerned in this thesis with developing a particular theory of

[21] Michael Power, *The Audit Explosion* (Demos 1994).

[22] Richard Mulgan, *Holding Power to Account: Accountability in Modern Democracies* (Palgrave Macmillan 2003) 6; Michael Power, *The Audit Society: Rituals of Verification* (Oxford University Press 1997).

[23] Mulgan (n 22) 7–8.

[24] For example, Mashaw identifies three categories: public accountability, market accountability, and social accountability. Jerry Louis Mashaw, 'Accountability and Institutional Design: Some Thoughts on the Grammar of Governance' in Michael D Dowdle (ed), *Public accountability: designs, dilemmas and experiences* (Cambridge University Press 2006).

accountability and applying it to my data. Rather, I use my empirical findings concerning how accountability talk features in benchmark reform discourse as a way to explore the kinds of relations of power it signals.

For this purpose, I adopt what Rached calls a 'minimalist concept' of accountability: 'that is, comprehensive enough to grasp different sorts of power relations'.[25] According to this usage, accountability talk always presupposes the relations of power between those giving an account of themselves ('accountee' in Rached's terms) and those to whom the account is given ('account-holders').

What I will refer to broadly as 'public' accountability talk concerns the processes by which Libor is constituted as authoritative (credible) knowledge, ie as an economic 'fact'. It encompasses a conventional public law conception of accountability in the exercise of public decision-making powers –[26] as with eg demands that those producing benchmarks should be made answerable to those using them. Hence, it invokes the relations of power between state and markets, and between holders and delegates of regulatory powers (such as Libor's administrator). By extension, it also reaches into the sphere of intra-institutional relations, such as the mechanisms of discipline and control that govern the activities of Libor submitters.

'Public' accountability talk, in this sense, refers to both 'direct' mechanisms of control, such as legal rules, surveillance regimes, etc, and 'indirect' ones, such as techniques of quantification that constrain subjectivity and create 'calculating selves' for

[25] Danielle Hanna Rached, 'The Concept(s) of Accountability: Form in Search of Substance' (2016) 29 Leiden Journal of International Law 317, 320.

[26] Mashaw (n 24) 120.

people to inhabit.[27] By contrast, what I will call 'private' accountability talk concerns elements of the benchmark's role in financial transactions which cannot be fully calculated or rationalised, such as discourse about the 'culture' of finance or the apparently irrational choices of benchmark users. These elements are strictly speaking *un*accountable in the 'public' sense in which I am using the term; they do not depend on the relations of power between account-holders and accountees but rather on 'the relationship of self to self'.[28] Hence, 'private' accountability talk concerns the ways in which a benchmark constitutes financial actors who *already know themselves to be accountable* for how they conduct themselves.

In distinguishing 'public' from 'private' accountability talk in this way I do not mean to suggest that there is, on the one hand, a domain of 'public' action in which power circulates as discipline and control and, on the other hand, the 'private' individual as its '*vis-à-vis*'.[29] From a Foucauldian perspective, the categories of 'public' and 'private', and the boundary between them, are themselves effects of power. The value of such a distinction for the purposes of this thesis is that it is led by my data, and hence it helps to illuminate the particular configuration of power relations in which a benchmark such as Libor is embedded. For this reason I leave the terms 'public' and 'private' in single quote marks throughout.

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[27] Peter Miller, 'Accounting for the Calculating Self' in Nigel Thrift and others (eds), *Globalization in practice* (Oxford University Press 2014).

[28] Michel Foucault, *The Hermeneutics of the Subject: Lectures at the Collège de France, 1981-1982 [Electronic Resource]* (New York, New York : Palgrave Macmillan 2005) 252 <https://ezproxy-prd.bodleian.ox.ac.uk/login?url=https://ebookcentral.proquest.com/lib/oxford/detail.action?docID=4716632> accessed 21 May 2021.

[29] Michel Foucault, 'Two Lectures' in Colin Gordon (ed), *Power/knowledge: selected interviews and other writings, 1972-1977* (Vintage 1980) 98.

4.3 'Public' Accountability and The Wheatley Review of Libor

On 2 July 2012, less than a week after the publication of the Barclays settlements, UK Chancellor, George Osborne, announced the establishment of the Wheatley Review with a remit to formulate policy recommendations for reforming Libor.[30] The Review's terms of reference included looking at whether Libor setting should be regulated; the method of its construction and 'feasibility of using of actual trade data to set the benchmark'; possible alternative mechanisms for rate-setting; and the 'financial stability consequences of a move to a new regime and how a transition could be appropriately managed'. It was also asked to examine the adequacy and scope of the existing sanctions regime for financial misconduct, and whether the recommendations with respect to Libor also applied to other benchmarks.[31]

At the same time, the Government laid out plans for a separate Parliamentary inquiry led by a committee of MPs, to be tasked with reporting on the 'professional standards and culture' of UK banking, with specific reference to the Libor investigations (the 'Parliamentary Commission on Banking Standards').[32]

[30] George Osborne, 'Statement by the Chancellor of the Exchequer, Rt Hon George Osborne MP, on LIBOR' (2 July 2012) <https://www.gov.uk/government/speeches/statement-by-the-chancellor-of-the-exchequer-rt-hon-george-osborne-mp-on-libor> accessed 21 May 2021.

[31] HM Treasury, 'The Wheatley Review' (*GOV.UK*, 2 July 2012) <https://www.gov.uk/government/publications/the-wheatley-review> accessed 21 May 2021.

[32] Osborne (n 30).

Urged of the 'need to get on with this',[33] the Wheatley Review was carried out in a little under three months from start to finish. An initial discussion paper was published for consultation in August 2012, allowing a four-week period for responses, and the final report in September 2012.[34]

The outcome of the Review took the form of a 'blueprint for the restoration of trust in Libor',[35] consisting of a package of reform proposals designed to ensure that the arrangements for creating and promulgating Libor could be properly accounted for. These included changes to the powers of regulators and the duties of those involved in producing and administering benchmarks; institutional reforms – in particular the transfer of responsibility for Libor from the BBA to a new administrator – and changes to the way that Libor's calculation was managed.

The logic of accountability at work here can be seen clearly in prepared remarks by the Review Chair, Martin Wheatley, on publication of the final report.[36] In them he distinguished between measures designed to address (i) the Libor calculation methodology, (ii) lack of oversight by participating banks and institutions, and (iii) what he called 'external accountability' for the Libor-setting process (ie at the level of regulatory scrutiny and intervention). The latter, he said, would 'safeguard that the

[33] Osborne (n 30).

[34] The Wheatley Review, 'The Wheatley Review of LIBOR: Final Report' (2012) <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/191762/wheatley_review_libor_finalreport_280912.pdf> accessed 21 May 2021.

[35] The Wheatley Review (n 34) 3.

[36] Martin Wheatley, 'Pushing the Reset Button on LIBOR: Speech by Martin Wheatley - Managing Director, FSA, and CEO Designate, FCA at the Wheatley Review of LIBOR' (28 September 2012) <https://webarchive nationalarchives.gov.uk/20121003012252/http://www fsa.gov.uk/library/communication/speeches/2012/0928-mw.shtml> accessed 21 May 2021.

incentives of those involved in this process are aligned with the wider interests of market participants, benchmark users and the public.' The overall effect, in short, would be to construct a chain of accountabilities linking the production of the benchmark to its publication and use.

4.3.1 Facts, not fiction

The chain of 'public' accountability envisaged by the Wheatley Review was anchored at its base in a discourse of strict quantification. Libor's submissions-based calculation methodology was widely criticised as a design flaw opening the door to 'manipulation'.[37] As discussed in Chapter 3, Libor's production presupposes an element of expert judgement. The unfettered exercise of this judgement by banks and their submitters was seen to have introduced an unacceptable subjectivity into the calculation process. In the words of the CFTC's former Chairman, a benchmark 'has to be based on facts, not fiction.'[38]

One of the Review's key recommendations (already anticipated in the framing of its terms of reference) was accordingly that Libor panel banks be required to make 'explicit and clear use of transaction data to corroborate their submissions'.[39] In

[37] Financial Times, 'Fixing Libor' *Financial Times* (27 June 2012) <https://www.ft.com/content/70a5c03c-c062-11e1-9867-00144feabdc0> accessed 21 May 2021; Peter Eavis and Nathaniel Popper, 'Libor Scandal Shows Many Flaws in Rate-Setting' *New York Times* (19 July 2012) <https://dealbook.nytimes.com/2012/07/19/libor-scandal-shows-many-flaws-in-rate-setting/> accessed 21 May 2021; Gary Gensler, 'Libor, Naked and Exposed' *The New York Times* (7 August 2012) <https://www.nytimes.com/2012/08/07/opinion/libor-naked-and-exposed html> accessed 21 May 2021.

[38] Gary Gensler, 'Remarks of Chairman Gary Gensler on Libor before the Global Financial Markets Association's Future of Global Benchmarks Conference' (28 February 2013) <http://www.cftc.gov/PressRoom/SpeechesTestimony/opagensler-133> accessed 21 May 2021.

[39] The Wheatley Review (n 34) 27.

formulating its recommendations in this regard, the Review followed the model of the CFTC's settlement agreement with Barclays (also replicated in subsequent settlements with other banks).[40] The agreement committed Barclays to determining its submissions by reference only to certain types of quantitative data. This commitment was backed up by detailed undertakings to implement safeguards against interference with the submission process (including physically locating submitters away from traders); to develop communications policies, review processes, and record-keeping protocols; put in place compliance, monitoring, and audit procedures and training programmes; and to report back regularly on the bank's adherence to the undertakings.

Mirroring the CFTC's approach, the Wheatley Review proposed a set of model Libor submission guidelines, pending the introduction of a more detailed, FSA-approved code of conduct by the new Libor administrator.[41] The guidelines required submissions to be determined based on a hierarchy of factors, starting with data on a bank's own transactions, then other kinds of transactional data. Finally, if no data were available, expert judgement alone could be used.

This so-called 'waterfall' methodology is now the standard used by Libor's administrator, IBA, as well as other benchmark administrators.[42] Yet, as I show below, it also points to certain insecurities and discontinuities in 'public' accountability talk.

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[40] CFTC (n 7).

[41] The Wheatley Review (n 34) 30.

[42] IBA, 'LIBOR Benchmark Statement' (2021) <https://www.theice.com/publicdocs/LIBOR_Benchmark_statement.pdf> accessed 22 May 2021; European Money Markets Institute, 'EURIBOR Benchmark Statement' (2019) D0246B-2019 <https://www.emmi-benchmarks.eu/assets/files/D0246C-2019-EURIBOR%20Benchmark%20Statement%20update%2001%202021%20.pdf> accessed 22 May 2021.

4.3.2 Trust in numbers

As sociologists and historians of statistics such as Theodore Porter have shown, quantification is a social practice whose use as a strategy for bolstering public decision-making by producing 'trust in numbers' has a long history in the West.[43] The creation of standardised statistical measures and indices is essential, Porter argues, 'precisely where there is more accountability than authority.'[44] By replacing judgement with rules, techniques of quantification are both a constraint on public decision-making and a way of extending and reinforcing a weak mandate. For example, Porter shows how cost-benefit analysis first emerged in the US during the twentieth century as ad hoc means for public agencies to defend their autonomy from political interference. The credibility of these disparate techniques was linked to the effect they produced of *distancing* the decision-maker. Only later did the pressure to harmonise conflicting methodologies result in the development of a standard approach to cost-benefit analysis, grounded in economic theory. Ultimately, Porter argues: 'Quantification is a way of making decisions without seeming to decide'.[45]

Porter's insights are literalised by the Wheatley Review. The role of quantitative data in the reformed Libor calculation is as a check on decision-making, to keep a submitting bank 'honest' by enabling the administrator and regulator to verify the judgements it makes. Moreover, the Review understood the concept of an entirely automated, transaction-based benchmark to be an unattainable ideal. Explaining the

[43] Theodore M Porter, *Trust in Numbers : The Pursuit of Objectivity in Science and Public Life* (Princeton University Press 1995).

[44] Porter (n 43) 81.

[45] Porter (n 43) 8.

rationale for continuing to use expert judgement in Libor's production, Martin Wheatley observed: 'there is not enough daily data available to have a system in place that is entirely based on market transactions, particularly in times of stress' (eg a financial crisis).[46] Hence, the role of expert judgement in Libor's calculation process could be disciplined but not abolished.

As I discuss in Chapter 5, the recommendations of the Wheatley Review set in motion a benchmark reform agenda that has come to prioritise Libor's replacement with alternatives based on more abundant transaction data. However, even with the new generation of data-driven, 'algorithmic' benchmarks, the role of expert judgement is not entirely excluded.[47]

This is not only to make the point that techniques of quantification have their own politics. It is, of course, true that algorithms and benchmark methodologies have to be designed. Somebody has to decide what to quantify and how. But a benchmark such as Libor is evidently more than just a 'black-box' – a term used by science studies scholars to denote the successful production of a 'fact' whose constructedness and contingency are forgotten.[48] Rather, its politics are on the *outside*, underwriting the constant possibility that the benchmark measure cannot be ascertained from the data alone. If, as Porter suggests, quantification is 'a way of making decisions without seeming to decide',

[46] Wheatley (n 36).

[47] The rise of algorithmic forms of finance such as high frequency trading is the setting for a similar debate about the changing relationship between human and non-human. For example, Borch and Lange show how, rather than rendering human traders obsolete, the move to high frequency trading produces new forms of subjectivity. Christian Borch and Ann-Christina Lange, 'High-Frequency Trader Subjectivity: Emotional Attachment and Discipline in an Era of Algorithms' (2017) 15 Socio-Economic Review 283.

[48] Bruno Latour, *Science in Action : How to Follow Scientists and Engineers through Society* (Harvard University Press 1987) 131.

a benchmark is a way of making decisions in circumstances where their ultimate *un*accountability is already presupposed. In the end, it is not enough to trust in numbers. As the President of IBA put it: 'You can almost go to 100 per cent data driven on a day-to-day basis, but frankly you always need [the] ability for humans to step in when the machine goes nuts.'[49]

This tension in 'public' accountability talk – the sense that the rhetoric outpaces the reality – was underlined by the way the Wheatley Review reflected on its own recommendations. As noted above, the Review interpreted its mandate as one of 'restoring trust' in Libor. However, for one thing, there did not appear to be any evidence of a loss of trust among financial actors. The Review noted: 'it has become clear that, despite the loss of credibility that LIBOR has suffered recently, there has been no noticeable decline in the use of LIBOR by market participants'.[50] Acknowledging that the 'clear majority' of consultation responses argued for Libor to be continued rather than replaced, it concluded: 'there is clearly a large role that LIBOR plays in financial markets for which there is no immediately obvious alternative'.[51]

Moreover, if the notion of trust foregrounded the role of social relations in the way that Libor and other benchmarks are produced and used, it is notable that these considerations were placed outside the frame of analysis in the Wheatley Review; hived off into a separate set of debates about the 'culture' of finance. I consider these debates more closely below, as they help to introduce the second main strand of accountability

[49] Thomas Hale, 'ICE Bets on Data to Resurrect Libor's Reputation' *Financial Times* (5 April 2017) <https://www.ft.com/content/8941636e-13b2-11e7-80f4-13e067d5072c> accessed 21 May 2021.

[50] The Wheatley Review (n 34) 7.

[51] The Wheatley Review (n 34) 7.

talk I identify in benchmark reform discourse, linked to a sense that ultimately financial actors are accountable only to *themselves* for the way they interact with Libor and other benchmarks.

4.4 The Turn to 'Culture'

The idea that the 'problem' that Libor represents is 'cultural' is a common theme in benchmark reform discourse, including the academic literature in this area.[52] For example, one trader-turned-academic argues:

> The issue with LIBOR has always been ethics. Or the lack of them. LIBOR manipulation was unethical, even though the process lacked regulation and legal precedents. It was unethical, regardless of whether it was widespread or maybe even encouraged by senior management.… But then it was embedded in an unethical culture.[53]

Only the year before Barclays' settlements with regulators emerged, its Chief Executive, Bob Diamond, had insisted that banks had shown enough 'remorse and apology' over

[52] David Rohde, 'The Libor Scandal and Capitalism's Moral Decay' [2012] *The Atlantic* <https://www.theatlantic.com/business/archive/2012/07/the-libor-scandal-and-capitalisms-moral-decay/259819/> accessed 8 February 2017; Porter (n 11); The Economist (n 12); The Economist, 'Banksters' [2012] *The Economist* <https://www.economist.com/leaders/2012/07/07/banksters> accessed 21 May 2021; Sean Vanatta, 'Libor's Risks Emerged From Clubby London Banking Culture' *Bloomberg* (14 August 2012) <https://www.bloombergview.com/articles/2012-08-14/libor-s-risks-emerged-from-clubby-london-banking-culture> accessed 19 May 2021; Justin O'Brien and George P Gilligan, *Integrity, Risk and Accountability in Capital Markets : Regulating Culture* (Hart Publishing 2014); Alicia Micklethwait and Patricia Dimond, *Driven to the Brink: Why Corporate Governance, Board Leadership and Culture Matter* (Springer 2017).

[53] Alexis Stenfors, 'The Scandal Might Be over but LIBOR Ethics Remain Fundamentally Flawed' (*The Conversation*, 12 May 2017) <http://theconversation.com/the-scandal-might-be-over-but-libor-ethics-remain-fundamentally-flawed-77412> accessed 21 May 2021.

their role in the financial crisis of 2007-8.[54] The scandal was 'the final straw'.[55] The settlements revealed a world populated by actors and groups that apparently operated beyond existing institutional structures and geographic boundaries, with their own languages, behavioural norms, and social dynamics. If their practices were strategic and opportunist, they were also mundane and ad hoc. If they exploited perceived gaps in the rules, they often *were* the rule: 'everybody was doing it'.[56] Indeed, as more banks came forward with admissions of Libor misconduct, and investigations into other benchmarks began to yield similar findings, the same practices seemed to be at work everywhere you looked.[57]

In the wake of the scandal, Barclays announced an independent review of its business practices, which reported in April 2013.[58] This found 'that the business practices for which Barclays has rightly been criticised were shaped predominantly by its cultures, which rested on uncertain foundations.'[59] Two months later, the Parliamentary Commission on Banking Standards published its own report, warning 'that a culture

[54] Sharlene Goff and George Parker, 'Diamond Says Time for Remorse Is Over' *Financial Times* (11 January 2011) <https://www ft.com/content/d4f02d66-1d84-11e0-a163-00144feab49a> accessed 21 May 2021.

[55] Parliamentary Commission on Banking Standards, *Changing Banking for Good: Volume II: Chapters 1 to 11 and Annexes, Together with Formal Minutes* (HC 175-II, 2013-14) 82 <https://old.parliament.uk/documents/banking-commission/Banking-final-report-vol-ii.pdf> accessed 21 May 2021.

[56] The Telegraph, 'Libor Scandal: How I Manipulated the Bank Borrowing Rate' *The Telegraph* (1 July 2012) <https://www.telegraph.co.uk/finance/newsbysector/banksandfinance/9368430/Libor-scandal-How-I-manipulated-the-bank-borrowing-rate html> accessed 22 May 2021.

[57] Taibbi (n 19).

[58] Salz Review, *An Independent Review of Barclays' Business Practices* (Barclays PLC 2013) <https://online.wsj.com/public/resources/documents/SalzReview04032013.pdf> accessed 22 May 2021.

[59] Salz Review (n 58) 6.

exists in banking which diminishes a sense of personal responsibility.'[60] Its recommendations included new rules governing bank pay, a new framework establishing individual responsibility for key functions, including benchmark setting, and powers for regulators 'to identify and tackle serious failings in standards and culture within the banks they supervise'.[61]

The knock-on effects for financial regulatory expertise were not only conceptual but methodological. Benchmark 'manipulation' was a concept that was made tangible through the retrieval and processing of vast quantities of digital communications data. These were seen to give access to individuals' interests and motivations, not as dryly theorised, but as authentically preserved and expressed through their social interactions, daily routines, and personal dispositions. In 2014, the UK Treasury and the Bank of England launched the Fair and Effective Markets Review ('FEMR') (also co-chaired by Martin Wheatley as Chief Executive of the FCA) which aimed to restore confidence in activity in key UK financial markets, including the use of apparently scandal-prone benchmarks.[62] Among FEMR's areas of focus was the development of 'conduct metrics' designed to allow firms to make better use of data for monitoring purposes, for example by producing 'management "traffic light" ratings, or flags, triggered by patterns of

[60] Parliamentary Commission on Banking Standards (n 55) 283.

[61] Parliamentary Commission on Banking Standards (n 55) 437.

[62] HM Treasury, 'Fair and Effective Markets Review Announced by Chancellor of the Exchequer' (*GOV.UK*, 12 June 2014) <https://www.gov.uk/government/news/fair-and-effective-markets-review-announced-by-chancellor-of-the-exchequer> accessed 22 May 2021.

concerning behaviour across a range of measures', such as how assiduously someone completes their mandatory training or expenses claims.[63]

This 'cultural turn' in financial regulation is not unique to benchmark reform discourse. As Annelise Riles has observed, with the shake-up of economic and financial regulatory expertise prompted by the 2007-8 financial crisis '[t]here is a new market for sociological and anthropological techniques for making sense of markets as cultural spaces'.[64] In effect, 'culture' comes to '[stand] for anything and everything that cannot be explained' by the mainstream thinking.[65] In the context of benchmark reform discourse, specifically, 'culture' marks what remains still to be accounted for when mechanisms of 'public' accountability have reached their limit (eg when no data are available to do the calculation or when there is no noticeable decline in Libor's use despite its 'problems'). As Bob Diamond, among others, has expressed it, 'the evidence of culture is how people behave when no-one is watching' –[66] that is, when they account only to themselves.

In my own interviews, I sought to explore this apparent inflection point in benchmark reform discourse, at which 'public' accountability talk marks its own limits. I did this by asking my interviewees about how they understood and evaluated particular

[63] FEMR, 'Fair and Effective Markets Review - Final Report' (2015) 72 <https://www.bankofengland.co.uk/-/media/boe/files/report/2015/fair-and-effective-markets-review-final-report.pdf?la=en&hash=1985B00AA2221D81606668501E01EB0B0412403A> accessed 22 May 2021.

[64] Annelise Riles, 'Market Collaboration: Finance, Culture, and Ethnography after Neoliberalism' (2013) 115 American Anthropologist 555, 558.

[65] Riles (n 64) 561.

[66] Bob Diamond, 'Today Business Lecture 2011' (3 November 2011) <http://news.bbc.co.uk/today/hi/today/newsid_9630000/9630673.stm> accessed 22 May 2021.

reform proposals, such as the move towards transaction-based benchmarks, as well as their expectations of benchmark reform for their own work. The overall picture that emerges from my interview data indicates that 'public' accountability talk was readily understandable to my interviewees and generally accepted as setting the terms on which debates about reform are conducted. However, there were also points of disagreement, ambivalence, and differences of emphasis which qualified and added important nuance to Libor's problematisation. Together, these illuminate what I refer to as 'private' accountability talk, the key features of which I outline below.

4.5 The Limits of Reform: Benchmarks and 'Private' Accountability

In most cases, the financial actors I spoke to saw Libor reform as necessary but even those strongly in favour of reform acknowledged that it would be an onerous exercise and many had mixed feelings. For example, I found that my interviewees were overwhelmingly supportive of the principle of transaction-based benchmarks. However, this support was not unqualified. Several of the financial actors I spoke to drew an implicit distinction between the use (of which they approved) of quantification as a constraint on discretion and a check on arbitrariness in the calculation process, and its use as a means of determining the *outcome* of the calculation (of which they were generally more sceptical). As one corporate treasurer put it, 'I'm not so sure the rates are necessarily wrong or out of kilter, it's just, you know, the process, how they have been derived has been open to abuse.'[67]

[67] Interview 74525, Corporate Treasurer (UK, 2018).

This is not to suggest that these financial actors were ignorant of the issues. Some of my interviewees (especially those who were not involved with the Sterling RFR Working Group) were less familiar than others with the details of the policy debates surrounding benchmark reform. However, they were no less attuned to the critiques of Libor's credibility since the financial crisis of 2007-8. Scepticism or anxiety about reform did not seem to stem from differences in people's understandings of the nature of the 'problem' or how it was manifested (eg 'manipulation', poor governance, 'cultural' issues etc) but rather a difference of emphasis concerning what is *at stake* in Libor reform. As I show below by reference to my analysis of my interview data, a key empirical finding of this thesis is that what is at stake in reform work is the stability of the conditions under which financial actors recognise their own and each other's promises and make their agreements stick.

4.5.1 The essence of Libor

As described in part 4.2, in the reform discourse the stakes of Libor reform are understood, above all, in terms of stabilising the creditor-debtor relation. In its formulation of the issues, the Wheatley Review focused in particular on mitigating potential risks to the legal validity of Libor-linked contracts. The Review observed that among the responses to its consultation 'there was consensus that reforming LIBOR in a way that ensures legal certainty is essential and the immediate priority.'[68] At the same time, however, there were concerns that over-zealous reform could jeopardise existing contracts.[69] The Review noted: 'There was a general view that the key consideration was

[68] The Wheatley Review (n 34) 67.

[69] The Wheatley Review (n 34) 67.

preserving the essence of LIBOR', eg by keeping the definition of Libor as an 'interbank offered rate' and avoiding changes that would result in 'step changes' in the level of the rate. [70]

My own interview data strongly suggest that this technical focus on contractual continuity belies a broader sense of the 'essence' of a benchmark such as Libor among financial actors. Reflecting on the prospect of Libor's replacement, one finance lawyer told me:

> People talk about "legal risk" but, really, the most serious risks would be better described as "market behaviour risks" – refusal of Trustees to act or to move, refusal of parties to agree on settlement date figures, refusal by one party to accept successor rate [ie replacement benchmark] values – rather than "court-dependent risk".[71]

The implication here, which was articulated in different ways by interviewees across my interview sample, is that a benchmark is not simply a means of giving their relationships the seal of legal validity, but an enduring frame of reference by which financial actors go about their economic affairs, reach mutually acceptable commercial bargains, and enter lasting relationships notwithstanding the risks. Libor is indeed important because it is referenced in contracts, but it is *because the benchmark is valued* by those concerned that it can stand as the basis of their contractual obligations to one another in the first place. The expression of this priority is what I refer to as 'private' accountability talk.

Drawing on my analysis of my interview data I identify two main themes of 'private' accountability talk in the way that financial actors spoke about Libor's role in

[70] The Wheatley Review (n 34) 71.

[71] Interview 25405, Financial Markets Lawyer (UK, 2018).

their transactions. On the one hand, interviewees emphasised the benchmark's social function as a device for facilitating commensuration, meaning 'the transformation of different qualities into a common metric'.[72] On the other hand, several of my informants talked about how they experienced the benchmark as a 'given', regulating and transcending the circumstances of their transactions. I illustrate each of these themes below by reference to specific examples from my data.

4.5.1.1 'The number everybody uses'

For many of the financial actors I spoke to, what defined a benchmark was simply its recognition as such, through its adoption by a 'community of users',[73] typically linked to specific practices and contexts of use. For example, this understanding tended to be emphasised by those of my interviewees involved in derivatives trading. For these financial actors, what mattered was their ability to enter into hedging transactions that are rendered commensurable by virtue of referencing the same benchmark. As one explained: 'it's just the number everybody uses and, well, everyone else is using it so it doesn't matter what it represents, it's simply the thing I have to use as well because that's what everyone else is doing.'[74]

In a different example, among the uses made of Libor by companies is that of a benchmark for the pricing of intercompany loans; that is, loans among companies within the same corporate group. Under 'transfer pricing' rules contained in international

[72] Wendy Nelson Espeland and Mitchell L Stevens, 'Commensuration as a Social Process' (1998) 24 Annual Review of Sociology 313, 314.

[73] Interview 35765, Fund Manager (UK, 2018).

[74] Interview 84290, Rates Specialist – Post-trade Services (UK, 2018).

treaties governing the tax treatment of such transactions, intercompany loans must be conducted at 'arm's-length',[75] meaning that loans between those companies must be made on terms that are commensurable with those of transactions between unrelated companies. Demonstrating this in practice means referring to a recognised benchmark, typically Libor. As one corporate treasurer explained: 'We need to show that we're conforming to the global standard therefore that's what we do.'[76]

Both of these sets of interviewees implicitly or explicitly distinguished considerations of 'public' accountability from those affecting their own use of a benchmark. For example, commenting on the implications of Libor reform, another corporate treasurer whose role involved dealing with tax authorities on several continents told me:

> the fact that, you know, you had these Libor scandals, I'll take a class action [ie pursue collective redress in the courts] on that and wait to see what happens. But it's more my conversations with tax and revenue authorities that cause the problems about will – which interest rate? Libor was the standard everybody accepted. Now [as a result of reform] it's much more up in the air.[77]

For this individual what mattered more than whether Libor was 'manipulated' was whether it was the standard everybody accepted. Indeed, it was common to hear from interviewees that they 'did not care' about whether Libor was replaced with an alternative benchmark since the referential meaning of the benchmark (ie what it 'represents') was secondary. As a result many claimed to be indifferent to the outcome of reform. As one

[75] John Neighbour, 'Transfer Pricing: Keeping It at Arm's Length' (2002) 230 *OECD Observer* <https://oecdobserver.org/news/archivestory.php/aid/670/Transfer_pricing:_Keeping_it_at_arms_length.html> accessed 22 May 2021.

[76] Interview 48017, Corporate Treasurer (UK, 2018).

[77] Interview 97659, Corporate Treasurer (UK, 2018).

derivatives expert put it, 'from our point of view we can strangely look past the benchmark itself'.[78]

In reality, this professed indifference was highly contingent. Financial actors could afford to be indifferent about the benchmark they used as long as they could rely on being able to hedge their exposures by entering into offsetting transactions, or having their accounts certified or their tax arrangements approved. Hence, it was only possible to 'look past the benchmark itself' and focus on the effects it produces insofar as the benchmark (whatever it 'represented') was already generally accepted. This perspective is therefore closely linked to the second main way of thinking about and using Libor that emerges from my data, as a 'given'.

4.5.1.2 'With us from the beginning'

In the second broad perspective emerging from my interviews, a benchmark is literally a 'given' – a value determined by somebody else and handed down. As one former trader expressed it: 'I don't know what it is until somebody tells me'.[79]

Understood as being a 'given', a benchmark sets limits on what needs to be thought about in a given transactional setting, ie on what it is necessary to *know* in order to transact. One of the ways in which this was manifested among my interviewees was in a tendency to abstract and to talk about Libor in non-instrumental terms. This was because using Libor in their transactions was not a matter of 'choice'; it did not form the subject of negotiations or conscious deliberation. If they thought about the benchmark at

[78] Interview 84290 (n 74).

[79] Interview 27381, Consultant – Derivatives Advisory (UK, 2018).

all, it was as part of the mental furniture that they brought to their work – at a 'strategic' and 'tactical' level, as one corporate treasurer put it. That is, at a strategic level, the extent to which the company's overall portfolio of loans and other investments was tied, or 'correlated', to movements in Libor. Tactical considerations involved thinking about whether it may be more advantageous to pay fixed or floating rates, depending on a judgement as to whether interest rates are likely to go up or down. Referencing the benchmark was implicitly deterministic: 'you're considering the level of Libor [in the short- to medium-term] relative to long term [fixed] rates and what is right for the business as a whole.'[80] Viewed across my dataset as a whole, the overall impression is one of circularity, inasmuch as the decision to treat Libor as the benchmark of choice was constantly assumed by financial actors of all kinds to have been made elsewhere. As one fund manager put it: 'Libor, as was, or whatever reference rate, benchmark you wish to use, is with us from the beginning.'[81]

In a similar way, a number of interviewees referred to Libor as a 'starting point' for contractual negotiations. One experienced financial regulatory lawyer I spoke to explained how Libor would typically appear in the very first transaction document to be prepared – the 'termsheet' – as the basis for opening negotiations on the margin to be added to make up the price: 'It is very similar to the fact that you have to have established what language you are going to talk in before you can have a conversation – this is that level of commonality.'[82]

[80] Interview 91466, Corporate Treasurer (UK, 2018). Bracketed text indicates post-interview clarifications suggested by interviewee.

[81] Interview 88475, Portfolio Manager (UK, 2018).

[82] Interview 97629, Financial Markets Lawyer (UK, 2018).

In light of this, the possible unintended consequences of a rigorously quantified benchmark calculation are not only practical but epistemological. As the same interviewee explained, overdetermining the benchmark would be liable to result in more complexity and greater scope for dispute between the parties to financial transactions:

> The nice thing about Libor, in a funny sort of way, was because it was entirely made up and then averaged, there was a single person setting out a single figure and saying "here it is". The problem with something based on a lot of arithmetic is that if it creates even the possibility that two people can run the sums and get different answers… then that makes the world a more complicated place than it was before.[83]

In other words, what made Libor a useful benchmark was precisely that it was, strictly speaking, unaccountable – nothing more or less than a 'given' and, as such, unarguable. Another interviewee, a risk manager responsible for a major bank's benchmark reform programme, described this looked-for quality of underdetermination as a 'mystique', which was essential in benchmark methodologies in order to prevent their becoming predictable and open to being gamed.[84] What emerges from these accounts is a picture in which the element of judgement is not something to be eliminated, but a feature of the benchmark's working as it should.[85] I pick up this theme again in Chapter 7, where I consider various ways in which reformers have been obliged to derogate from their vision of a world without Libor in order to preserve the same relations of 'private' accountability.

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[83] Interview 97629 (n 82).

[84] Interview 60941, Bank Risk Manager (UK, 2018).

[85] Cf Kurt Dew, 'Replacing LIBOR's Magic' (*SeekingAlpha*, 26 May 2020) <https://seekingalpha.com/article/4350140-replacing-libors-magic> accessed 22 May 2021.

* * *

We can summarise the above discussion by saying that the common thread running through these examples of 'private' accountability talk is an emphasis on the *non-epistemological* characteristics of a benchmark. For the majority of my interviewees, what seemed to matter most in a benchmark was what it makes possible by virtue of its capacity to obviate calculation and deliberation. As one interviewee, a corporate treasurer in a FTSE 100 company and proponent of reform, put it:

> actually, what makes a good benchmark? It's published promptly, in good time, everyday, doesn't screw up, doesn't suddenly disappear, doesn't have errors in it. All more important things than "is somebody fixing it or not?"[86]

A benchmark makes the question of the standard or correct distribution of payments and receipts under a financial contract something that is visible and ascertainable in the same way by everyone. This assurance underwrites the promises that financial actors make to one another to pay/ receive an amount equal to 'Libor' and confers a certain regularity on their dealings. It also governs the possibility of making serial promises that presuppose one another's fulfilment in the same way, at the same time, as with eg a portfolio of loans hedged with interest rate swaps. As another interviewee, a corporate treasurer in a large UK retailer, explained:

> Treasurer: … With our interest rate swaps and our investing, you know, that's, that's pretty fundamental. I mean, when we come to reset, so our interest, you know, what's our sensitivity or overall interest cost this year? You know, it's gone down because we've borrowed less, it's gone up because Libor's gone up. You know, short-term Libor rates, OK, we've fixed out for the year now, so – so that's sort of real. Real money, real costs, real hedging, real exposures …
>
> Interviewer: Yeah, real, just in the sense that it's -?

[86] Interview 48017 (n 76).

> Treasurer: It has an impact in terms of how much we pay and what we do and how we behave.[87]

In the end, what this and most of my other interviewees wanted out of benchmark reform was a number they could accept at face value. This was not because they were intellectually lazy or naïve but because for them the 'essence' of a benchmark was not what it does or does not 'represent' but the kinds of social relations it constitutes and sustains. As a standard and 'given' feature of their social world, a benchmark obviates the need to demand an account because its reality is self-evident. Transacting by reference to a benchmark such as Libor constitutes financial actors with the knowledge of their *own* accountability for their promises – ie as financial actors who know 'what to do and how to behave'.

4.5.2 Making promisers

The picture that emerges from my interview data suggests that, for my interviewees considerations of 'public' accountability were certainly not irrelevant or discontinuous with their own concerns. Undoubtedly it mattered to them to know that the sums they paid or received under Libor-linked financial contracts 'made sense' (eg by reference to a theory and a representation of the 'underlying' market), and to have the security of governance mechanisms such as verification checks on submissions. However, in the final analysis, a benchmark such as Libor is not something to be accounted for. On the contrary, it is valued for its *lack* of epistemological baggage. The commitment it

[87] Interview 39471, Corporate Treasurer (UK, 2018).

constitutes is the stuff financial actors' promises are made out of, the starting point for their calculations, and a limit on what it is necessary to know in order to transact.

This emerging picture resonates strongly with Lazzarato's Nietzschean reading of the creditor-debtor relation as a process of subjectification. For Lazzarato, finance is an apparatus for constructing particular kinds of subjects, who are equipped, above all, with the ability to give an account of themselves:

> a person capable of *promising*, someone *able to stand guarantor for himself* in the creditor-debtor relationship, that is, capable of honoring his debt. Making a person capable of keeping a promise means constructing a memory for him, endowing him with interiority, a conscience, which provide a bulwark against forgetting.[88]

From this perspective, a benchmark is a certain way of constructing a 'memory' of a debt, which constitutes financial actors with knowledge of 'what to do and how to behave'. Moreover, this ethic of 'private' accountability works both ways. Insofar as each party to a financial transaction is made accountable to themselves in the same way, their relationship is one of equals. Each recognises themselves and the other as a person who is 'entitled to make promises' and, hence, 'calculable, regular, necessary'.[89]

The 'problem' at the heart of benchmark reform discourse is that both 'public' and 'private' forms of accountability are indispensable to its animating vision of a coherent, rational, and stable financial domain; yet they invoke entirely inimical ways of organising economic life. The damaging critiques of Libor in the wake of the 2007-8

[88] Maurizio Lazzarato, *The Making of the Indebted Man: An Essay on the Neoliberal Condition* (Semiotext(e) 2012) 40, original emphasis.

[89] Friedrich Nietzsche, *On the Genealogy of Morals: A Polemic. By Way of Clarification and Supplement to My Last Book Beyond Good and Evil* (Douglas Smith tr, Oxford University Press 2008) 40, emphasis removed.

financial crisis foregrounded the role of 'private' accountability in the relations that the benchmark constitutes and sustains, making it appear that its wealth effects were mere effects of power. This called for a set of reforms which ensured that Libor's role in financial transactions could be 'publicly' accounted for. Yet, as my interviewees understood only too well, a benchmark that can be fully accounted for is no benchmark at all. Its wealth effects are not 'remembered' as natural or 'given' but transparently contingent and reversible, and hence it creates room for debate rather than space to transact. As one corporate treasurer put it: 'You know, you've got to start from somewhere, and if the first thing you're doing is arguing about where you're starting from, you're not going to get very far, right?'[90] The great paradox of benchmark reform is that the essence of a rational and ordered financial system populated by accountable, self-governing actors is the acknowledgement and careful observance of the limits of 'public' accountability.

In attempting to overcome this paradox, Libor reform from the Wheatley Review on has consisted of a series of strategies and techniques for promoting 'public' accountability in the way benchmarks are produced and used while preserving the 'privately' accountable relations of power between creditors and debtors that Libor sets in place. The productive tension between these two aims makes reform a constantly ramifying 'problem'.

For example, the Wheatley Review's determination that Libor should be calculated from transaction data carried a number of broader implications, both practical and conceptual. For a calculation based on transactions to be viable, there first needed to

[90] Interview 97659 (n 77).

be the data to do it. Judging that 'there is a lack of regular transactions for many of the currencies and [maturities] for which LIBOR is calculated',[91] the Wheatley Review recommended a reduction in the number of published Libor rates, retaining only those referencing the most heavily-traded markets.[92] It also made recommendations aimed at stabilising the panels of Libor banks whose activities underpin the calculation, including delaying the publication of individual banks' contributions to the calculation process (with the aim of avoiding the kind of feedback loop experienced during the financial crisis of 2007-8, as discussed in Chapter 3); ensuring sufficiently large Libor panel sizes for each currency; and giving the FSA the express power to compel Libor submissions if necessary.[93] Hence, through the effort to reform it, the conditions under which Libor might *no longer* be said to be capable of reform were also starting to be made thinkable.

I pick up on these themes in Chapter 5 when I consider the next phase of reform work after the Wheatley Review, in which the aims of benchmark reform were reoriented towards identifying possible alternatives to Libor and helping users of benchmarks take responsibility for their choices.

4.6 Conclusion

In this chapter I explored Libor's problematisation in the UK-based benchmark reform discourse using the Wheatley Review of Libor as my main focus and frame of reference.

[91] The Wheatley Review (n 34) 36.

[92] The Wheatley Review (n 34) 37; in 2013, the BBA ceased publication of the Libors for the Australian dollar, Canadian dollar, Danish krone, New Zealand dollar and Swedish krona, and reduced the number of published maturities for the remaining rates. BBA, 'LIBOR Becomes a Regulated Activity' (*BBA archive site*, 2 April 2013) <http://www.bbatrent.com/news/libor-becomes-a-regulated-activity> accessed 22 May 2021.

[93] The Wheatley Review (n 34) 37–39.

I complemented my discussion of the Review and other contemporaneous documentary sources by drawing on my interviews with forty financial actors. In this way I have built up a nuanced, empirically rich picture in response to the first question in the WPR analytical scheme: what is the 'problem' represented to be?

In answering this question, I have shown how benchmark reform discourse responds to a serious threat to the legitimacy of financialised valuations and concomitant forms of economic and financial regulatory expertise. When added to the critiques of Libor's credibility during the financial crisis of 2007-8, the legal and regulatory discourse of benchmark 'manipulation' created an urgent need to account for Libor's role in financial transactions in a way that legitimised the distributive effects to which it gives rise and stabilised the finance theoretical ideal of system-like, perfectly commensurable creditor-debtor interactions.

However, my findings indicated that accountability talk in this context is composed of two distinct but interlaced strands: 'public' and 'private'. 'Public' accountability talk concerns the mechanisms by which Libor's production and use in financial transactions is rationalised, whereas 'private' accountability talk understands that there is always a limit to rational account-holding. The two form a kind of dialectic in the reform discourse. The post-crisis critiques of Libor's credibility and 'manipulability' implied the collapse of mechanisms of 'public' accountability. Yet their reestablishment in the form of a technoscientific apparatus of strict quantification only highlighted the elements that could not be accounted for without undermining the very stability to which reformers aspire.

For my interviewees, a benchmark commensurates financial transactions by first commensurating the people that make them, as financial actors who already know the measure of their promises. A world in which a benchmark is made inseparable from the rationalities of its production and use is a world in which, at best, financial transactions become endlessly debatable, uncertain, and costly. At worst, transacting becomes unthinkable. Hence, the central 'problem' confronting benchmark reformers is how to intervene in a way that promotes the 'public' accountability of benchmark production and use while leaving intact the relations of power that Libor constitutes and sustains. In the next chapter I explore how this problematisation has been stabilised and reproduced in reform work post-Wheatley Review through the emergence of a distinctive 'market-led' regulatory approach.

5. The Art of Being 'Market-Led'

5.1 Overview

In this chapter I examine how Libor's representation as a 'problem' has been reproduced and stabilised in benchmark reform discourse since the Wheatley Review. In doing so, I address two main questions, corresponding to the sixth and fifth questions in the WPR analytical scheme, respectively: how/ where has this representation of the 'problem' been produced, disseminated and defended? And: what effects are produced by this representation of the 'problem'?

I first look at how Libor's problematisation in the Wheatley Review, as discussed in Chapter 4, prefigured the emergence of a distinctive 'market-led' governance model. This is a regulatory approach characterised by techniques and strategies designed to ensure the appearance of 'public' accountability in the way that benchmarks are produced and used, while stopping short of intervening in the relations between creditors and debtors. Drawing mainly on documentary sources, such as the final report of the Wheatley Review, as well as regulatory scholarship, I illustrate the key features of the 'market-led' model. I find that, post-Wheatley, Libor is governed through a set of reformed institutional arrangements that have the effect of establishing limits beyond which it is not obvious that *anyone* is responsible for key decisions (eg changes to the definition of the 'underlying' market or judgements on how the benchmark calculation should be carried out). The overall effect is to naturalise the economic outcomes produced by the benchmark as effects of unaccountable market forces rather than deliberate decision-making.

Building on the Foucauldian understanding of problematisations as discourses that construct their subjects and objects, I further show how the 'market-led' approach has recursively shaped the organisation and working practices of benchmark reform, thereby revealing specific effects which flow from Libor's problematisation in the reform discourse. These encompass not only the production of particular kinds of regulatory objects, such as transaction-based benchmarks and the role of the benchmark administrator, but also particular kinds of subjectivities, such as 'benchmark users'.

I illustrate these effects by providing a chronology of the key stages in the benchmark reform discourse since the Wheatley Review. I draw for this purpose on a combination of analysis of my interview data and documentary sources, including reports and other outputs of reform initiatives, speeches, and media commentary, organised by reference to two distinct phases of reform work. First, a highly structured, transnational reform programme carried out at the behest of G20 governments during 2013 and 2014, in which the goals of reform were progressively reoriented towards fostering alternatives to Libor (part 5.3), and secondly, an implementation phase from 2015-2017, in which the task of selecting preferred alternatives was devolved to working groups organised by currency area (part 5.4).

Overall, I show that the art of being 'market-led' involves a subtle, often tortuous, choreography. For benchmark reformers, the political and epistemological imperative to account 'publicly' for Libor's role in financial transactions is always tacitly subordinated to the even greater imperative to leave alone that which has already been 'privately' accounted for.

5.2 Fixing the Limits of Reform

As noted in the previous chapter, part of the mandate of the Wheatley Review was to consider the wider implications of its conclusions with respect to Libor. In this regard, the Review considered that there was a case for further work in two related areas. First, while its main conclusion was that Libor should be reformed rather than replaced 'in the immediate term', the Review also recommended that there be a review of Libor's long-term future.[1] Secondly, the Review expressed the hope that lessons could be learned from its consideration of Libor, with a view to producing a 'set of overarching principles that can be applied to benchmarks more broadly'.[2] In both cases, the scope and significance of this work was seen to demand international cooperation.[3] Crucially, it was also seen to call for a particular regulatory approach – part ideology, part problem-solving technique – which is summarised in the notion of '*market-led'* reform.

In this part I explore the main features of the 'market-led' approach to benchmark reform. I show how the emergence of this regulatory model as a 'solution' to the 'problem' of accounting for Libor helps to stabilise and reinforce Libor's problematisation in particular ways – for example, by both institutionalising mechanisms of 'public' accountability in the way the benchmark is produced and used and simultaneously fixing limits to these mechanisms. This enables me to address the sixth

[1] The Wheatley Review, 'The Wheatley Review of LIBOR: Final Report' (2012) 43 <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/191762/wheatley_review_libor_finalreport_280912.pdf> accessed 21 May 2021.

[2] The Wheatley Review (n 1) 53.

[3] The Review recognised that there were already a number of initiatives in train, including, at that stage, a consultation on what would become the EU Benchmark Regulation.

question in the WPR analytical framework: how/ where has this representation of the 'problem' been produced, disseminated and defended/

At the same time, I also explore some of the key *effects* of Libor's problematisation in the reform discourse. Bacchi identifies three interrelated categories of effects that fall for consideration as part of the fifth question in the WPR analytical scheme.[4] Following Foucault, the first two categories are referred to in her work as, (i) 'discursive effects', which arise from the way that problematising discourses regulate what can be known and said about the 'problems' they contain, and (ii) 'subjectification effects', which concern how these discourses construct particular kinds of subjectivities. In the context of benchmark reform, discursive effects encompass the production of particular kinds of objects and spaces, such as transaction-based benchmarks and 'market-led' working groups. Subjectification effects refer to the ways in which the reform discourse calls forth a certain kind of financial actor, equipped to inhabit and afford themselves of these objects and spaces. I analyse each of these categories in turn in this part and part 5.3.

The third category Bacchi identifies, 'lived effects', is designed to ensure that the analysis of problematisations is not merely an academic exercise but takes account of the ways in which discursive effects and subjectification effects impact on people's lived experiences. I consider this category in detail in Chapter 6, where I explore how the effort to replace Libor with alternative benchmarks has been experienced by financial actors, above all, in terms of its potential impact on the distribution of wealth between

[4] Carol Bacchi, *Analysing Policy: What's the Problem Represented to Be?* (Pearson Australia 2009) 15.

the parties to financial transactions and on the balance of political power between different groups, such as derivatives actors and cash market actors.

5.2.1 A solution in search of a problem

One way to appreciate what is at stake in the notion of a 'market-led' approach to reform is to look at the role of the benchmark administrator as it has been redefined in the reform discourse. In the immediate aftermath of the Libor scandal there were vocal calls for greater public oversight over the operation and supervision of Libor, and banking more generally.[5] Signalling the interventionist mood, the Vice-President of the European Commission and EU Justice Commissioner, Viviane Reding, called for 'more public authority involvement in the monitoring of the reporting process and in the determination of the rates'.[6] However, while the Wheatley Review acknowledged the role of 'weak institutions'[7] in the Libor scandal (notably the BBA) it stopped short of recommending that Libor be taken into public hands. Instead, it concluded, 'LIBOR should be a *market-led* benchmark, administered by a private organisation rather than by a public body'.[8]

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[5] Seumas Milne, 'Private Banks Have Failed – We Need a Public Solution' *The Guardian* (3 July 2012) <http://www.theguardian.com/commentisfree/2012/jul/03/private-banks-failed-barclays-scandal> accessed 22 May 2021; The Economist, 'Banksters' [2012] *The Economist* <https://www.economist.com/leaders/2012/07/07/banksters> accessed 21 May 2021; Elizabeth Warren, 'Elizabeth Warren: Libor Fraud Exposes a Rotten Financial System' *Washington Post* (19 July 2012) <https://www.washingtonpost.com/opinions/elizabeth-warren-libor-fraud-exposes-a-rotten-financial-system/2012/07/19/gJQAvDnDwW_story.html> accessed 23 August 2020.

[6] Viviane Reding, 'Speech by Viviane Reding Vice-President of the European Commission, EU Justice Commissioner: Amended Proposal for a Directive on Criminal Sanctions for Insider Dealing and Market Manipulation' (25 July 2012) <http://europa.eu/rapid/press-release_SPEECH-12-569_en htm> accessed 22 May 2021.

[7] The Wheatley Review (n 1) 21.

[8] The Wheatley Review (n 1) 22, emphasis added.

The institutional framework established pursuant to the Wheatley Review centred on a reconfigured Libor administrator role. As a regulated entity, the administrator would be responsible for all aspects of the day-to-day management of the benchmark, including 'public relations', licensing and distribution, ongoing monitoring and scrutiny of submissions, and standard-setting. However, in addition, the Review stipulated, there should be an 'independent and powerful' oversight committee,[9] to be convened by the administrator. The remit of the oversight committee was to 'take responsibility for those aspects of LIBOR internal governance which require the input from a wider pool of stakeholders.'[10] In particular, the Review recommended that the oversight committee should retain discretion over matters relating to 'the definition, scope and context of LIBOR… as this aspect should be informed by market participants'; the aim being to 'ensure that the definition of LIBOR evolves in line with changes in the structure and operation of financial markets'. In addition, the committee would be responsible for setting the criteria against which submissions would be scrutinised by the administrator, 'using their expertise and understanding of the inter-bank funding market'.[11]

Membership of the oversight committee was to be drawn from representatives of panel banks as well as other users of Libor. It would not include regulators, to avoid blurring the 'distinction between external regulatory oversight and internal governance'.[12] The 'key instrument'[13] of the new framework was to be the code of

[9] The Wheatley Review (n 1) 23.

[10] The Wheatley Review (n 1) 25.

[11] The Wheatley Review (n 1) 25.

[12] The Wheatley Review (n 1) 25.

[13] The Wheatley Review (n 1) 25.

conduct governing the organisational and operational aspects of Libor submission, discussed in the last chapter, which the Review had also recommended be 'industry-led'.[14] While the Review specified matters to be covered by the code – such as submission procedures, internal systems and controls, record-keeping and audit requirements – the detailed drafting and implementation would be left to the administrator, through the oversight committee. Once approved by the FSA, the code would also 'serve as guidance on the FSA's Principles and rules in relation to the regulated activity of LIBOR submission'. As such, the Review clarified, it would 'constitute industry guidance, rather than FSA guidance, on those Principles and rules.'[15]

At every level, then, the 'market-led' approach to benchmark governance is characterised by a contrastive set of roles and responsibilities: 'external' and 'internal'; 'public' and 'private'; oversight and administration. One way in which this governance set-up is understood in the literature is as an example of a regulatory approach known as 'enforced self-regulation'.[16] This refers to 'a form of subcontracting regulatory functions to private actors.'[17] In regulatory scholarship it is understood as a way for regulators 'to overcome the information gap they otherwise face' by harnessing the expertise and innovativeness of private actors, but without giving those actors free rein to regulate themselves. It is 'enforced' in the sense that the 'credible threat' of more formal intervention is assumed to exert a disciplining effect, incentivising the private sector

[14] The Wheatley Review (n 1) 27.

[15] The Wheatley Review (n 1) 30–31.

[16] John Armour and others, *Principles of Financial Regulation* (Oxford University Press 2016) 547.

[17] Ian Ayres and John Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate* (Oxford University Press 1992) 103.

development of rules that are consistent with the regulator's objectives.[18] As Martin Wheatley put it in a speech outlining the recommendations of the Wheatley Review:

> we must remember that LIBOR is a creation of the market, invented by the market for the market. It is clear that proper regulation and sanctions are needed and we stand ready to provide that, should the government agree. But banks and market participants must play their part too.[19]

In other words, those with most at stake in Libor reform must become effective participants in the chain of accountabilities securing the use of Libor in their transactions.

However, as I have shown in Chapter 4, in the context of Libor reform this kind of 'public' accountability talk contains certain silences and discontinuities. In particular, what goes unsaid in 'public' accountability talk is that the relations of power based on 'private' accountability between financial actors that a benchmark presupposes and elicits are always already sufficient to obviate the kind of 'public' accounting reformers insist on. In this sense, it seems, benchmark reform is something of a solution in search of a problem.

Indeed, while it couched its recommendations in the language of enforced self-regulation, the Wheatley Review put forward a much more nuanced justification for its conclusion that producing and administering Libor should remain a private sector responsibility. In its view, '[a] private organisation is likely to have a greater incentive

[18] Armour and others (n 16) 546.

[19] Martin Wheatley, 'Pushing the Reset Button on LIBOR: Speech by Martin Wheatley - Managing Director, FSA, and CEO Designate, FCA at the Wheatley Review of LIBOR' (28 September 2012) <https://webarchive nationalarchives.gov.uk/20121003012252/http://www fsa.gov.uk/library/communication/speeches/2012/0928-mw.shtml> accessed 21 May 2021.

to ensure that the benchmark is fit for purpose and evolves to meet the changing needs and nature of the market'. By contrast, taking Libor into public ownership would:

> change the relationship between the market that created and developed LIBOR, and the future evolution of the benchmark; reduce the incentive and ability for LIBOR to adapt to the needs of market participants; and potentially affect the choice of benchmarks by these participants.[20]

The goal of reform, in other words, is to intervene in how benchmarks such as Libor are produced and used so as to be able to account for their role in financial transactions in a way that is theoretically sound and politically acceptable but *without* thereby intervening in the relations of power between creditors and debtors, the transactions that they make, or, indeed, the benchmarks that they choose. As the above quote indicates, one of the ways in which this tension between intervening and not intervening is manifested is in a discourse of reform as '*evolution'*.

5.2.2 Reform as 'evolution'

The idea that a benchmark has to be able to 'evolve' is a common theme of benchmark reform discourse and one that came up regularly in my interviews. It is linked to an aspect of Libor's problematisation that was thrown into sharp relief by the move towards transaction-based benchmarks. This was the crisis-era critique concerning whether and for how long there would continue to be an active 'underlying' market for Libor to measure, as discussed in Chapter 3.

[20] The Wheatley Review (n 1) 22.

After the financial crisis of 2007-8 and the nominal resumption of interbank lending, doubts persisted over the viability of the interbank market.[21] Ironically, the effort to stabilise Libor through the Wheatley Review reforms only added to these existential concerns. The requirement for Libor submissions to be accounted for using transaction data meant that Libor's calculation was not only proceduralised but publicised and closely watched as part of the new administrator's explicit strategy of 'Libor evolution'.[22] Today this extends to the publication of so-called transparency reports, which convey the relative weightings of data and judgement used in the production of the rates.[23] These kinds of statistics, which show that the rates for some Libor currency/ maturity combinations continue to be based on little or no transactional activity, are often quoted by reformers as evidence of Libor's obsolescence.[24] The notion of 'evolution' in this context, therefore, implies that a benchmark has to adapt to changes in market conditions or risk becoming outdated or 'unrepresentative'.

It is possible to identify two distinct claims embedded in the Wheatley Review's assertion that taking Libor into public hands would inhibit its 'evolution' in the sense I have just outlined. The first is a claim about the limitations of top-down regulation as a

[21] Vanessa Le Lesle, 'Bank Debt in Europe: "Are Funding Models Broken"' (2012) IMF Working Paper WP/12/299 <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Bank-Debt-in-Europe-Are-Funding-Models-Broken-40181> accessed 22 May 2021; A Durré, Alexandre Chailloux and V Brousseau, 'Fixing the Fixings: What Road to a More Representative Money Market Benchmark?' (2013) IMF Working Paper WP/13/131 <https://www.imf.org/external/pubs/cat/longres.aspx?sk=40596.0> accessed 30 May 2021.

[22] IBA, 'ICE Benchmark Administration (IBA) Publishes Position Paper on the Evolution and Enhancement of ICE LIBOR ("LIBOR")' (2014) <https://ir.theice.com/press/press-releases/all-categories/2014/10-20-2014> accessed 18 May 2021.

[23] IBA, 'IBA Historical Data & Reports' (*ICE*) <https://www.theice.com/iba/historical-data> accessed 22 May 2021.

[24] See eg Andrew Bailey, 'The Future of LIBOR - Speech by Andrew Bailey, Chief Executive of the FCA, at Bloomberg London' (26 July 2017) <https://www fca.org.uk/news/speeches/the-future-of-libor> accessed 22 May 2021.

means of reform, based on a theory about the respective incentives and capacities of public and private actors to ensure a benchmark that is 'fit for purpose'. This argument is broadly consistent with the assumptions informing the literature on enforced self-regulation. It also resonates with an increasingly influential strand of finance theory that sees financial markets as a complex adaptive system.[25]

However, also encapsulated in the notion of 'evolution' is a more pragmatic sense of the limits of reform in this context. As the Wheatley Review saw it, public ownership would 'change the relationship between the market that created and developed LIBOR, and the future evolution of the benchmark'. The 'evolution' emphasised here is one in which the relations that a benchmark establishes and underpins can *stay the same.* From this point of view, 'market-led' reform is not only an ideological preference but an acknowledgement that, paradoxically, the ultimate goal of financial stability can be jeopardised by reform itself. For financial stability to be assured, Libor reform has to be oriented towards ensuring a benchmark that can 'get back to doing what it is supposed to do'.[26] Hence, in the end, 'market-led' reform is as much about a kind of radical conservatism as harnessing the presumed dynamism of private sector expertise. It is about sending the message that any change can be regarded as a natural and necessary adaptation to 'the market', and so not really a change at all.

[25] See eg Andrew Haldane, 'Rethinking the Financial Network - Speech given by Andrew G Haldane, Executive Director, Financial Stability, Bank of England, at the Financial Student Association, Amsterdam' (28 April 2009) <http://www.bankofengland.co.uk/speech/2009/rethinking-the-financial-network> accessed 22 May 2021; Melinda Cooper, 'Complexity Theory After the Financial Crisis' (2011) 4 Journal of Cultural Economy 371; Andrew W Lo, *Adaptive Markets: Financial Evolution at the Speed of Thought* (Princeton University Press 2017).

[26] Wheatley (n 19).

5.2.3 Producing unaccountability

It follows from the above that the image of a top-down subcontracting-type structure that goes along with the theory of enforced self-regulation is not entirely apt to describe the model of 'market-led' governance in benchmark reform discourse. Overlaid onto this hierarchical model is a subset of duties and responsibilities concerning the design and essential make-up of the benchmark (eg the definition of the 'underlying' market, the calculative procedures to be followed by contributors, the criteria used for vetting submissions, etc) that are effectively ringfenced. Overall 'public' accountability for creating and promulgating the benchmark is seemingly secured by delegating regulatory functions to the administrator. However, the means of holding the administrator to account for matters that are ringfenced are deferred and displaced onto a specially created oversight committee, which sits somewhere on the boundary between regulator and regulated. On the one hand, the committee's remit is to perform a 'prominent decision-making and oversight role… with the ability to operate autonomously'.[27] On the other hand, it provides an avenue for ongoing access to private expertise and a mechanism for decentralising decision-making and diffusing responsibility for matters affecting the 'essence' of the benchmark.

[27] The Wheatley Review (n 1) 24.

Reflecting on the position of the administrator in benchmark reforms, one of my interviewees, a veteran of several benchmark oversight committees, including Libor's, remarked that 'the oversight committee is the absolute heart of it':

> The oversight committee is there in a very weird governance position by the way, which is probably a separate PhD. Erm, but it is there because the regulators want it there… [They] said you've got to have an oversight committee, so the heart and soul of the party is the assurance and observation of the integrity of the benchmark.[28]

As my informant went on to observe, it is not the benchmark administrator's job to 'play God'. Moreover, if the administrator *were* in the position of deciding on such matters, it would have to be regulated as such:

> you know what that means? The FCA are going to regulate the algo[rithm] [ie the methodology used to determine the benchmark]. And that's the last thing they would have any competence to do, frankly. They would – and that is not insulting them – they would say "well… it's not *our* job to calculate them."[29]

The effect of this governance structure is to make it appear that *no-one* – neither the banks and submitters involved in producing the benchmark nor the regulators and those exercising delegated regulatory or quasi-regulatory functions (such as the administrator and oversight committee) – is ultimately accountable for how the benchmark is constituted or the economic outcomes it produces.

In this way, a 'market-led' approach to benchmark reform reproduces and stabilises Libor's problematisation as I have analysed it in Chapter 4. The 'problem' of accounting for Libor's role in financial transactions demands an approach that enhances

[28] Interview 12716, Former Banker (UK, 2018).

[29] Interview 12716 (n 28).

'public' accountability in the way that the benchmark is produced and used, but without thereby interfering in the 'privately' accountable relations of power between creditors and debtors that Libor underpins. This means intervention has to stop short of regulatory diktat. Yet, the crisis-era critiques of Libor's credibility and 'manipulability' make the idea of financial self-regulation (enforced or otherwise) equally unpalatable. The 'market-led' governance model is a way of navigating these conflicting imperatives by constituting a carefully delimited form of 'public' accountability in benchmark matters. Beyond these limits benchmark governance consists of mechanisms for deferring and mutualising decision-making, which presuppose and elicit the creation of new kinds of regulatory relationships, embodied in the roles of the administrator and oversight committee.

The overall effect is to constitute a 'benchmark' as a very peculiar kind of discursive object – something that looks like a 'fact', but which can never be fully accounted for as such; 'subjective to the core'[30] but having no obvious author or decision-maker. As a result, changes in how the benchmark is constituted, and its wealth effects in society, can be naturalised as the effects of unaccountable market forces rather than effects of power (whether that of the State or elite financial actors such as banks). Practically as well as figuratively, one has to be able to say 'the market' decides the benchmarks that financial actors use.

[30] Philip Ashton and Brett Christophers, 'On Arbitration, Arbitrage and Arbitrariness in Financial Markets and Their Governance: Unpacking LIBOR and the LIBOR Scandal' (2015) 44 Economy and Society 188, 193.

5.3 Reimagining Benchmarks: Transnational Reforms 2013-14

The 'market-led' model described above is not specific to Libor reform; it can be seen as characteristic of benchmark reform discourse in general.[31] However, the emergence of this regulatory paradigm has had particular implications for the organisation and working practices of Libor reform work, which in turn has shaped the outputs of this work. In this part, I consider how the conduct of 'market-led' reform work during 2013-14 helped to extend and refine the goals of reform and make the case for alternatives to Libor. In doing so, I also highlight what Bacchi calls the *subjectification effects* of Libor's problematisation, as manifested in the techniques and practices by which individuals are enrolled in the reform discourse and thereby constituted as certain *kinds* of financial actor, eg 'benchmark users'.

5.3.1 The Financial Stability Board: explaining, prodding and shoving

The political mandate and main institutional locus for the kind of transnational reform effort envisaged by the Wheatley Review was provided by the Financial Stability Board ('FSB'), an intergovernmental body established under the aegis of the G20 in the aftermath of the financial crisis of 2007-8. The FSB's creation in 2009 reflected a renewed political commitment to international standard-setting as a means to address the

[31] For example, under the EU Benchmark Regulation responsibility for determining the calculation methodology for any regulated benchmark lies with the administrator, but the Regulation imposes qualitative conditions with which the methodology must comply (Articles 12 and 13). The methodology must, in turn, be regularly reviewed by an 'oversight function' established by the administrator according to designated technical standards (Article 5).

'fault lines' perceived to lie at the root of the crisis.[32] Like systematising the reporting of derivatives transactions and enhancing disclosures by cross-border financial institutions, benchmark reform was conceived of as remedying gaps in economic and financial regulatory knowledge, thus 'enabl[ing] authorities and markets to better understand the risks faced not only by individual firms but also the system as a whole…'.[33]

5.3.1.1 The IOSCO Principles

Part of the FSB's remit was to coordinate the various benchmark-related reviews taking place at national and international level. These included work on a framework of 'Principles' for financial benchmarks by a global grouping of financial regulators, the International Organization of Securities Commissions ('IOSCO').[34] Published in July 2013, the IOSCO Principles set out 'an overarching framework' for the production and operation of financial benchmarks of all kinds.[35] The aim was to provide guidance to administrators and contributors to benchmarks, as well as those regulating them.[36] The Principles address broadly the same range of 'vulnerabilities' identified by the Wheatley Review in relation to Libor (eg the 'content and transparency' of calculation

[32] FSB, 'Narrative Progress Report on Financial Reforms - Report of the Financial Stability Board to G20 Leaders' (2013) 2 <https://www.fsb.org/wp-content/uploads/r_130905a.pdf> accessed 22 May 2021.

[33] FSB, 'Narrative Progress Report on Financial Reforms - Report of the Financial Stability Board to G20 Leaders' (n 32) 4. See further eg Eric Helleiner, 'What Role for the New Financial Stability Board? The Politics of International Standards after the Crisis' (2010) 1 Global Policy 282; Annelise Riles, 'Is New Governance the Ideal Architecture for Global Financial Regulation?' in Charles Goodhart and others (eds), *Central Banking at a Crossroads* (Anthem Press 2014).

[34] IOSCO, 'IOSCO Creates Board Level Task Force on Financial Market Benchmarks' (2012) <https://www.iosco.org/news/pdf/IOSCONEWS250.PDF> accessed 22 May 2021.

[35] The Board of IOSCO, 'Principles for Financial Benchmarks - Final Report' (2013) FR07/13 4 <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf> accessed 23 May 2021.

[36] The Board of IOSCO (n 35) 8.

methodologies, governance issues)[37] in broadly the same way. For example, the administrator is fixed with overall responsibility for the 'integrity' of the benchmark (Principle 1), which includes ensuring that a benchmark 'be based on (ie *anchored in*) an active market' (Principle 7, original emphasis), and is subject to scrutiny by an 'internal oversight' function (Principle 5).

In addition, however, the IOSCO Principles cover contingencies for a benchmark's discontinuation, such as the development of a 'living will' to document eg the process and criteria to be used in 'the selection of a credible, alternative Benchmark' (Principle 13). Without referring to Libor by name, IOSCO's January 2013 consultation noted that, while 'non-transactional' inputs were permissible as part of a benchmark calculation:

> at some point, an insufficient level of actual transaction data raises concerns as to whether the Benchmark continues to reflect prices or rates that have been formed by the competitive forces of supply and demand. Where the underlying market has diminished, it may be necessary to re-evaluate the Benchmark. For example, its definition may need to be reviewed, the range of trades in which it is anchored may need to be reassessed or consideration given to whether a better alternative exists.[38]

What was more, the costs and risks associated with producing benchmarks were becoming increasingly apparent to those involved. In the wake of the Libor scandal, a

[37] The Board of IOSCO (n 35) 3–4.

[38] The Board of IOSCO, 'Financial Benchmarks - Consultation Report' (2013) CR01/13 40 <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD399.pdf> accessed 23 May 2021.

number of banks ended their voluntary participation in benchmark-setting panels.[39] The FSA reportedly had to prevail on Libor panel banks not to do the same.[40]

Against this backdrop, resolving Libor's long-term future was high on the FSB's agenda. At the same time, as the Wheatley Review had acknowledged, there was 'as yet, no consensus on the role for authorities in facilitating or encouraging transition to alternative benchmarks.'[41] Since Libor was already, de facto, the market's choice, there remained an implicit question as to how and on what basis reformers could hold out the possibility of better alternatives.

5.3.1.2 Reforming benchmarks, reforming benchmark users

The embodiment of these dynamics was the FSB programme 'Reforming Major Interest Rate Benchmarks', launched in July 2013.[42] The 'market-led' approach was a structuring feature of its operation. An official sector steering group ('OSSG') made up of senior officials from regulators and central banks was convened with the task of establishing and overseeing a Market Participants Group ('MPG'), comprising mainly representatives

[39] Ben McLannahan, 'RBS Withdraws from Tibor Panel' *Financial Times* (5 July 2012) <https://www.ft.com/content/030815ea-c691-11e1-963a-00144feabdc0> accessed 23 May 2021; Reuters staff, 'UAE C.Bank Confirms Barclays to Leave Rate-Setting Panel' *Reuters* (18 July 2012) <https://www.reuters.com/article/banking-libor-eibor-idUKL6E8IIELZ20120718> accessed 23 May 2021; David Schäfer, 'UBS Joins Exodus from Euribor Panel' *Financial Times* (19 March 2013) <https://www.ft.com/content/7078fdc6-90bf-11e2-a456-00144feabdc0> accessed 23 May 2021.

[40] David Enrich, 'Banks Warned Not to Leave Libor' *Wall Street Journal* (13 February 2013) <https://www.wsj.com/articles/SB10001424127887324432004578302164058534372> accessed 23 May 2021.

[41] The Wheatley Review (n 1) 46.

[42] FSB, 'Financial Benchmarks' (*FSB*) <https://www fsb.org/work-of-the-fsb/market-and-institutional-resilience/financial-benchmarks/> accessed 23 May 2021.

of banks and other financial institutions, which would examine and report back on the options for moving to alternative benchmarks.

The MPG provided its interim findings and a set of draft proposals to the OSSG in December 2013. The final MPG report, taking into account written feedback from the OSSG, was issued in March 2014.[43] Then, in July 2014, the OSSG published its recommendations, following approval from the FSB Plenary.[44] The outcome of all of this regulatory back and forth was a set of guiding principles for reform. It was resolved, first of all, in line with the established regulatory consensus, to bolster Libor and other IBORs 'by underpinning them to the greatest extent possible with transactions data' (so-called 'IBOR+'), but secondly, and in parallel, to press ahead with the selection and development of a range of suitable alternative benchmarks.[45]

If this seems little more than a mundane, technocratic exercise, it was radical in effect. By constituting the decision to move to alternative benchmarks as 'market-led', the FSB reforms subtly reframed the goals of reform. There would remain a role for Libor under the 'multiple-rate approach' advocated by the FSB, but the seemingly intractable 'problem' of how to account sufficiently for Libor's calculation longer term, without reliable numbers of transactions to count *with,* would now be resolved by identifying 'market-led' – and, hence, natural and fitting – alternatives. Rather than

[43] MPG, 'Final Report of the Market Participants Group on Reforming Interest Rate Benchmarks' (2014) <https://www.fsb.org/wp-content/uploads/r_140722b.pdf> accessed 23 May 2021.

[44] FSB, 'Reforming Major Interest Rate Benchmarks' (2014) <https://www.fsb.org/wp-content/uploads/r_140722.pdf> accessed 23 May 2021.

[45] FSB, 'Reforming Major Interest Rate Benchmarks' (n 44) 2.

stabilising Libor at all costs, the public policy task would become one of facilitating these alternatives.

Producing this 'market-led' effect depended on a specific configuration of institutional arrangements and practices. On a practical level, the MPG's work took the form of a collective research project with the objective of auditing the role of Libor in financial transactions around the world in order to specify the kinds of functions and features that would need to be replicated in any alternative benchmark. The group was convened with the aim of 'represent[ing] a wide range of expertise and market experience',[46] and organised in a way that devolved responsibilities (eg by currency zone and product area) and decentralised fact-finding (via 'outreach', surveys etc). The various sub-units of knowledge production also organised themselves locally through mutual observation and cross-collaboration.

This extract from the MPG report provides a snapshot of the knowledge practices at work:

> In reaching our recommendations, we considered information generated by our Outreach, Corporate Impact, Market Footprint, Legal, Transition, and Fixing Methods work streams, and we had extensive collaborative discussion. We divided our work into substreams, one for each of the five [Libor] currencies. Each substream was managed by MPG members working primarily in the corresponding currency zone. The reference rate menu substream managers for a given currency zone "held the pen" at the first stage of our work, consulting mainly with those involved in other functional sub streams relevant to their own currency zones, through conference calls and document sharing. Cross-currency-zone conference calls and document sharing were also used to coordinate work flow from the various reference rate menu work streams, and to share other related work stream content. The reference rate menus recommended in this chapter have gone through a process of approval by the entire MPG. Consistent with the

[46] MPG (n 43) 7.

> approved MPG Work Plan, this decentralized process involves no attempt to achieve a globally unified set of recommended rates.[47]

In considering the MPG's recommendations, the OSSG also organised itself into sub-groups that would enable it to '[take] into account the market structure, institutions, legal and regulatory framework within each home currency area'.[48]

At each stage, then, the FSB process was configured in a way that tended to mutualise and decentralise decision-making in respect of matters that had to do with the core criteria for evaluating Libor's use as a benchmark and determining whether and how its features could be replicated. The official sector would direct the strategy but not 'decide', while market participants were constrained to make decisions that were non-strategic (ie consistent with the 'approved work plan'). The effect could be quite tortuous, as illustrated by the following quote from one of my interviewees, a former member of the OSSG:

> you have lots of meetings but that was, you know, that was not very fruitful. Because we found for example … the hardest, the bit for central banks was to go and talk to the end users because there's just so many and so disparate and actual exchanges would be with the banks or with the fund managers who use [Libor]. And we would have meetings all round the globe basically. I mean, everybody – I think everybody who organised meetings in their own jurisdictions would collect all the stuff together. It was all quite dispersed. But it was pretty – the Libor committee was really hard work because everybody was going slowly.[49]

[47] Quote from the summary of the MPG's 'Reference Rate Menus' workstream, which was responsible for recommending alternative benchmarks for each of the five Libor currencies. MPG (n 43) 22.

[48] FSB, 'Reforming Major Interest Rate Benchmarks' (n 44) 2.

[49] Interview 98996, Former Central Banker (UK, 2018).

At the heart of this decision-making apparatus is the same peculiar dynamic that characterises Libor's reformed governance structure. Private actors are made responsible for choosing their own benchmarks. In doing so, they are 'guided' by public authorities who are, nevertheless, philosophically and strategically wary of intervention. In a 2018 speech, the Chairman of the CFTC explained the regulatory stance on Libor reform in these terms:

> the forward course is clear – it is away from LIBOR. The means of travel is also clear. It is a market-driven one – led by the private sector… The official sector will assist and stay close by the course, helping coordinate and encourage, prod and explain and, if appropriate, give a shove or two.[50]

In sum, a 'market-led' approach to Libor reform is a process through which particular kinds of financial objects (such as IBOR+ benchmarks) are co-produced along with new financial subjectivities ('market participants'/ 'benchmark users'). These are financial actors who calculate the benefits and risks of their transactions, educate themselves on the merits of different benchmarks, and make rational, pro-systemic choices based on the data before them, but who always already know themselves to be accountable for the transactions they make, value the same ethic in others, and conduct themselves accordingly.

In order to secure the public policy goals of reform, therefore, 'market-led' reform depends on a combination of regulatory commentary and 'prodding' and 'shoving', as a result of which financial actors are encouraged to inhabit the roles laid out for them. It is a way of making decisions for oneself that is 'regulator[il]y inspired', as one of my

[50] Christopher Giancarlo, 'Opening Statement of Chairman J. Christopher Giancarlo before the Market Risk Advisory Committee Meeting, Washington, D.C.' (12 July 2018) <https://www.cftc.gov/PressRoom/SpeechesTestimony/giancarlostatement071218> accessed 23 May 2021.

interviewees put it.[51] In this respect, a defining feature of 'market-led' reform is its responsibilisation of benchmark users as conduits of finance theory – in particular, through techniques and practices oriented towards the reification of the 'risk-free' rate.

5.3.2 The science of benchmarks

From the outset, economic theory was at the centre of the FSB-led benchmark reform agenda. What had hitherto been a technical discourse, largely the preserve of finance theorists and quants working in derivatives markets, the science of financial benchmarks was now front and centre of the reforms. Both the MPG and the OSSG were constituted with academic economists as chair/ co-chair (Darrell Duffie, a professor of finance at Stanford, chaired the MPG and Jeremy Stein, a Harvard professor of economics, was an initial co-chair of the OSSG alongside Martin Wheatley).[52] Thus, economics was symbolically placed in a convening role at the interface between public and private.

Shortly after the publication of the FSB recommendations, Duffie and Stein co-authored an opinion piece in a prominent financial news outlet entitled 'Libor Needs More Competition',[53] followed subsequently by an academic article in which they set out the economic case for adopting alternative benchmarks.[54] Capping their argument was

[51] Interview 52962, Financial Markets Lawyer (UK, 2019).

[52] At the time the OSSG was established, Stein was serving as a member of the Federal Reserve Board of Governors. He returned to Harvard in 2014.

[53] Darrell Duffie and Jeremy C Stein, 'Libor Needs More Competition' *Bloomberg* (22 July 2014) <https://www.bloomberg.com/opinion/articles/2014-07-22/libor-needs-more-competition> accessed 23 May 2021.

[54] Darrell Duffie and Jeremy C Stein, 'Reforming LIBOR and Other Financial Market Benchmarks' (2015) 29 The Journal of Economic Perspectives 191.

the proposition that 'many of the interest-rate trading applications currently served by the IBORs could be as well or better served by risk-free or near-risk-free benchmarks'.[55]

The contours of this argument broadly follow those of the crisis-era debates among derivatives experts concerning the merits of switching from Libor- to OIS-based valuation methods, as discussed in Chapter 3. As already noted in that chapter, in theoretical terms a benchmark is understood as a kind of vessel for financial risks, whose contents 'represent' the profile of the risks of doing business in the 'underlying' market. For example, in Libor's case, these comprise the specific risks associated with trading in the interbank market.

Hence, according to the theory, if a bank is making floating rate loans to companies and funding its activities by borrowing in the interbank market, linking its loans to Libor would ensure that the interest rate goes up or down in tandem with fluctuations in the risk profile of interbank lending, thus avoiding the possibility of a mismatch between the bank's interest income and its own borrowing costs. On the other hand, for, say, a derivatives trader wanting to calculate the theoretically 'correct' value of an asset or hedge the risk of fluctuations in the general level of interest rates in the economy, it would not make sense to use a benchmark 'containing' risks specific to interbank lending. These applications require a benchmark having no extraneous risk components – that is to say, a 'near risk-free' rate.[56]

[55] Duffie and Stein (n 54) 193.

[56] As noted in Chapter 3, a truly 'risk-free' rate only exists in theory – hence the need for real world proxies that can be referred to in transactions.

The central implication of this economic-scientific critique is that the role of Libor (or rather a reformed LIBOR+) in financial transactions should be radically curtailed by reference to a narrow set of 'banking-oriented' uses. Meanwhile, 'pure interest rate' trading applications, making up the bulk of trading in the huge Libor-linked derivatives markets, would be better served by a rate that is closer to 'risk-free'.[57]

The FSB's 2014 report confirmed that the science of financial benchmarks, as articulated by Duffie and Stein, among others, was established as a guide to policy. Yet, the FSB work also suggested that the ability to choose their benchmarks was not high on the list of priorities for financial actors. Indeed, the MPG's findings concerning financial actors' views on reform resonate with my own empirical findings, as discussed in Chapter 4. The report of the MPG's Outreach Workstream concluded:

> A key theme throughout the sub-workstream reports was that there is reluctance among market participants across regions to move to an entirely new benchmark.... Instead, market participants were supportive of the preservation of LIBOR and similar benchmarks …, but with the addition of strengthened oversight and governance. ... In sum, the more the solution resembles LIBOR, the easier it will be to transition with limited market disruption and minimize transition costs for market participants.[58]

While the FSB acknowledged a 'lack of movement' by financial actors towards alternatives to Libor, it put this down to 'agency problems, externalities or coordination problems', which only underlined the critical role the official sector would need to play in facilitating the 'transition' to a multiple-rate world.[59]

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[57] Duffie and Stein (n 54) 200–01.

[58] MPG (n 43) 81. The Outreach Workstream was tasked with gathering feedback on the reform proposals from private financial actors (mainly banks and large financial institutions).

[59] FSB, 'Reforming Major Interest Rate Benchmarks' (n 44) 11.

In other words, when viewed through the lens of finance theory, the 'problem' of accounting for Libor's role in financial transactions appears as an effect of an irrational over-dependence on Libor, and so ultimately a form of market failure. Libor reform thus becomes a vehicle for regulators' hopes of building a coherent, rational financial system that better fits the theory by promoting a more scientific approach to transacting. As the FSB report put it:

> authorities should work with and guide the private sector to reduce overall risks posed by linking very large amounts of financial instruments to reference rates that they deem fragile. This notwithstanding, market participants should be able to choose among rates meeting the IOSCO Principles and use those rates in ways suited to their specific purposes so long as those uses do not pose a threat to the financial system or its integrity.[60]

The FSB report duly included a set of specific recommendations and timelines for public authorities in each of the five Libor currency areas to convene a 'market-led' working group, overseen by the OSSG.[61] Each working group was to be given a remit locally to identify and promote alternative 'near risk-free' rates and formally recommend at least one for adoption. In the UK, the Bank of England convened the Sterling RFR Working Group for this purpose.

In summary, therefore, the overall impression one gets from a review of the FSB materials is that a 'market-led' approach to Libor reform is one that is both plausibly voluntary and carefully stage-managed. As the findings of the MPG suggest, complicating discourses and counter-narratives tend to be dismissed or minimised in pursuit of the official vision of reform. As I discuss in the next part by reference to the

[60] FSB, 'Reforming Major Interest Rate Benchmarks' (n 44) 13.

[61] Working groups were also established in a number of other jurisdictions in order to recommend 'near risk-free' alternatives to local interest rate benchmarks, including eg Australia, Canada and Singapore.

work of the Sterling RFR Working Group, the presence of these dissonant perspectives within benchmark reform discourse, even among supporters of reform, is a source of tension and indecision in reform work. Paradoxically this has forced regulators into adopting more and more interventionist tactics for securing the 'market-led' reform they set out to accomplish.

5.4 From Policy to Practice: The Sterling RFR Working Group 2015-17

In its terms of reference and composition the Sterling RFR Working Group reproduced the same finance theoretical outlook that characterised the FSB reform work. The working group, along with its sponsor, the Bank of England, understood its main priority as being to develop an alternative to Libor that could be used in derivatives markets – especially the markets for sterling-denominated interest rate swaps which made up the majority of sterling Libor-linked contracts. Like its counterparts in other Libor currency areas, the group's invited membership was made up of major swap dealers (ie banks), on the basis that 'the commitment to change must originate from this group, and this group is best placed to promote adoption amongst the swap user community'.[62]

At the working group's inaugural meeting in March 2015, the Bank of England outlined its expectation that a suitable alternative to sterling Libor should be found during the course of 2015 with a view to its implementation in 2016.[63] However, it soon became

[62] Chris Salmon, 'Remarks given at the First Meeting of the Working Group on Sterling Risk-Free Reference Rates by Chris Salmon, Executive Director, Markets, Bank of England' (18 March 2015) 3 <https://www.bankofengland.co.uk/-/media/boe/files/speech/2015/remarks-given-at-the-first-meeting-of-the-working-group-on-risk-free-reference-rates.pdf> accessed 23 May 2021.

[63] Salmon (n 62) 3.

clear that, as the MPG had suggested, there would be no 'quick fix'.[64] By July 2015 the timetable for the group's work had already been revised.[65]

For one thing, there were concerns about one of the leading candidate rates, the Sterling Overnight Index Average or 'SONIA'. Introduced in 1997, SONIA was already the benchmark of choice for sterling OIS, the key overnight indexed swaps market.[66] Like Libor, it was a benchmark nominally measuring the market for unsecured interbank loans. Unlike Libor, it was calculated from a daily snapshot of transaction data rather than using panel bank submissions, and, since it captured only overnight borrowings, it qualified as 'near risk-free'. However, transaction volumes in this market had also been in decline, leaving doubts about whether SONIA could satisfy the IOSCO Principles. Faced with uncertainty over the status of not one but two key sterling money market benchmarks, in July 2015 the Bank of England consulted on plans to start collecting money market data itself under statutory powers. At the same time, it announced that it would take the extraordinary step of assuming responsibility for SONIA's administration in order to use the Bank's superior data-gathering capacity to underpin a reformed calculation and assure the benchmark's continuing viability.[67]

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[64] MPG (n 43) 81.

[65] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 14 July 2015' (2015) <https://www.bankofengland.co.uk/minutes/2015/rfr-july-2015> accessed 23 May 2021.

[66] As noted in Chapter 3, since the financial crisis of 2007-8 derivatives professionals have leaned towards using rates derived from OIS rather than Libor as a basis for determining a 'risk-free' rate for discounting and valuation purposes.

[67] Bank of England, 'A New Sterling Money Market Data Collection and the Reform of SONIA: Public Consultation' (2015) <https://www.bankofengland.co.uk/-/media/boe/files/paper/2015/a-new-sterling-money-market-data-collection-and-the-reform-of-sonia-public-consultation.pdf> accessed 23 May 2021.

On top of this, the 'market-led' approach to reform generated its own complexities. By the time the details of the Bank of England's plans for SONIA were eventually finalised, in March 2017,[68] the Sterling RFR Working Group had met twenty times without reaching a conclusion on its preferred 'near risk-free' rate.

Members were divided over two main options: an *unsecured* overnight rate (ie reformed SONIA) or a *secured* overnight rate (ie a benchmark based on loans for which collateral is required to be given).[69] Each of these options appeared to exhibit in different ways the 'basic properties' the group was looking for in a 'near risk-free' rate (eg compliance with the IOSCO Principles, the ability to 'evolve', clarity as to the limited risk premia it 'represented').[70] However, they made for very different practical propositions. While SONIA was already relatively well-established as a benchmark in derivatives markets, there was no viable secured overnight rate then in existence in sterling markets, meaning the group had to call for proposals from benchmark administrators to develop one from scratch.[71] Moreover, the group agreed, the success of any alternative to Libor was not only a matter of technical suitability but would also

[68] Bank of England, 'The Reform of SONIA - Consultation Feedback and the Design of SONIA' (2017) <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/reform-of-sonia-consultation-and-feedback-and-design-march-2017.pdf> accessed 23 May 2021.

[69] Collateral is a legal device involving a set of rights and obligations that govern the pledging of assets as security for a repayment obligation along with how those assets are to be treated until the debt is discharged. Its use in financial transactions has accelerated since the financial crisis. See Taylor Spears, 'Discounting Collateral: Quants, Derivatives and the Reconstruction of the "Risk-Free Rate" after the Financial Crisis' (2019) 48 Economy and Society 342. Since collateralised transactions are in principle less risky, rates based on those transactions are seen as a closer proxy for the 'risk-free' rate. Reform working groups in the US and Switzerland have selected collateralised rates as the currency alternatives to Libor in those jurisdictions.

[70] Sterling RFR Working Group, 'Initial Selection Criteria for the Risk-Free Reference Rate' (2016) version 2 <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/risk-free-reference-rate-selction-criteria.pdf> accessed 23 May 2021.

[71] Sterling RFR Working Group, 'Design Criteria for a Sterling Secured Overnight Money Market Benchmark' (2015) <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/design-criteria-for-a-sterling-secured-overnight-money-market-benchmark.pdf> accessed 23 May 2021.

depend on demand for derivatives linked to the new rate. Hence, it was understood that in reaching its decision the group would also need to take account of the views of 'end-users' of derivatives (eg companies, pension funds, insurers, bank treasuries etc) as well as derivatives traders.[72]

5.4.1 On being (nearly) 'risk-free'

The early signs from the group's 'outreach programme'[73] were that there was little consensus among the financial actors approached for feedback. End-users reportedly 'did not express clear and consistent preferences' regarding the two options under consideration.[74] At the same time, the group's findings *do* suggest areas of common concern regarding the potential implications of adopting a new benchmark, such as the possibility of incompatibility between rates in different currency areas; the need to renegotiate transaction documents; increased complexity and 'basis risk' in the absence of a uniform standard.[75]

These concerns resonate strongly with the empirical themes emerging from my own interview data. As discussed in Chapter 4, I found that when my interviewees talked about what they wanted out of a reformed benchmark they tended to emphasise its non-

[72] Sterling RFR Working Group, 'Initial Selection Criteria for the Risk-Free Reference Rate' (n 70).

[73] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 15 April 2015' (2015) <http://www.bankofengland.co.uk/minutes/2015/rfr-april-2015> accessed 24 May 2021.

[74] Sterling RFR Working Group, 'Interim Report of the Working Group on Sterling Risk-Free Reference Rates' (2016) 4 <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/interim-report-of-the-working-group-on-sterling-risk-free-reference-rates.pdf> accessed 24 May 2021.

[75] See eg Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 14 July 2015' (n 65).

epistemological aspects (eg universality, ease of use etc) over a theory justifying its use in their transactions. This was equally true of derivatives experts as other actors, such as corporate treasurers. These empirical findings help to further contextualise the evident difficulty that the Sterling RFR Working Group had in reaching a consensus on a Libor alternative, notwithstanding the broad common ground that existed regarding the goals of reform, and even among groups (such as derivatives actors) who largely shared the same theoretical outlook.

For example, I found that my interviewees were broadly familiar with the technical meaning of a 'risk-free' rate as one at which money can be lent with complete certainty of getting it back, ie a rate that is free of 'credit risk'. There was also general acceptance that Libor did not meet this description, and, by extension, of the economic-scientific critique of Libor's 'fitness for purpose'. As one corporate treasurer put it:

> Why is the cost of the interbank funding – assuming it did represent that and sort of continues to represent that – why as a borrower should I have that exposure? I mean I'm taking on a risk by having it within, you know, in my lending documents, whereas actually if I'm borrowing some money for 5 years and I've got a margin, which is what I pay the bank to lend the money to me, that should take into account the risks of them sourcing that money. Why do I then link it to a rate that also has some bank credit in it? Fundamentally all I want is a rate that reflects, I think it's short term interest rates rather than that element of bank credit. I think it was – we all just took that for granted until the financial crisis and then we suddenly realised that bank credit risk was actually a real thing and a significant thing and, you know, I'm very keen that we move away from Libor as quickly as possible.[76]

As the phrasing in this quote suggests, however, there was a rhetorical quality to this kind of analysis. While financial actors understood the technical arguments and could reason with themselves about the merits of using a 'near risk-free' rate instead of Libor in their

[76] Interview 57658, Corporate Treasurer (UK, 2018).

transactions, they also understood that, in the end, a benchmark could be more or less reasonable without being more or less of a benchmark.

The tendency for the demands placed on them as rational benchmark users to run up against the realities of the social world that Libor underpins was evidently experienced by many of my interviewees as a kind of cognitive dissonance. As another corporate treasurer explained:

> you know, we do our Treasury qualifications and we know what risk-free rates are, and we talk about US gilts and how they're not risk-free either but can be a proxy for – and all this sort of stuff. But then you forget about it, you say "I need an interest rate, what shall I use? Everyone uses 3 month Libor so I'll use 3 month Libor."[77]

The financial actors I spoke to resolved this internal conflict in different ways. For some it meant that they subscribed to the idea of using a 'near risk-free' rate instead of Libor but for reasons that tended to be pragmatic rather than doctrinaire, eg because it offered the best chance of achieving a uniform approach across derivatives and cash markets. From that point of view, having a 'near risk-free' rate as a benchmark would make for a 'cleaner',[78] less 'messy'[79] way of doing financial transactions.

Other interviewees understood the notion of the 'risk-free' rate to be a more symbolic than intrinsic aspect of the reforms. Referring to the debate about the merits of unsecured versus secured overnight rates, one derivatives expert told me: 'you can say

[77] Interview 48017, Corporate Treasurer (UK, 2018).

[78] Interview 35765, Fund Manager (UK, 2018).

[79] Interview 91466, Corporate Treasurer (UK, 2018).

"well which one's risk-free?" … However, I think you're arguing into the noise of it. What you want is robustness and transactional data…'.[80]

Another of my interviewees, who was closely involved in coordinating the preparations for benchmark reform at a Libor panel bank, said not many colleagues focused on the technical meaning of 'risk-free'. Instead, it was generally assumed that the sense of the term in this context had to do with the intended *effect* of reforms, being to create 'a very controlled sort of risk-free environment' for the production of benchmarks (eg in the sense that reformed benchmarks would help to obviate reliance on expert judgement, thus mitigating contributors' potential exposure to litigation). As my interviewee commented:

> it's almost a branding. You know, based on what the industry have been through with Libors, it's almost a sales pitch for saying "Look, you know, enough's enough. These, they're really dying, let's move to a risk-free world."[81]

Overall, I found that the concept of the 'risk-free' rate seemed to form part of a shared vocabulary that participants in reform work used to communicate about their collective aims without necessarily sharing the same understanding. It was a kind of 'boundary object'[82] that enabled them to inhabit a dichotomous subjectivity: at once a calculating subject, who understood the science of benchmarks and aspired to a 'cleaner, less messy'

[80] Interview 63806, Portfolio Manager (UK, 2018).

[81] Interview 84243, Bank Project Manager (UK, 2018).

[82] The concept of a 'boundary object' was first proposed by Star and Griesemer. Their work showed how scientific enterprises, such as the establishment of a natural history research museum, relied on the cooperation of actors occupying divergent social worlds (eg amateur collectors, professional curators, the general public). This cooperation was made possible by, among other things, the co-creation of boundary objects, such as specimens, display cases, and maps, which provided a common referent while inhabiting each social world differently and evoking a different set of meanings for its members. Susan Leigh Star and James R Griesemer, 'Institutional Ecology, "Translations" and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39' (1989) 19 Social Studies of Science 387.

way of thinking and doing financial transactions, and at the same time a subject 'entitled to make promises',[83] who recognised that their transactions were already underwritten by the universality and 'givenness' of a benchmark such as Libor. For the latter, a benchmark is *always already* 'risk-free' in the most literal sense, since it makes no epistemological claims that could be contested or unmade. This finding suggests one way of understanding how Libor was ever considered a suitable proxy for the 'risk-free' rate in financial models, not to mention its extraordinary longevity in that role, despite being manifestly unsuitable in theory.

I explore these insights further in Chapter 7, where I consider aspects of the reform discourse in which this cognitive dissonance becomes especially pronounced. In particular, I show how benchmark users sometimes simply refuse to calculate, despite concerted efforts by reformers to get them to do so.

5.4.2 After Libor, SONIA

By late 2016, the Sterling RFR Working Group was still not ready to make a recommendation on a suitable Libor alternative. Some members felt they had enough information to be able to evaluate the choice between a vote for the familiar, in the form of reformed SONIA, or moving to a brand new secured overnight rate. However, others felt the feasibility of such a move had yet to be established, thus raising doubts over whether there was really a choice to be had.[84] Finally, in April 2017, after more 'prodding

[83] Friedrich Nietzsche, *On the Genealogy of Morals: A Polemic. By Way of Clarification and Supplement to My Last Book Beyond Good and Evil* (Douglas Smith tr, Oxford University Press 2008) 40.

[84] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 22 November 2016' (2016) <http://www.bankofengland.co.uk/minutes/2016/rfr-22-november-2016> accessed 24 May 2021.

and shoving' from the Bank of England,[85] the working group arrived at a decision, announcing that it had selected SONIA as its preferred alternative to sterling Libor.[86]

In doing so, the group had chosen the conservative option, building on SONIA's incumbency in derivatives markets. However, even then, SONIA's unveiling marked a starting point, rather than an ending. The working group understood that fully establishing SONIA as an alternative to sterling Libor would depend on enrolling the support of a 'broad cross-section' of Libor's users.[87] As I show in the next chapter, in the effort to do so the same tension between intervening and not intervening that characterised the debate over SONIA has continued to dog reformers' efforts to ratchet up the intensity of this work.

5.5 Conclusion

In this chapter I have given an account of how Libor's problematisation in benchmark reform discourse has taken shape since the Wheatley Review, focusing on the period 2013 to 2017 when the 'problem' of how to account for Libor was made a transnational financial regulatory problem. In doing so, I sought to answer two main questions, corresponding to the fifth and sixth questions in the WPR analytical scheme, respectively:

[85] Bank of England, 'Open Letter from Chris Salmon, Executive Director, Markets, at the Bank of England to Francois Jourdain, Chair of the Sterling RFR Working Group' (6 December 2016) <https://www.bankofengland.co.uk/-/media/boe/files/letter/2016/sterling-risk-free-rate-working-group.pdf> accessed 24 May 2021.

[86] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 4 May 2017' (2017) <http://www.bankofengland.co.uk/minutes/2017/rfr-may-2017> accessed 24 May 2021.

[87] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 4 May 2017' (n 86).

what effects are produced by this representation of the 'problem'? And how/ where has this representation of the 'problem' been produced, disseminated and defended?

Taking these questions in reverse order, I first analysed the emergence of the 'market-led' model of benchmark reform as having a key role in the way that Libor's problematisation has been stabilised and reproduced. This is a regulatory approach characterised by techniques and strategies for depoliticising and depersonalising the mechanisms by which Libor governs financial outcomes, while carefully conserving the relations of power that the benchmark sets in place. That is to say, 'market-led' reform is a way of moderating the tension between the political imperative for 'public' accountability in the way that benchmarks are produced and used, and that of ensuring the stability and continuity of creditor-debtor relations. Hence, while decisions as to the benchmarks financial actors use in their transactions can be governed up to a point (eg by requiring that any Libor alternative complies with the IOSCO Principles), they are always ultimately a 'private' accountability. For the FSB and other benchmark reformers, the art of being 'market-led' lies in giving the impression that Libor's role in financial transactions is made subject to 'public' mechanisms of governance, while resiling from interventions that could disturb the balance of power and allocation of wealth between creditors and debtors.

I then used my analysis of this regulatory model in action to show how Libor's problematisation produces certain effects. In particular, I showed how the refinement of the 'market-led' approach under the auspices of the FSB reforms was accompanied by the emergence of an official vision of reform as a 'science project'.[88] At its heart is a

[88] Kurt Dew, 'Replacing LIBOR's Magic' (*SeekingAlpha*, 26 May 2020) <https://seekingalpha.com/article/4350140-replacing-libors-magic> accessed 22 May 2021.

reformed benchmark object that 'evolves' and adapts to the needs of its users apparently automatically, thereby rendering benchmark production and use a responsive, integrated, self-governing system. Hence, also, the realisation of this vision depends on the production of particular kinds of subjects: financial actors with the 'right' kinds of needs, cultivated through making rational choices about which benchmarks to use in their transactions, and for which purposes.

Yet, in the end, this official sector vision is just that: a rhetorical ideal held out as a way to rationalise the relations of power underpinning the role of benchmarks such as Libor in financial transactions, whose stability ultimately depends on reformers leaving things as they found them. As a consequence, the discussion in this chapter has shown, the subjects and objects of 'market-led' reform are curious hybrids: 'near risk-free' rates that are both economic 'facts' and symbolic referents, which are apprehended and instrumentalised, in turn, by financial actors as a means of making sense of the demands on them as rational benchmark users and as creditors and debtors who are ultimately accountable to themselves for the promises they make. In the next chapter I explore how these dynamics have played out in benchmark reform work during the period from 2017 to date, when reformers have sought to accelerate the move to alternative benchmarks by ever more 'prodding' and 'shoving' and the announcement of an explicit target for Libor to be replaced after the end of 2021.

6. A World Without Libor?

6.1 Overview

In this chapter I continue my chronology of Libor's problematisation in benchmark reform discourse, focusing on the period from 2017 to date. This phase of reform work saw a pivot from a policy of identifying and promoting viable alternatives to Libor to one of replacing Libor altogether. As a result, financial actors have had to come to terms with the implications – legal, economic, practical, and epistemological – of moving to a world without Libor.

In the first part of the chapter, I examine the implications of this policy shift for Libor's problematisation. I show how, for UK benchmark reformers, it meant that the 'problem' was not only accounting for Libor's role in financial transactions but also the implications of replacing Libor in this role, thus highlighting the particular politics at stake in the 'transition' from Libor to its recommended alternative in sterling-denominated transactions, SONIA. I draw for this purpose on documentary sources, such as working group materials, speeches, and media commentary.

In the next two parts, I examine more closely the discourse of benchmark 'transition' that has dominated the work of the Sterling RFR Working Group. In part 6.3 I set the scene for an exploration of a further aspect of the fifth question in the WPR analytical framework: what effects are produced by this representation of the 'problem'? In particular, by engaging with Bacchi's concept of the 'lived effects' of problem representations, I consider how the 'problem' of accounting for Libor in view of its anticipated replacement has impacted on the way that financial actors understand their

transactions, write their contracts, and organise their affairs. In part 6.4 I then illustrate these lived effects by presenting a discussion of one of the most hotly debated items on the 'transition' agenda – the amendment of Libor-linked contracts to include language referring to alternative benchmarks in the event that Libor is discontinued (so-called 'contractual fallbacks'). ISDA has played a key role in promulgating these saving provisions, whose widespread adoption is seen as vital to prevent 'contractual armageddon'.[1] In both of these parts, I draw on my analysis of my interviews with forty research participants, including sixteen who were/ had been involved in the Sterling RFR Working Group, as well as documentary sources such as speeches and working group meeting minutes.

Finally, in part 6.5, I consider the implications of my analysis of the lived effects of Libor reform for understanding Libor's role in economic life and the specific arrangement of power relations it underpins. In doing so, I engage with current debates in transnational law scholarship concerning the governance effects of ISDA's standard-setting regime and draw further on analysis of my interview data. Complicating scholarly assumptions that private governance regimes such as ISDA's merely entrench the interests of financial insiders, I show how the lived effects of benchmark reform point to the precarity of established categories and distinctions (eg derivatives/ cash) and the role of a benchmark such as Libor in creating the conditions in which these categories and distinctions hold up.

[1] Mark Gilbert, 'The Short Road From Libor's Death to "Armageddon"' *Bloomberg* (9 July 2019) <https://www.bloomberg.com/opinion/articles/2019-07-09/the-short-road-from-libor-s-death-to-armageddon> accessed 12 March 2020.

6.2 The Death of Libor

By mid-2017, four of the five Libor currency working groups, including the Sterling RFR Working Group, had selected their preferred alternative 'near risk-free' rates.[2] However, official sector impatience at the pace of reform was beginning to harden into policy action. In line with the premise of 'market-led' reform, this policy shift did not take the form of a strategic intervention but a tactical one. In a July 2017 speech entitled 'The Future of Libor' the then Chief Executive of the FCA, Andrew Bailey, laid out a new impetus to reform.[3] Citing what he called the 'understandable discomfort' felt by Libor panel banks about continuing to participate in a benchmark regime based on expert judgement, Bailey explained that the FCA had 'spent a lot of time persuading panel banks to continue submitting to LIBOR'. Hence, the regulatory concern was not just that Libor's lack of 'underlying' transactions constituted a 'problem' but that *the fact of its problematisation* was now liable to deter banks' participation in the benchmark calculation.

Considering the financial stability risk that 'an unexpected and unplanned disappearance of LIBOR' would represent, Bailey noted that the FCA had the power to compel Libor panel banks to participate if necessary, but did not want to have to exercise it. Instead, he announced, the FCA had obtained assurances from Libor panel banks 'voluntarily to sustain LIBOR' until the end of 2021, beyond which the FCA would not

[2] FSB, 'Reforming Major Interest Rate Benchmarks: Progress Report on Implementation of July 2014 FSB Recommendations' (2017) 18 <https://www.fsb.org/wp-content/uploads/P101017.pdf> accessed 24 May 2021. The outlier was a 'near risk-free' alternative in the Euro currency area, for which planning was still at an early stage.

[3] Andrew Bailey, 'The Future of LIBOR - Speech by Andrew Bailey, Chief Executive of the FCA, at Bloomberg London' (26 July 2017) <https://www.fca.org.uk/news/speeches/the-future-of-libor> accessed 22 May 2021.

seek to ensure their continued participation, whether by informal suasion or through the use of compulsory powers.[4] This had two calculated implications for reform work. First, it effectively set a timetable for the generalised adoption of new 'near risk-free' rates as alternatives to Libor. Secondly, it signalled the abandonment of the regulatory consensus concerning a 'multiple-rate approach'. Now it was beginning to be understood that Libor's mere existence and continued availability could be enough to obviate the need for reform in the eyes of its users. As Bailey put it, a 'lesson of the past few years is that work on transition is unlikely to begin in earnest if market participants continue to assume LIBOR will last indefinitely'. The speech was widely reported as marking the 'death' of Libor.[5]

The change of tack signalled by the Bailey speech was followed by explicit changes in the focus and composition of the Sterling RFR Working Group (and those in other jurisdictions). In November 2017, the Bank of England and FCA announced that the group would be reconstituted with a 'new mandate… to catalyse a broad-based transition to SONIA over the next four years… so that SONIA is established as the primary sterling interest rate benchmark by end 2021'.[6] Reflecting its renewed remit, the

[4] An agreement was later finalised. FCA, 'FCA Statement on LIBOR Panels' (*FCA*, 24 November 2017) <https://www.fca.org.uk/news/statements/fca-statement-libor-panels> accessed 24 May 2021.

[5] Suzi Ring, 'Libor Funeral Set for 2021 as FCA Abandons Scandal-Tarred Rate' *Bloomberg* (27 July 2017) <https://www.bloomberg.com/news/articles/2017-07-27/libor-to-end-in-2021-as-fca-says-bank-benchmark-is-untenable-j5m5fepe> accessed 24 May 2021; Martin Arnold and Emma Dunkley, 'Libor's Long and Wild Ride Is Coming to an End' *Financial Times* (27 July 2017) <https://www.ft.com/content/88d0dfee-72e0-11e7-aca6-c6bd07df1a3c> accessed 24 May 2021; Yahoo Finance, 'The Death Of LIBOR And What It Means For Bank Loans' (*Yahoo Finance*, 4 August 2017) <https://finance.yahoo.com/news/the-death-of-libor-and-what-it-means-for-bank-230650529.html> accessed 24 May 2021; Swaha Pattanaik, 'Breakdown: Killing Libor Is a Long, Messy Business' *Reuters* (14 August 2017) <https://www.reuters.com/article/us-banks-libor-breakingviews-idUSKCN1AU0UP> accessed 24 May 2021.

[6] Bank of England, 'Bank and FCA Launch next Phase of Sterling Libor Transition Work' (*Bank of England*, 29 November 2017) <http://www.bankofengland.co.uk/news/2017/november/bank-and-fca-launch-next-phase-of-sterling-libor-transition-work> accessed 24 May 2021.

group's invited membership would be opened up to new participants, including corporate treasurers, investment managers and trade associations.[7] Effective from January 2018, these changes marked the start of the most recent phase of benchmark reform work, which anticipates Libor's imminent discontinuation.

6.2.1 Accounting for SONIA

In January 2018 the first meeting of the newly reconstituted Sterling RFR Working Group took the form of an induction event for new members. These included representatives of such household names as Shell, National Grid, and GlaxoSmithKline, as well as investment managers and other non-bank financial institutions, and industry bodies such as the ACT and ISDA.[8]

As well as bringing in new members, the group's new mandate envisaged that it would structure its working arrangements in ways that would enable it to seek the broadest possible engagement with financial actors, including the formation of technical sub-groups, discussion fora, and roundtables. It was 'essential', the terms of reference emphasised, 'that the Working Group operates in a transparent manner' – not just to be able to reach the widest possible audience but also 'to support the legitimacy of any conclusions or recommendations it makes'.[9]

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[7] Bank of England, 'Bank and FCA Launch next Phase of Sterling Libor Transition Work' (n 6).

[8] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates New Member Induction Event - 24 January 2018' (2018) <https://www.bankofengland.co.uk/minutes/2018/rfr-january-2018> accessed 24 May 2021.

[9] Sterling RFR Working Group, 'Working Group on Sterling Risk-Free Reference Rates - Terms of Reference' (2020) 5 <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/rfr-terms-of-reference.pdf> accessed 24 May 2021.

These amendments to the constitution and organisation of the working group from 2018 indicate a certain queasiness about the 'public' accountability of decisions made with a view to bringing about Libor's discontinuation. For as long as the goal of reformers was to establish a 'multiple-rate' world – ie one in which a reformed LIBOR+ benchmark would co-exist with alternatives – working group decisions (up to and including the decision to select SONIA as the official alternative to sterling Libor) were bounded in their political and economic significance. They were 'market-led' in the sense described in Chapter 5 – ie not really 'decisions' at all, but 'recommendations' and non-binding 'preferences' coded in the economic-scientific language of the 'risk-free' rate and generated by a bureaucratic process which served further to distance and depoliticise the outcome.

However, by making Libor's discontinuation an explicit policy goal, reformers were now testing the limits of a 'market-led' approach. Up until then, the central question facing reformers was: how can Libor's role in financial transactions be 'publicly' accounted for in a way that leaves undisturbed the relations of power between creditors and debtors that the benchmark underpins? From the start of 2018, the question becomes: how can Libor's role in financial transactions be replicated using a *different* benchmark? In effect, it would mean dismantling and remaking the social world that Libor underpinned in a manner, over a timescale, and in favour of alternatives, which, for the vast majority of financial actors, were *not* of their choosing. This put the spotlight back on a set of questions that had hitherto been obscured by the discourse of 'market-led' reform, eg who stands to benefit from the move to SONIA and who will lose out? In short, it highlights what Bacchi calls the 'lived effects' of problematisations. I consider below what this means in the context of Libor reform.

6.3 The Politics of 'Transition'

In the last chapter I explored how Libor's problematisation in reform discourse gives rise to certain effects, which Bacchi refers to as, respectively, 'discursive effects' and 'subjectification effects'.[10] For example, by regulating what can be said and thought about the 'problem', reform discourse produces particular kinds of objects and spaces, such as 'market-led' working groups, 'near risk-free' rates, and oversight committees. At the same time, the reform discourse produces particular subjectivities for financial actors to inhabit, such as 'benchmark users', who are reflexive and rational yet who always ultimately accept the benchmark-determined outcomes of their transactions as 'given' and deterministic.

In addition to these categories, Bacchi proposes a third analytical category – 'lived effects' – encompassing the ways in which the discursive and subjectification effects produced by a given problem representation impact materially on people's lives.[11] With the proviso that (as Bacchi also insists) there are no bright lines between these categories, I have found the notion of 'lived effects' a useful way in which to think about the implications of moving to a post-Libor world. Many of the themes that emerge from my empirical data are not only analytical artefacts, they are *in vivo* themes and concerns, actively reflected upon, calculated about, and argued over by financial actors, such as the distributive effects of switching benchmarks, the complexities of reform, and the desire for continuity in their transactions.

[10] Carol Bacchi, *Analysing Policy: What's the Problem Represented to Be?* (Pearson Australia 2009) 15.

[11] Bacchi (n 10) 15.

In particular, the discourse of 'transition' that has dominated the work of the Sterling RFR Working Group (and its counterparts in other jurisdictions) is a reflection on the tangible implications of Libor's problematisation for the way that financial actors understand their transactions, write their contracts, and organise their affairs. Hence, the kinds of questions that inform WPR analysis speak to real live questions in debates about the 'transition' to a post-Libor world:

> What will be done, given this representation of the 'problem'? To whom? What will stay the same? Who will benefit from this representation of the 'problem'? Who will be harmed? Who is 'blamed' in this representation of the 'problem'? How does this attribution of blame affect the ways in which those targeted as responsible for the 'problem' think about themselves and their place in the world?[12]

The discourse of 'transition' is a way of asking and answering these questions by seeking to secure an outcome in which the costs and benefits of moving to a world without Libor are, if not neutralised, then at least evenly distributed. However, as I show below, the lived effects of Libor's problematisation are felt at the level of individual contracts and actors, professional communities and industry groups, as well as whole markets, making 'transition' a ramifying, scalable phenomenon with its own particular politics.

6.3.1 Transition troubles

The Sterling RFR Working Group's revised terms of reference listed a number of intermediate objectives that were expected to form the basis of a work plan with the overall aim of securing the 'transition' from sterling Libor to SONIA by the end of 2021.

[12] Carol Bacchi and Joan Eveline, 'Approaches to Gender Mainstreaming: What's the Problem Represented to Be?' in Carol Bacchi and Joan Eveline (eds), *Mainstreaming Politics: Gendering Practices and Feminist Theory* (University of Adelaide Press 2010) 115.

Among the areas of focus were education and awareness-raising; the design and promotion of new financial products referencing SONIA; and the review and codification of best practices for documenting the 'transition' in financial contracts.[13] Each of these areas raised its own challenges, while also spilling over into other areas.

A key strategy of the working group was to develop what is often referred to as an 'ecosystem'[14] around SONIA that would enable its usage as a benchmark to be expanded beyond its existing, relatively narrow range of applications into other areas of sterling derivatives markets as well as cash markets, such as those for bonds and loans. This meant overcoming 'psychological and administrative barriers' as well as 'technological or economic' ones.[15]

Financial actors would need to be re-educated on the implications of including SONIA in their agreements instead of Libor. For example, as discussed in Chapter 3, Libor is calculated according to a series of standard interest periods (maturities) ranging from one week to one year. This 'term structure' means that financial actors with periodic interest payments/ receipts linked to Libor know what they owe, and what they are owed, in advance of the period to which the interest relates. However, since SONIA is an overnight rate, recalculated daily, a new set of calculative conventions would have to be developed and promulgated, making it known how such a daily rate could be

[13] Sterling RFR Working Group, 'Working Group on Sterling Risk-Free Reference Rates - Terms of Reference' (n 9) 2.

[14] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 19 February 2018' (2018) <http://www.bankofengland.co.uk/minutes/2018/rfr-february-2018> accessed 24 May 2021.

[15] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 19 February 2018' (n 14).

compounded and extended to conform to the standard interest periods in, say, a loan or a bond (3 months, 6 months etc).

Paving the way for financial actors to rethink their transactions also meant encouraging them to *retool* by making concrete, material changes in how they organised their business affairs, wrote their contracts, and realised their transactions in their systems and accounts. The working group's to-do list during the course of 2018 included a growing number of such 'operational' issues. For example, its market infrastructure sub-group developed a provisional menu of priorities which included an extensive list of physical systems that would have to be adapted to a SONIA-based world, such as trading platforms and exchanges; accounting, payments and clearing systems; financial reporting tools; and pricing and valuation models.[16]

All of this involved, in turn, intensified 'outreach' efforts to enrol financial actors in the 'transition' by encouraging them to review for themselves the extent of their Libor exposures and prepare accordingly. In June 2018, a group of industry bodies published the outcome of a joint global survey gauging their members' readiness for 'transition'.[17] The results are suggestive of the kind of cognitive dissonance in reform discourse that I discussed in the last chapter. The survey found that 87% of respondents were aware of benchmark reform and concerned about its impact. However, nearly a quarter had yet to do any formal transition planning, while only a small minority had taken concrete actions

[16] Sterling RFR Working Group, 'Market Infrastructure Sub-Group Priority List' (2019) <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/market-infrastructure-priority-list-august-2019.pdf> accessed 24 May 2021.

[17] ISDA and others, 'IBOR Global Benchmark Transition Report' (2018) <https://www.isda.org/a/OqrEE/IBOR-Transition-Report.pdf> accessed 24 May 2021.

of a kind the compilers of the survey considered advisable.[18] These were specified in the survey report in the form of a checklist of recommendations, such as establishing a transition project with dedicated staffing, compiling an inventory of products and contracts linked to Libor, and reviewing contracts.[19] Overall, the report concluded, financial actors were still 'holding back from taking action'.[20]

This phase of benchmark reform work also coincided with the period of my fieldwork, so I was able to explore with my interviewees their live experiences of planning for 'transition'. As might be expected, those interviewees who were closely involved in reform work were typically more cognisant of 'transition' issues than those who were not. Indeed, often their own involvement in working groups, attendance at conferences etc, was itself an investment in 'transition' by their employer since it meant time spent away from their day job. In some cases, their day job *was* 'transition' (as with, for example, an interviewee who was a project manager coordinating the transition programme for the European operations of a Libor panel bank). However, as I show below, I also found that, even for this subset of interviewees, 'transition' was something that was always liable to exceed their planning.

6.3.2 Chicken and egg conundrums

During my fieldwork, it was common to hear from interviewees about the complexity and uncertainty of 'transition'. I found that this kind of transition talk was often a way

[18] 12% of respondents had developed a preliminary transition project plan and 11% had allocated budget to it. ISDA and others (n 17) 8.

[19] ISDA and others (n 17) 35–36.

[20] ISDA and others (n 17) 9.

of highlighting not only the practical challenges that financial actors faced but a particular politics. As one commentator puts it: 'The transition away from Libor is littered with "chicken and egg" conundrums.'[21]

For example, the development of a healthy (ie 'liquid', in the terminology used by my informants) market in SONIA-based derivatives was commonly seen as a prerequisite for building demand for SONIA-based loans and bonds, so that borrowers and lenders could transact using SONIA in the knowledge that they could hedge their risks as easily and effectively as they could using Libor. Yet, it was also understood that for SONIA-based derivatives to become established as risk management tools there would first need to be active 'underlying' markets for borrowing and lending against SONIA.

This 'chicken and egg' dilemma evidently raises questions of sequencing and 'logistics'.[22] But it also brings into view the relations of power between financial actors. Was it the responsibility of banks to provide their customers with new SONIA-based products or the responsibility of customers to demand them? How could 'transition' be managed in a way that did not disadvantage certain actors vis-à-vis others (whether

[21] Helen Bartholomew, 'Chickens, Eggs and Libor Fallbacks' *Risk.net* (12 October 2020) <https://www.risk net/node/7696296> accessed 24 May 2021.

[22] Interview 63806, Portfolio Manager (UK, 2018).

financially, operationally, or otherwise)? As one risk manager at a major bank, whose responsibilities included IBOR transition, put it:

> As [Bank name], what's our responsibility? Education? To determine whether a corporate treasurer really needs a term structure. Is it "can't" or "won't" or "don't want to"? It's difficult to know, it becomes a grey area. What's our responsibility?[23]

One of the most regularly cited concerns of my interviewees was the possibility that 'transitioning' from Libor to SONIA could result in an economic redistribution or 'value transfer' between the parties to financial contracts, due to absolute differences in the levels at which the rates were calculated. Another interviewee, a corporate treasurer whose role involved managing their company's banking arrangements through the use of a panel of several so-called 'relationship banks', commented:

> This is where everyone thinks they're going to get screwed. We think we're going to get screwed because everyone knows the banks screw the clients. The banks think they're going to get screwed because everyone knows clients hold their relationship banks over a barrel to get the best rates. Now, you might hope you do a negotiation in the way and the markets work, but there's – almost everyone doesn't want to have that discussion because we've got enough else to do. You want someone to tell you.[24]

In this way, the effort to recreate around SONIA the social world that Libor makes possible has had the effect of foregrounding the kinds of calculations and political struggles that Libor had helped to obviate, thus putting them back into debate.

One issue in particular epitomises the politics of 'transition' and has been at the top of the agenda of the Sterling RFR Working Group and its counterparts throughout the

[23] Interview 60941, Bank Risk Manager (UK, 2018).

[24] Interview 48017, Corporate Treasurer (UK, 2018).

period from 2018 to date. This is the effort to secure financial contracts through the development and promulgation of so-called contractual fallbacks. I discuss the debate around fallbacks in the next part of this chapter, before turning in the final part to consider the implications of my analysis for understanding Libor's role in economic life and the specific arrangement of power relations it underpins.

6.4 Averting Armageddon: ISDA and Contractual Fallbacks

As noted in Chapter 4, contractual stability has been a central preoccupation of benchmark reformers since the Wheatley Review. Much of the concern has focused on how contracts which reference Libor deal with the eventuality that the benchmark is no longer published. Typically such fallback provisions are incorporated automatically in contracts through the widespread use of standard form agreements for particular types of transaction, such as the ISDA Master Agreement for swaps and derivatives discussed in Chapter 3. A review of standard contract terms carried out by the MPG as part of its remit to consider the feasibility of moving to alternative benchmarks found that most fallback provisions envisaged Libor's temporary outage (eg due to technical error)[25] and were 'not sufficiently robust for a permanent discontinuation of a key IBOR'.[26] Moreover, different industry standard forms took different approaches, meaning that the fallback rate under a loan agreement could be different from that under, say, an interest rate swap.

[25] MPG, 'Final Report of the Market Participants Group on Reforming Interest Rate Benchmarks' (2014) 100 <https://www fsb.org/wp-content/uploads/r_140722b.pdf> accessed 23 May 2021.

[26] MPG (n 25) 12.

ISDA's standard terms provided that, if Libor was not published on any given day, the benchmark would be determined by conducting an ad hoc poll, ie by seeking quotes from selected banks as to the rates prevailing in the relevant interbank market.[27] In the August 2018 edition of its quarterly magazine, ISDA outlined the possible doomsday scenario in these terms:

> Enough banks stop making LIBOR submissions to mean publication of LIBOR is no longer viable. An announcement is made that LIBOR cannot be published. Firms scramble to mobilise enough lawyers to sift through each of their thousands of derivatives, loan, bond and mortgage contracts to work out what rate should be used instead. The contractual language either isn't clear, or requires the calculation agent for each trade to call dealers to provide an estimate – not realistic over the long term, even supposing dealers are willing to do it. The result: trillions of dollars worth of contracts referenced to LIBOR effectively grind to a halt.[28]

From this point of view, it becomes clear how the adequacy of contractual fallback arrangements is not just a side issue but an integral part of the 'problem' to which benchmark reform discourse is addressed. The corollary of financial actors' appreciation of Libor as a 'given' feature of their social world, which always already governs their transactions and interactions 'from the beginning', is a vast stock of contracts that simply *do not conceive* of a world without Libor. Hence, on one level fixing contractual fallbacks is about ensuring financial contracts continue to work in an emergency, but it is also about reconfiguring the social world that Libor presupposes and to which it gives effect. The idea of a permanent fallback is a way of compartmentalising and routinising the politics of 'transition', so that the benchmark referenced in a contract can be switched for another while relations between the contracting parties continue as if unchanged.

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[27] ISDA, *2006 ISDA Definitions* (ISDA 2006), Article 7.

[28] ISDA, 'Benchmark Transformation – IQ August 2018' (2018) ISDA Quarterly <https://www.isda.org/2018/08/16/benchmark-transformation-iq-august-2018/> accessed 24 May 2021.

As the trade association and global standard-setting body for the derivatives industry, ISDA has played a central role in effecting a 'market-led' approach to this issue. But its role also illustrates how the politics of 'transition' always exceed questions of technical expediency.

6.4.1 Hardwiring agreement

Initially, the question of how to ensure 'contractual robustness' as part of benchmark reform efforts was devolved to the Sterling RFR Working Group and its counterparts in other Libor currency areas.[29] These groups' early focus on derivatives meant that in practice ISDA took the lead on work relating to rewriting (or 're-papering') contracts in connection with 'transition'.[30] However, as the goals of reform have been progressively refocused, so too the problem of how to deal with contractual fallbacks has been reframed and refined. In July 2016, the FSB stepped in formally to invite ISDA to lead a cross-currency initiative on derivatives fallbacks, taking into account the overarching public policy objectives to ensure that financial actors understood what would happen in the event that a key benchmark was permanently discontinued and to 'prevent potentially serious market disruption in such an event'.[31]

[29] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 18 March 2015' (2015) <http://www.bankofengland.co.uk/minutes/2015/rfr-march-2015> accessed 24 May 2021.

[30] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 14 July 2015' (2015) <https://www.bankofengland.co.uk/minutes/2015/rfr-july-2015> accessed 23 May 2021.

[31] FSB, 'Reforming Major Interest Rate Benchmarks: Progress Report on Implementation of July 2014 FSB Recommendations' (n 2), Appendix C – 'Letter from Co-chairs of Official Sector Steering Group to International Swaps and Derivatives Association' dated 7 July 2016.

As noted in Chapter 3, the ISDA Master Agreement is the default condition for trading in derivatives markets. It has three component parts: a standard pre-printed form and definitions; a schedule containing individually negotiated provisions and elections; and a short 'confirmation' completed for each transaction done under the terms of the agreement.[32] It was designed such that '[t]he choice of law and the choice of the contractual currency are the only two elections that the parties must make when completing the ISDA Master'.[33] In principle, therefore, new contracts could be 'transitioned' to alternative benchmarks by amending ISDA's standard terms to account for the introduction of the new rates, thereby 'hardwiring' the required amendments without the need for the parties to take further steps as and when Libor was discontinued.

For transactions entered into after the date on which the amendments took effect, there would be no more to think about. However, switching benchmarks in existing contracts raised additional questions. In particular, the calculative differences between Libor and 'near risk-free' rates translate into absolute differences in the levels of each benchmark. For example, Figure 3 shows the difference or 'spread' between 3 month sterling Libor and SONIA (after compounding the latter to conform the interest periods) between 2014-2018. The existence of this spread meant that switching one rate for the other would almost inevitably have economic implications for the parties to financial contracts in the absence of a compensating mechanism. Resolving this issue for derivatives formed another key area of ISDA's work.

[32] Jeffrey Golden, 'Interpreting ISDA Terms: When Market Practice Is Relevant, as of When Is It Relevant?' (2014) 9 Capital Markets Law Journal 299, 300 fn2.

[33] Golden (n 32) 304.

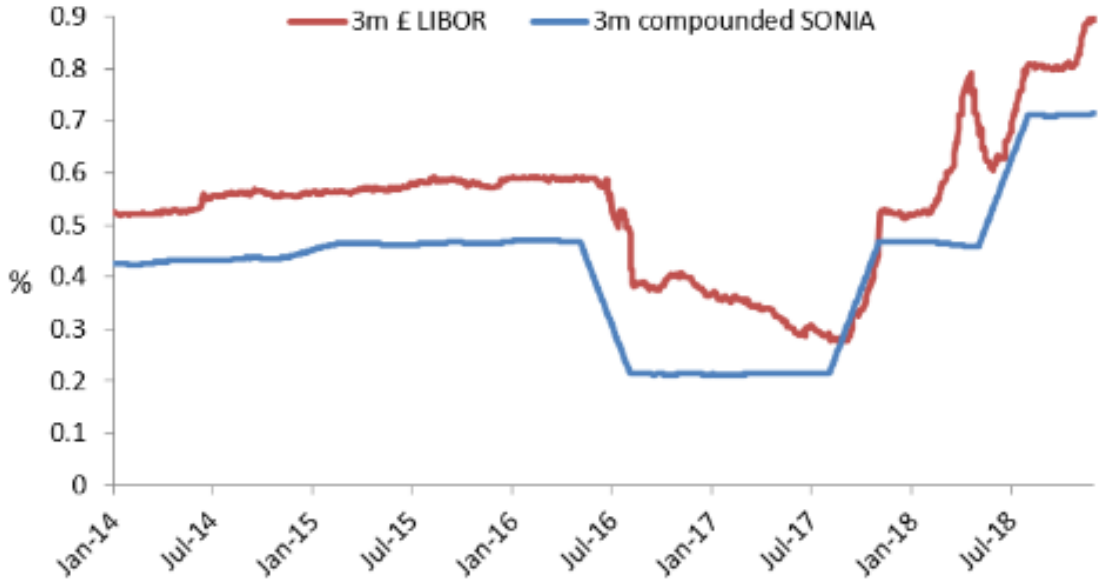


Figure 3. Chart compiled by the Sterling RFR Working Group showing 3 month compounded SONIA and 3 month sterling Libor between 2014-2018. Reprinted with the permission of the Bank of England.[34]

6.4.2 A calculated neutrality

In July 2018, ISDA consulted on a proposed approach to fallbacks which would ensure that the default position under the ISDA Master Agreement dovetailed with official policy on Libor reform by making the contractual fallback rate for each Libor currency the officially designated 'near risk-free' rate (eg so that SONIA would become the ISDA fallback for sterling Libor).[35] But the key purpose of the consultation was to seek feedback on the options for adjusting the 'near risk-free' rate in order to render the

[34] Sterling RFR Working Group, 'Discussion Paper: Conventions for Referencing SONIA in New Contracts' (2019) 5, Figure 2 <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/discussion-paper-conventions-for-referencing-sonia-in-new-contracts.pdf> accessed 24 May 2021.

[35] ISDA, 'Consultation on Certain Aspects of Fallbacks for Derivatives Referencing GBP LIBOR, CHF LIBOR, JPY LIBOR, TIBOR, Euroyen TIBOR and BBSW' (2018) <http://assets.isda.org/media/f253b540-193/42c13663-pdf/> accessed 24 May 2021. A subsequent consultation dealt with other rates including US dollar Libor.

fallback economically comparable with Libor. This was to be achieved by making two kinds of calculative adjustment. The first ('term adjustment') involved applying a compounding/ averaging formula to the overnight rate to produce a fallback rate matching the maturity of the relevant Libor (3 month, 6 month, etc). The second ('spread adjustment') involved a calculation designed to approximate the risk premium 'contained' in Libor over and above the 'risk-free' rate. Overall, the aim was to mitigate the concern that the transition from Libor to a fallback rate could create winners and losers.

ISDA's 'final parameters' for the adjustments, including various technical specifications for performing the calculations, were published in September 2019 for another round of consultation, and confirmed later that year.[36] The preferred methodology involved a term adjustment based on 'compounded setting in arrears' (meaning that the overnight rate would be adjusted by compounding it over the interest period to which it relates), and a spread adjustment calculated by averaging the spread between Libor and the term-adjusted 'near risk-free' rate over the five years prior to the fallback being triggered.

A market data services provider, Bloomberg, was appointed to calculate the adjustments on a daily basis according to the agreed technical specification and publish the results along with the 'all-in' fallback rates.[37] In effect, as from July 2020 when Bloomberg began to publish the fallbacks, there are two SONIAs in existence: one a

[36] ISDA, 'Consultation on Final Parameters for the Spread and Term Adjustments in Derivatives Fallbacks for Key IBORs' (2019) <https://www.isda.org/a/Ua0TE/Consultation-on-Parameters-for-Fallback-Adjustments.pdf> accessed 24 May 2021.

[37] ISDA, 'Bloomberg Begins Publishing Calculations Related to IBOR Fallbacks' (*ISDA*, 21 July 2020) <https://www.isda.org/2020/07/21/bloomberg-begins-publishing-calculations-related-to-ibor-fallbacks/> accessed 24 May 2021.

prosthetically enhanced SONIA designed to look more like sterling Libor, which will stand in in the event that Libor is discontinued, and the 'real SONIA', as one interviewee put it.[38]

However, even after a suitable fallback has been identified, making it possible for financial actors to switch from Libor to the new rate calls for a subtle blend of political judgement and legal engineering. How is the fallback to be triggered? What happens if the primary fallback is unavailable? How will the new provisions take effect, not only for new contracts but for existing Libor-linked contracts? These ostensibly technical questions of contract mechanics form a further strand of ISDA's contribution to reform work, and one in which it has been visibly caught up in the tensions within the 'market-led' approach to benchmark reform.

6.4.3 The zombie threat

From the start, ISDA's work on fallbacks was marked by various kinds of regulatory 'prodding and shoving'. Indeed, faced with the cross-cutting requirements of the EU Benchmark Regulation regarding contingency planning in contracts, and additional guidance from IOSCO,[39] ISDA was obliged to accelerate a set of generic fallback measures pending completion of its consultation exercise.[40]

[38] Interview 27381, Consultant – Derivatives Advisory (UK, 2018).

[39] IOSCO, 'Statement on Matters to Consider in the Use of Financial Benchmarks' (2018) <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD589.pdf> accessed 24 May 2021.

[40] ISDA, 'ISDA Publishes Benchmarks Supplement – International Swaps and Derivatives Association' (*ISDA*, 19 September 2018) <https://www.isda.org/2018/09/19/isda-publishes-benchmarks-supplement/> accessed 24 May 2021.

A more substantive area of contention concerned the question of fallback triggers. ISDA's proposed approach initially envisaged that fallbacks would be triggered by a public statement by the administrator or another relevant authority confirming Libor's permanent discontinuation. However, in March 2019 the Co-Chairs of the OSSG wrote to ISDA to request that it consult on the inclusion of a so-called 'pre-cessation' trigger in the event that the FCA 'found LIBOR to be non-representative' of its 'underlying' market, eg due to the departure of panel banks.[41]

The request was made against a backdrop in which Libor remained stubbornly 'dominant in many market segments'.[42] Even after SONIA and other Libor alternatives had been formally endorsed, many financial actors continued to refer to Libor in their contracts, adding to the stock of so-called 'legacy' contracts that would remain outstanding well beyond the end of 2021. This was especially the case in cash markets but not exclusively so. Analysis by the Bank of England later that year showed 'steady growth' in a key population of sterling swap contracts referencing Libor over the period between April 2018 (when the Bank began to publish reformed SONIA) and August

[41] FSB, 'Derivative Contract Robustness to Risks of Interest Rate Benchmark Discontinuation - Open Letter from Andrew Bailey, Chief Executive Officer, UK Financial Conduct Authority, and John Williams, President and Chief Executive Officer, Federal Reserve Bank of New York, Co-Chairs of the OSSG, to Scott O'Malia, Chief Executive Officer, ISDA, and Katherine Tew Darras, General Counsel, ISDA' (12 March 2019) <https://www fsb.org/wp-content/uploads/P150319.pdf> accessed 24 May 2021.

[42] Andreas Schrimpf and Vladyslav Sushko, 'Beyond LIBOR: A Primer on the New Benchmark Rates' (2019) March 2019 BIS Quarterly Review 41 <https://www.bis.org/publ/qtrpdf/r_qt1903e.pdf> accessed 24 May 2021.

2019,[43] prompting its Financial Policy Committee to warn of the risks to financial stability posed by continued reliance on Libor.[44]

The FSB's 2019 progress review contained similar admonishments to financial actors to stop writing new contracts referencing Libor and 'to accelerate their efforts' to switch from Libor to alternative rates in legacy contracts.[45] As one observer commented: 'Noises from both the FSB and Bank of England have taken the tone of a disappointed teacher, mystified that the dog has eaten a substantial volume of the market's homework again.'[46]

Added to this was a growing concern that, even if some banks withdrew from the Libor panels after 2021, a 'zombie Libor', based on reduced submissions, could continue indefinitely.[47] As one lawyer remarked of the idea of a 'non-representative' Libor:

> the Financial Stability Board see it as a source of potential systemic risk similar to [Libor's cessation] but it's not necessarily a source of contractual risk in the same way that cessation was, so if they announced it's non-representative but it

[43] Bank of England, 'How Prepared Are Markets for the End of Libor?' (*Bank Overground*, 30 September 2019) <http://www.bankofengland.co.uk/bank-overground/2019/how-prepared-are-markets-for-the-end-of-libor> accessed 24 May 2021.

[44] Bank of England, 'Financial Stability Report December 2019' (2019) Issue No. 46 vi <https://www.bankofengland.co.uk/-/media/boe/files/financial-stability-report/2019/december-2019.pdf> accessed 24 May 2021.

[45] FSB, 'Reforming Major Interest Rate Benchmarks: Progress Report' (2019) 1 <https://www.fsb.org/wp-content/uploads/P181219.pdf> accessed 24 May 2021.

[46] Louise Bowman, 'Libor: Banks Must Jump before They Are Pushed' *Euromoney* (21 January 2020) <https://www.euromoney.com/article/b1k011zp7pssq1/libor-banks-must-jump-before-they-are-pushed> accessed 24 May 2021. See also Mark Gilbert, 'Libor Refuses to Die' *Bloomberg* (10 October 2019) <https://www.bloomberg.com/opinion/articles/2019-10-10/libor-refuses-to-die-and-that-s-a-danger-for-market-stability> accessed 24 May 2021.

[47] Alex Harris, '"Zombie Libor" Threatens Market's Complacent View, JPMorgan Says' *Bloomberg* (9 September 2019) <https://www.bloomberg.com/news/articles/2019-09-09/-zombie-libor-risks-are-being-underappreciated-jpmorgan-says> accessed 24 May 2021; Edwin Schooling Latter, 'Next Steps in Transition from LIBOR - Speech by Edwin Schooling Latter, Director of Markets and Wholesale Policy at the FCA, Delivered at the Risk.Net LIBOR Summit, 2019' (20 November 2019) <https://www.fca.org.uk/news/speeches/next-steps-transition-libor> accessed 24 May 2021.

> keeps being published, people will still be able to calculate the amounts due and payable and margin them and so on. It will still function. You know, it may not be a social good but it will function.[48]

In this light, the notion of a so-called 'pre-cessation' trigger signalled another tactical hardening of the regulatory stance. The inclusion of such a trigger would provide a mechanism for compelling derivatives counterparties to switch from Libor to a fallback rate on the FCA's initiative even if Libor continued to be published. In effect, a pre-cessation trigger would give the FCA the discretion to pre-empt Libor's discontinuation at a time of its choosing.

6.4.3.1 Papering over the cracks

In May 2019, ISDA duly launched a consultation to gauge financial actors' views on including pre-cessation triggers as part of its standard fallback language.[49] There were eighty-nine responses, with decidedly mixed views. While most consultees indicated that they would prefer not to use a benchmark that had been declared 'non-representative' by a regulator, when it came to legacy transactions significant minorities either did not share that view or indicated that they would consider making an exception.[50]

Above all, the results seemed to reinforce concerns that introducing pre-cessation language could lead to variable take-up of the standard fallbacks, since many financial

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[48] Interview 52962, Financial Markets Lawyer (UK, 2019).

[49] ISDA, 'Consultation on Pre-Cessation Issues for LIBOR and Certain Other Interbank Offered Rates (IBORs)' (2019) <https://www.isda.org/a/md6ME/FINAL-Pre-cessation-issues-Consultation.pdf> accessed 24 May 2021.

[50] The Brattle Group, 'Anonymized Narrative Summary of Responses to the ISDA Pre-Cessation Consultation - Prepared for International Swaps and Derivatives Association ("ISDA")' (2019) 13–14 <http://assets.isda.org/media/e0b1bac2/04397355-pdf/> accessed 24 May 2021.

actors did not want to be bound to switch benchmarks unless everyone was bound in the same way and at the same time. 'We want products to marry up', one derivatives expert was quoted as saying in a financial news article:

> If I have issued a Libor bond that doesn't have any pre-cessation triggers then I want to have a Libor swap that continues to use Libor even if it's been deemed non-representative, because it hedges the rate I pay on my bond.[51]

The potential for divergence was not only between derivatives and cash markets but also *within* derivatives markets. Two of the largest global derivatives exchanges, CME and LCH Group,[52] accounting for the majority of trading in interest rate derivatives,[53] had confirmed that they might choose to include pre-cessation triggers in their rules even if ISDA did not, creating the possibility that different parts of the derivatives markets could 'transition' at different speeds.[54]

The 'market-led' debate on these issues was played out, not in a working group setting but via a continuation of the public correspondence between the FSB and ISDA. In November 2019 the OSSG Co-Chairs wrote asking ISDA, in effect, to go back and try

[51] Robert Mackenzie Smith and Lukas Becker, 'Splits Emerge over "Pre-Cessation" Fallback Triggers' *Risk.net* (12 August 2019) <https://www risk.net/node/6892966> accessed 24 May 2021.

[52] A majority-owned subsidiary of London Stock Exchange Group plc.

[53] Sirio Aramonte and Wenqian Huang, 'OTC Derivatives: Euro Exposures Rise and Central Clearing Advances' (2019) December 2019 BIS Quarterly Review 88, Graph 4 <https://www.bis.org/publ/qtrpdf/r_qt1912j.pdf> accessed 24 May 2021. For an indication of LCH/ CME shares, see Torsten Ehlers and Bryan Hardy, 'The Evolution of OTC Interest Rate Derivatives Markets' (2019) December 2019 BIS Quarterly Review 77, Graph A. <https://www.bis.org/publ/qtrpdf/r_qt1912i htm> accessed 24 May 2021.

[54] ISDA, 'Consultation on Pre-Cessation Issues for LIBOR and Certain Other Interbank Offered Rates (IBORs)' (n 49) 7.

again.[55] After more public correspondence and statements from the FCA, IBA, and LCH,[56] ISDA did launch a second round of consultation in February 2020.[57] This time around a simple Yes/ No exercise delivered a 'significant majority'[58] in favour of including pre-cessation fallbacks as standard.[59] According to the final consultation report, the need for consistency was 'a central consideration amongst all respondents who responded "Yes" and "No" alike'.[60]

6.4.4 Judgement day, deferred

ISDA's final fallback mechanics were eventually published in October 2020 in the form of an IBOR Fallbacks Supplement containing an amended set of standard definitions covering any new interest rate derivative transactions entered into on ISDA terms. At the same time ISDA issued a multilateral IBOR Fallbacks Protocol designed to amend the

[55] FSB, 'Open Letter from Andrew Bailey, Chief Executive Officer, UK Financial Conduct Authority, and John Williams, President and Chief Executive Officer, Federal Reserve Bank of New York, Co-Chairs of the OSSG, to Scott O'Malia, Chief Executive Officer, ISDA, and Katherine Tew Darras, General Counsel, ISDA' (19 November 2019) <https://www fsb.org/wp-content/uploads/P191119.pdf> accessed 24 May 2021.

[56] FSB, 'Correspondence with ISDA on Pre-Cessation Triggers' (*FSB*, 30 January 2020) <https://www.fsb.org/2020/01/correspondence-with-isda-on-pre-cessation-triggers/> accessed 24 May 2021.

[57] ISDA, '2020 Consultation on How to Implement Pre-Cessation Fallbacks in Derivatives' (2020) <https://www.isda.org/a/iioTE/2020-Consultation-on-Pre-Cessation-Issues-Final.pdf> accessed 24 May 2021.

[58] ISDA, 'ISDA Publishes Report Summarizing Final Results of Consultation on Pre-Cessation Fallbacks for LIBOR – International Swaps and Derivatives Association' (*ISDA*, 14 May 2020) <https://www.isda.org/2020/05/14/isda-publishes-report-summarizing-final-results-of-consultation-on-pre-cessation-fallbacks-for-libor/> accessed 24 May 2021.

[59] 126 out of 138 responses from market participants answered Yes. The Brattle Group, 'Summary of Responses to the ISDA 2020 Consultation on How to Implement Pre-Cessation Fallbacks in Derivatives - Prepared for International Swaps and Derivatives Association ("ISDA")' (2020) 4 <https://www.isda.org/a/cuQTE/2020.05.14-Pre-cessation-Re-Consultation-Report-FINAL.pdf> accessed 24 May 2021.

[60] The Brattle Group (n 59) 6.

terms of legacy derivatives transactions on the same basis, which would take effect in respect of a given transaction provided both parties had formally signed up to 'adhere' to the Protocol's terms.[61]

The announcement was accompanied by statements from the FSB and other official sector actors urging the Protocol's 'broad and timely' adoption.[62] Even then, this was by no means assured. Some financial actors reportedly preferred a wait-and-see approach rather than risk their contracts not 'marrying up'. While the fallback mechanics might be agreed, the fallback rates themselves, including the various adjustments, could not be ascertained until the mechanism was triggered, which meant there could be an incentive for financial actors to wait until a pre-cessation announcement by the FCA or Libor's administrator before deciding whether to sign up.[63] Indications from the FCA that the announcement could come before the end of 2020 also weighed in the balance.[64]

[61] Both ISDA's revised definitions and the fallbacks protocol were effective from 25 January 2021. ISDA, 'ISDA Launches IBOR Fallbacks Supplement and Protocol' (*ISDA*) <https://www.isda.org/2020/10/23/isda-launches-ibor-fallbacks-supplement-and-protocol/> accessed 24 May 2021.

[62] FSB, 'FSB Encourages Broad and Timely Adherence to the ISDA IBOR Fallbacks Protocol' (*FSB*, 9 October 2020) <https://www fsb.org/2020/10/fsb-encourages-broad-and-timely-adherence-to-the-isda-ibor-fallbacks-protocol/> accessed 24 May 2021; Sterling RFR Working Group, 'Statement Welcoming the Announcement by ISDA on Its IBOR Fallbacks Protocol and IBOR' (October 2020) <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/rfr/statement-welcoming-isda-announcement.pdf?la=en&hash=1D9DDAB066CC9B7BD959CA0462106E3F07F9FDF9> accessed 24 May 2021.

[63] Robert Mackenzie Smith and Rebekah Tunstead, 'The Buy Side and Libor: It's Decision Time' *Risk.net* (16 November 2020) <https://www.risk net/derivatives/7706876/the-buy-side-and-libor-its-decision-time> accessed 24 May 2021.

[64] Edwin Schooling Latter, 'LIBOR Transition – the Critical Tasks Ahead of Us in the Second Half of 2020 - Speech by Edwin Schooling Latter, Director Markets and Wholesale Policy at the FCA, Delivered at a Webinar Hosted by the International Swaps and Derivatives Association 14 July Event on "The Latest in LIBOR Transition, The Path Forward"' (31 July 2020) <https://www.fca.org.uk/news/speeches/libor-transition-critical-tasks-ahead-us-second-half-2020> accessed 24 May 2021.

On 5 March 2021, the FCA finally declared Libor's 'future cessation or loss of representativeness' with effect from its target end date.[65] However, earlier coordinated announcements by IBA; the FCA; and US regulators told their own story of the broader tensions within the 'market-led' reform project. Now there were to be different timetables for different Libors. In particular, the most widely used US dollar Libor rates would continue to be published up until 23 June 2023, rather than the 31 December 2021 target, which remained in place for the other currencies.[66] The announcements marked a recognition by reformers of the prospect of widespread disruption if the US dollar Libor rates were discontinued on schedule. In the case of ISDA's fallbacks, the politics of 'transition' may be papered over but they have not gone away.

In the final part of this chapter I consider the implications of the above analysis in light of my overarching research aim to understand and interrogate the relations of power through which financial transactions are governed by benchmarks. In particular, I argue, paying attention to how the politics of 'transition' played out through the technical discourse of contractual fallbacks and the intermediation of organisations such

[65] FCA, 'FCA Announcement on Future Cessation and Loss of Representativeness of the LIBOR Benchmarks' (5 March 2021) <https://www.fca.org.uk/publication/documents/future-cessation-loss-representativeness-libor-benchmarks.pdf> accessed 24 May 2021.

[66] IBA, 'ICE Benchmark Administration to Consult on Its Intention to Cease the Publication of One Week and Two Month USD LIBOR Settings at End-December 2021, and the Remaining USD LIBOR Settings at End-June 2023' (*ICE*, 30 November 2020) <https://ir.theice.com/press/news-details/2020/ICE-Benchmark-Administration-to-Consult-on-Its-Intention-to-Cease-the-Publication-of-One-Week-and-Two-Month-USD-LIBOR-Settings-at-End-December-2021-and-the-Remaining-USD-LIBOR-Settings-at-End-June-2023/default.aspx> accessed 24 May 2021; FCA, 'FCA Response to IBA's Proposed Consultation on Intention to Cease US$ LIBOR' (*FCA*, 30 November 2020) <https://www.fca.org.uk/news/statements/fca-response-iba-proposed-consultation-intention-cease-us-dollar-libor> accessed 24 May 2021; Federal Reserve Board, 'Federal Reserve Board Welcomes and Supports Release of Proposal and Supervisory Statements That Would Enable Clear End Date for U.S. Dollar (USD) LIBOR and Would Promote the Safety and Soundness of the Financial System' (*Board of Governors of the Federal Reserve System*, 30 November 2020) <https://www.federalreserve.gov/newsevents/pressreleases/bcreg20201130b htm> accessed 24 May 2021.

as ISDA helps to illuminate further Libor's role in economic life and the specific arrangement of power relations it underpins.

6.5 Benchmarks and Private Governance

On one level, the account I have given so far of Libor reform can be read as a story of political power and influence. As I showed in Chapter 5, the driving force behind the reform programme is a highly organised apparatus of financial regulatory and economic expertise in which the principal actors are regulators and derivatives practitioners. The reform agenda, key decisions (such as the selection of SONIA), and the organisation and composition of the 'market-led' working groups have largely been dominated by the interests of the big players in derivatives markets, especially the major banks.

ISDA's prominent role in reform work, as discussed above, would appear to lend further support to a thesis that Libor reform is a way of entrenching the interests of financial insiders. The threat of contracts written on ISDA's standard terms 'grinding to a halt' was so destabilising that shoring up ISDA's documentation regime through contractual fallbacks became a top public policy priority. Not only that, public authorities affirmed ISDA's preeminent role as the author of the Master Agreement and the entity best placed to mobilise the resources and expertise necessary to address the issue. As at the end of May 2021, ISDA's IBOR Fallbacks Protocol had attracted over fourteen thousand signatories.[67] Its work on fallbacks is held out by reformers as a template, helping to ensure that the post-Libor world is one in which certain financial actors,

[67] ISDA, 'ISDA 2020 IBOR Fallbacks Protocol - List of Adhering Parties' (*ISDA*) <https://www.isda.org/protocol/isda-2020-ibor-fallbacks-protocol/adhering-parties> accessed 24 May 2021.

notably banks and other derivatives market actors, continue to set the terms on which other financial actors transact.[68]

Yet, there are also aspects of the picture which do not fit such a thesis. As the above discussion has shown, while fallbacks are designed to help mitigate disruption to contracts in the event of Libor's disappearance, in doing so they also make the lived effects of Libor's problematisation tangible and explicit by underlining that there will be winners and losers, even in the painstakingly constructed post-Libor world that ISDA's contract mechanics are designed to produce. Rather than a homogeneous group of insiders, there are factions and differences of view, eg over the issue of pre-cessation triggers. Moreover, it has proved difficult to manage these differences within ISDA's traditional mechanisms for dynamically building consensus and accommodating change, not least because they expose and reanimate the wider matrix of power relations in which ISDA's documentation regime is embedded. This includes not only the relations between state and markets but also the relations between ISDA's members and other users of ISDA's documentation (such as cash market actors), which are no longer taken for granted in a post-Libor world. As one interviewee, a lawyer familiar with ISDA's work on benchmark reform, commented:

> You know, there is no regulator, no trade association, no law firm, no consultancy, no bank, you know, no [ISDA] member is going to be able to tell you the answer on their own. It's just, it reaches into so many different pockets… So you're not going to find anyone holding themselves out as the expert in benchmark transition…[69]

[68] FSB, 'FSB OSSG Supports Use of the ISDA Spread Adjustments in Cash Products' (2021) <https://www.fsb.org/wp-content/uploads/P020621-3.pdf> accessed 7 June 2021.

[69] Interview 52962 (n 48).

Reformers themselves were under no illusions that ISDA could overcome the politics of 'transition' on its own. As FCA Chief Executive, Andrew Bailey, put it in a 2018 speech, ISDA's fallbacks are 'a seatbelt in case of a crash when LIBOR reaches the end of the road', but they would not be a substitute for avoiding the risk of dispute by switching proactively and consensually to Libor alternatives: 'The wise driver steers a course to avoid a crash rather than relying on a seatbelt'.[70]

Overall, then, the picture that emerges from my empirical data complicates the idea that the lived effects of Libor's problematisation are experienced in predictable ways, reinforcing already established relations of power in financial markets (eg derivatives/ cash). On the contrary, it seems to direct our attention to the situatedness and precarity of these established power relations, and to the conditions that need to be in place in order for them to hold up. I develop these insights below by showing how this emerging picture helps to add nuance to longstanding debates in the literature regarding the role of ISDA's documentation regime in contemporary financial market governance.

6.5.1 Complicating transnational law theory

As Braithwaite notes, in transnational law theory, ISDA's suite of standard form documentation for derivatives transactions is 'regularly cited as the paradigmatic case of a standard form contract as transnational law'.[71] Broadly speaking, in this view, the ISDA

[70] Andrew Bailey, 'Interest Rate Benchmark Reform: Transition to a World without LIBOR - Speech by Andrew Bailey, Chief Executive of the FCA, at Bloomberg, London - on Transitioning from LIBOR to Alternative Interest Rate Benchmarks' (11 July 2018) <https://www.fca.org.uk/news/speeches/interest-rate-benchmark-reform-transition-world-without-libor> accessed 25 May 2021.

[71] Joanne P Braithwaite, 'Standard Form Contracts as Transnational Law: Evidence from the Derivatives Markets' (2012) 75 The Modern Law Review 779, 783.

Master Agreement and its contract mechanics constitute a form of private law-making.[72] Some scholars consider ISDA's documentation regime as part of a modern day *lex mercatoria,*[73] through which a global economic elite governs itself increasingly autonomously by the promulgation of authoritative norms and standards backed by 'contractual self-help remedies',[74] such as private arbitral mechanisms.[75] Others emphasise the role of state-centred regulation in providing such private norm-producing regimes with indispensable 'touchdown points', such as judicial enforcement of contracts and intellectual property laws.[76] But, overall, the tendency persists to treat ISDA's documentation regime as a kind of ideal type of international financial law.[77] Moreover, some scholars treat ISDA's standard-setting activities and the BBA's former oversight of Libor as comparable examples in an account of private regulatory regimes and their limits.[78]

[72] Stephen J Choi and G Mitu Gulati, 'Contract as Statute' (2006) 104 Michigan Law Review 1129.

[73] Hugh Collins, 'Flipping Wreck: Lex Mercatoria on the Shoals of Ius Cogens' in Stefan Grundmann, Florian Möslein and Karl Riesenhuber (eds), *Contract Governance: Dimensions in Law and Interdisciplinary Research* (Oxford University Press 2015).

[74] Braithwaite (n 71) 781.

[75] For a discussion of this literature see Klaus Peter Berger, *The Creeping Codification of the New Lex Mercatoria* (Kluwer Law International BV 2010). On private arbitration, see also Yves Dezalay and Bryant G Garth, *Dealing in Virtue: International Commercial Arbitration and the Construction of a Transnational Legal Order* (University of Chicago Press 1996).

[76] Robert Wai, 'Transnational Liftoff and Juridical Touchdown: The Regulatory Function of Private International Law in an Era of Globalization' (2002) 40 Columbia Journal of Transnational Law 209; Gilles Cuniberti, 'Three Theories of Lex Mercatoria' (2014) 52 Columbia Journal of Transnational Law 369.

[77] Paul Sebastianutti, 'What Is This Thing Called International Financial Law? Part 4' (2009) 3 Law and Financial Markets Review 348.

[78] Gabriel Rauterberg and Andrew Verstein, 'Assessing Transnational Private Regulation of the OTC Derivatives Market: ISDA, the BBA, and the Future of Financial Reform' (2013) 54 Va. J. Int'l L. 9; D Awrey, 'The Limits of Private Ordering within Modern Financial Markets' (2014) 34 Annual Review of Banking and Financial Law 183.

In this thesis I am not concerned with engaging directly in these theoretical debates. Rather, for the purposes of addressing my research questions, what is interesting is how the picture that emerges from my analysis of my empirical data seems to complicate certain scholarly 'stereotypes'[79] of ISDA's documentation regime.

For example, the theory that ISDA's standard terms are a reflection of group norms imagines ISDA as a self-regarding community of derivatives practitioners bound by close personal and professional ties. Whether or not this characterisation stands up, it is a description of a world that is organised in a very specific way. Indeed, the very concept of an interest rate derivative distinguishes, as one trader interviewee put it, the 'derivatives world' from the 'cash world'[80] – the latter being where first order contingencies arise (such as fluctuations in interest rates) from which second order rights and obligations can be 'derived' and made tradeable through techniques of commensuration and standardisation. The issue of fallbacks helps to highlight not only the constructedness of this worldview but the essential role that Libor has played in holding it together. As the above discussion has shown, in a scenario where the benchmark can no longer be taken for granted, the social world assumed by ISDA's documentation regime (and scholarly theories about it) seems to become more irregular,

[79] Braithwaite (n 71) 797.

[80] Interview 83009, Derivatives Trader (UK, 2018).

and established hierarchies and priorities less self-evident. The lawyer quoted above whom I spoke to about ISDA's work on benchmark reform explained:

> the one thing I'd say about the Libor and IBOR projects are that I think they are different from other types of regulator[il]y inspired project that have gone before in that previously things tended to be quite product specific, so ISDA would be able to proceed in isolation from other trade associations for example... But for benchmarks that's just not possible.[81]

The idea that ISDA's standard contractual fix for dealing with Libor's discontinuation is a product of the private norm-producing activities of self-interested insiders does not seem to fit the empirical data. Rather, ISDA's cautious, incrementalist approach to standardising fallbacks has all of the hallmarks of 'market-led' reform. Indeed, if it were not for the FSB's 'prodding and shoving' it is not clear that ISDA would have sought out such a prominent role for itself in the reform project.

Similarly, the understanding that the ISDA documentation regime is a means of insulating agreements from national law assumes that the contract is seen as uniquely authoritative as to the economic relationship between the parties.[82] It could be argued that ISDA's work on fallbacks was an attempt to ensure that, in the event Libor ceases to be produced, the contract remains the unique source for determining the economic relationship between the parties. However, the net result was to highlight that it is *the benchmark* which is the critical determinant of economic outcomes and that there is no adequate contractual means of remedying Libor's disappearance, short of proactively

[81] Interview 52962 (n 48).

[82] Collins (n 73).

contracting by reference to a different benchmark, which requires the parties to revisit and re-evaluate their relationship all over again.

Indeed, the ultimate fallback in ISDA's amended documentation regime is termination of the contract, at which point any outstanding dispute has to be litigated.[83] This might seem consistent with the scholarly assumption – expressed by legal positivists and legal pluralists alike – that ISDA's private governance regime rests ultimately on the possibility of 'touching down' in national courts. Yet, ending up in court is precisely the scenario that both ISDA and public authorities are aiming to avoid with contractual fallbacks.[84] Of the prospect that Libor could disappear without a clear replacement, the General Counsel and executive director of the Legal Group at the Federal Reserve Bank of New York commented that it would be 'a DEFCON 1 litigation event if I've ever seen one' (a martial metaphor that refers to the US military's highest alert state, Defence Readiness Condition 1).[85]

Overall, the discussion presented in this chapter suggests that ISDA's role in Libor reform is much more nuanced than might appear. It has found itself forced to act

[83] Under ISDA's amended fallbacks regime, termination is a last resort in the event that the default fallback rate (eg SONIA) was unavailable and a 'waterfall' of other options – including bilateral agreement on an alternative (either in advance or in retrospect) or nomination by an agreed third party such as a central bank or benchmark reform working group – had also failed to deliver an agreed solution.

[84] The FSB's July 2016 letter to ISDA requesting its help with fallbacks even contemplated the establishment of a private 'decision-making body with ultimate authority to implement a benchmark succession plan'. FSB, 'Reforming Major Interest Rate Benchmarks: Progress Report on Implementation of July 2014 FSB Recommendations' (n 2), Appendix C.

[85] Michael Held, 'SOFR and the Transition from LIBOR - Michael Held, Executive Vice President and General Counsel, Remarks at the SIFMA C&L Society February Luncheon, New York City' (26 February 2019) <https://www.newyorkfed.org/newsevents/speeches/2019/hel190226> accessed 25 May 2021.

to avoid an existential threat to its private governance regime, only to find that those same tried-and-tested techniques of private governance are barely adequate to the task.

In order to account for Libor's role in ISDA contracts – and thereby mitigate the effects of its anticipated absence – a whole range of governance techniques has had to be brought to bear – from 'contractual self-help remedies' to official suasion and ultimately deferral to public authorities such as regulators or courts. Even then, reformers concede, there is only so much that can be done. Financial actors are urged to be 'wise drivers', accounting to themselves for the benchmarks they use in their transactions and avoiding the need to rely on a 'seat-belt' whose limitations are acknowledged by its designers.

This suggests that, as Braithwaite puts it: 'There remains… a need for further explanation of how ISDA documentation relates to certain scholarly expectations of standard form contracts found within transnational law theory.'[86] Although my empirical findings suggest that benchmark reform would be a fruitful area for this kind of research, exploring such questions more fully is beyond the scope of my thesis. The contribution my thesis makes to these debates is a more focused one – namely to highlight how, in the context of Libor reform, the stability of ISDA's documentation regime seems to depend on finding a world pre-populated by financial actors who already inhabit certain roles and conduct themselves in ways that presuppose the affordances of a benchmark. If ISDA's standard contract terms are a form of 'private law-making by contracts',[87] a benchmark

[86] Braithwaite (n 71) 786.

[87] Hugh Collins, 'Regulatory Competition in International Trade: Transnational Regulation through Standard Form Contracts' in Horst Eidenmüller (ed), *Regulatory competition in contract law and dispute resolution* (München : Beck ; Oxford : Hart ; Baden-Baden : Nomos 2013) 128.

such as Libor is a *sine qua non* of this private legal regime, helping to create the conditions under which it can operate.

6.6 Conclusion

In this chapter I set out to explore further the fifth question in the WPR analytical scheme: what effects are produced by Libor's problematisation? In particular I sought to explore what Bacchi calls the *lived effects* of Libor reform. By examining the discourse of 'transition' which has dominated Libor reform work since the beginning of 2018, I showed that Libor's problematisation 'does not reside in some representational universe cut off from people's daily lives',[88] but has real, tangible implications for the way that financial actors see the world and their place in it, affecting how they understand their transactions, write their contracts, and organise their affairs.

My discussion of the issue of contractual fallbacks has illustrated the particular politics involved in managing the 'transition' from Libor to alternative benchmarks in a way that aims to replicate existing relations of power. In this respect, the prominence of organisations such as ISDA in reform work draws attention to the central role of private documentation regimes in contemporary financial market governance. However, as the above discussion has shown, the debates surrounding contractual fallbacks also say something about the conditions that need to be in place for such regimes to operate. My empirical findings concerning ISDA's work on fallback provisions suggest that the

[88] Carol Bacchi and Susan Goodwin, *Poststructural Policy Analysis: A Guide to Practice* (Palgrave Macmillan 2016) 23.

normative force and institutional stability of ISDA's documentation regime are themselves a precarious effect.

In particular, the case of fallbacks highlights just *how much more complicated* it becomes to govern financial transactions in the absence of a benchmark. A world without Libor is a world in which old certainties are no longer taken for granted – and, moreover, one whose reconstruction is a political project in which established relations of power are themselves reiterated and subtly transformed. I develop these insights in the next chapter, where I consider areas of the reform debate in which the politics of 'transition' have dictated an outcome other than merely the preferred outcome of financial regulators and those with a seat at working group meetings.

7. Libor's Legal Form

7.1 Overview

So far in this thesis I have given an account of the context for and key features of Libor's problematisation in the reform discourse (Chapters 3 and 4), the principal actors and sites involved in stabilising and reproducing this problematisation (Chapter 5), and the effects that it produces (Chapters 5 and 6). The essential 'problem' of benchmark reform, as I have analysed it, is about how to shore up the legitimacy of a financialised mode of economic government that relies on benchmarks such as Libor to organise economic life, while preserving the distribution of political power and wealth that they constitute and sustain.

In this chapter, I explore the fourth set of questions in the WPR analytical scheme: 'What is left unproblematic in this problem representation? Where are the silences? Can the 'problem' be thought about differently?' I do this by considering ways in which, in attempting to secure an orderly 'transition' from Libor to alternative benchmarks, reformers have been obliged to recognise that for many financial actors reform is essentially nugatory.

Part 7.2 sets the scene by describing how the reform discourse makes distinctions between financial actors (eg derivatives/ cash) based on their perceived amenability to 'transition'. In the last chapter, I discussed ISDA's work on contractual fallbacks in derivatives contracts. Despite the complexities involved and the vulnerabilities they exposed in ISDA's governance regime, those efforts have played out in a way that was broadly conducive to the goals of reform. However, in other areas the politics of

'transition' have worked out in more unpredictable ways, forcing reformers into concessions to keep their policy agenda on track. In parts 7.3 and 7.4 I review two examples – respectively, the debate over 'term rates' (ie benchmarks published in a time series similar to Libor's) and the difficulties presented by so-called 'tough legacy' contracts, which are by definition resistant to 'transition'. I draw for this purpose on my analysis of my interview data as well as documentary sources, such as working group materials, speeches by prominent reformers such as senior officials at the FCA, and relevant media articles. My main finding is that these sticking points reveal what goes unspoken in the reform discourse – namely, that the benchmark is an artefact of legal knowledge.

In part 7.5, I consider the implications of this analysis for understanding Libor's role in financial transactions, also referring to recent work on the 'technicalities' of legal knowledge. I have found it particularly helpful to engage with Annelise Riles' concept of legal form as a way to think about the specific agency of technical legal knowledge in this context. Drawing further on insights from my interviews with forty research participants (including six lawyers) I develop a three-part analysis of what I refer to as Libor's legal form.

The contribution of this chapter to the overall argument of this thesis is to demonstrate how the tensions and contradictions at the heart of Libor's problematisation can be understood as effects of the subtle power of Libor's legal form. By particularising these effects, this chapter also sets out key points of my contribution to socio-legal scholarship.

7.2 Managing the Tail

As discussed in the last chapter, securing the standard fallback mechanisms in financial contracts was an early priority for reformers. At the same time, it was generally acknowledged that developing improved fallback mechanics would only be effective insofar as it was possible to get financial actors to include the new provisions in their contracts.

As already noted, ISDA has well-developed mechanisms for 'hardwiring' market-wide amendments in derivatives contracts. However, in cash markets, contracts are less standardised, and documentation regimes such as the standard form contract documentation for syndicated loans published by the Loan Markets Association ('LMA') do not have equivalent protocol procedures for introducing market-wide amendments. In these markets, 'transition' is something that has to be accomplished contract by contract, thus localising and accentuating its politics. Contracts can often have multiple parties – for example, syndicated loan agreements involve groups of lenders, as well as other parties such as guarantors, all of whom may have to consent to an amendment to the interest provisions.[1] In the case of bond issues, there could be several thousand bondholders, some of whom may not even be readily identifiable.[2]

A key theme of the UK-based reform discourse during the period of my fieldwork therefore concerned the difficulties of securing a successful 'transition' in cash markets

[1] Sterling RFR Working Group, 'New and Legacy Loan Transactions Referencing Sterling LIBOR' (2018) <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/new-and-legacy-loan-transactions-referencing-sterling-libor.pdf> accessed 25 May 2021.

[2] Charlotte Bellamy, 'Legacy Sterling LIBOR Bonds' (2019) Second Quarter 2019 International Capital Market Association (ICMA) Quarterly Report 21, 22 <https://www.icmagroup.org/assets/documents/Regulatory/Quarterly_Reports/ICMA-Quarterly-Report-Second-Quarter-2019.pdf> accessed 25 May 2021.

as compared to derivatives markets, with certain segments of cash markets (such as bonds and non-standardised loans) considered more problematic than others. One of my interviewees, a senior banker closely involved in the UK reform work, expressed it in these terms:

> Transition is always spoken of in two distinct ways. One, getting new transactions to reference the RFR [ie SONIA] rather than Libor. The other is dealing with the legacy portfolio. The first will be easier, and doing the back-book [ie amending legacy transactions] with our biggest counterparties will be easier. The biggest worries are with the tail, as these are entities without the resources, incentive, or expertise available. That's where there is potential for a negative impact on the real economy. So the most important criterion is: minimal impact on the real economy. I've never expressed it in that way before. It makes me think we should keep Libor going.[3]

This quote is interesting because it draws attention to three things. First, it highlights the hierarchy of the social world presupposed by benchmark reform discourse (ie derivatives/ cash; big/ small; experts/ non-experts). As I argued in the last chapter, one of the effects of Libor's problematisation has been to revalue these categories and distinctions in certain ways – in particular, by foregrounding the kinds of calculations and political struggles that Libor had helped to obviate and putting them back into debate. Hence, secondly, the quote also points to a recognition that the politics of 'transition' become progressively more difficult to manage the further one goes from the principal sites and actors involved in 'market-led' reform.

But, perhaps most strikingly, the quote articulates what tends to go unsaid in this discourse: that from its inception the central 'problem' to which reform has been addressed is that of its own limits. This reflexive concern is indicated by my interviewee wondering aloud whether it would not be better to 'keep Libor going'. As it was, my

[3] Interview 67218, Senior Banker, Derivatives Expert (UK, 2018).

informant instantly dismissed this thought since it would mean undoing the efforts of reformers: 'If you don't kill it [Libor], there is no incentive to move [to alternative benchmarks].'[4] But therein lies the paradox facing reformers: by their own measure, the success of reform will be judged on leaving the political and economic status quo intact (as my informant put it: 'minimal impact on the real economy'). It is a kind of reform that can *at best* promise to leave financial actors no worse off. Hence, while it is certainly true that cash markets are characterised by weaker mechanisms of private ordering relative to ISDA's documentation regime, the challenges associated with 'transition' in those areas have to be understood in light of the broader arrangement of power relations that Libor sets in place, and its differential distribution of 'resources, incentive, and expertise'.

Indeed, the picture that emerges from my empirical data is one in which the difference between financial actors like ISDA and its members, who are readily enrolled in the projects of reform, and those making up what my informant called the 'tail', is a difference between those who have done well out of the existing settlement between creditors and debtors that Libor constitutes and sustains, and those lower down in the pecking order. The analysis presented in the last chapter showed that, on the whole, the former group has a stake in seeing reform succeed. In this chapter I focus on the perspective of the 'tail' (I explain more specifically below how this categorisation can be understood based on an analysis of my interview data), for whom there is relatively little upside in reform and considerable downside in terms of the cost of eg adapting their systems and re-papering their contracts.

[4] Interview 67218 (n 3).

As I show below, the 'tail' also has less to lose politically by resisting reform. As a result, reformers have been compelled to make certain concessions in order to maintain their vision of a world without Libor. One of the key areas of contention in this regard concerns the creation of so-called term rates.

7.3 The Quiet Battle Over Term Rates

As already noted in Chapter 3, Libor is published as a time series (term structure) consisting of seven maturities (overnight, one week, one month etc). In theory, each of these values 'reflects' the risks involved in lending money over the term specified. In practice, it means that financial actors wanting to make sure that they will have sufficient cash available to meet their needs can link their periodic interest payments/ receipts to Libor and know what they owe, and what they are owed, at the beginning of the period to which the payment relates. In the language of reform, this makes Libor a 'forward looking' term rate.

Being simple overnight rates, 'near risk-free' alternatives such as SONIA lack a comparable feature: there is only one value for SONIA published daily (at the end of the day). However, many financial actors evidently see the forward-looking element as integral to their use of a benchmark.

In a July 2018 paper, for example, the LMA and the ACT joined forces to stress the importance of a term rate for syndicated loan markets, arguing that:

> Loan agreements involve actual cash flows which require advance certainty and transparency. Indeed, LIBOR was first created for use as a reference rate in pricing syndicated loans in response to market demand. As a result, today's pricing, documentation and administration of syndicated loans depend heavily on a forward-looking term rate.[5]

The response of reformers to such concerns has often taken a somewhat patronising tone. As discussed in Chapter 5, according to finance theory a 'near risk-free' rate should be all that is required for most economic needs. In a 2018 speech, FCA Chief Executive, Andrew Bailey, insisted: 'There is substantial consensus that the largest part of the market currently relying on LIBOR – that is the bulk of interest rate derivatives – does not need term rates.'[6] That there remains a demand for forward-looking term rates elsewhere tends to be seen as an anomaly – a product of path-dependency and inertia rather than rational decision-making.

The official prescription for those still wedded to this feature was to adopt the recommended overnight rates regardless and, where possible, use a mathematical construct to recreate a term structure (similar to the term adjustment used in the calculation of ISDA's fallbacks). Hence, in November 2019, the FCA's Director of Markets and Wholesale Policy, Edwin Schooling Latter, declared that '[t]he often-heard

[5] LMA and ACT, 'Syndicated Loans and Forward-Looking Term Rates' (2018) <https://www.treasurers.org/system/files/LMA%20ACT%20Paper%20on%20Forward%20Looking%20Term%20Rates%20July%202018.pdf> accessed 25 May 2021.

[6] Andrew Bailey, 'Interest Rate Benchmark Reform: Transition to a World without LIBOR - Speech by Andrew Bailey, Chief Executive of the FCA, at Bloomberg, London - on Transitioning from LIBOR to Alternative Interest Rate Benchmarks' (11 July 2018) <https://www.fca.org.uk/news/speeches/interest-rate-benchmark-reform-transition-world-without-libor> accessed 25 May 2021.

argument that borrowers who value certainty of payments need forward-looking term rates often doesn't hold much water'.[7]

Among my interviewees, the issue of term rates divided opinion in a similar way. What distinguished the sides in the debate were their particular relationships to the reform discourse. For example, those involved with or close to the Sterling RFR Working Group typically doubted that a forward-looking term rate was useful for anything other than assisting the 'transition' for those who professed not to be able to do without one.

For some of these reform-minded interviewees, especially derivatives traders, using a 'near risk-free' rate was axiomatic – it was simply the 'right' way to think and do financial transactions. However, others recognised that the 'purist'[8] perspective on reform was also a privileged one, which presupposed the availability of the resources and equipment necessary eg to devote to working groups, update systems, re-paper contracts, etc.

[7] Edwin Schooling Latter, 'Next Steps in Transition from LIBOR - Speech by Edwin Schooling Latter, Director of Markets and Wholesale Policy at the FCA, Delivered at the Risk.Net LIBOR Summit, 2019' (20 November 2019) <https://www fca.org.uk/news/speeches/next-steps-transition-libor> accessed 24 May 2021.

[8] Interview 48017, Corporate Treasurer (UK, 2018).

For example, the corporate treasurers I spoke to who were closely involved in reform work tended to see themselves not only as experts in their field but as political actors with their own agency as 'participants' in financial markets. As one explained:

> Yeah. I'm much clearer of that [participation] actually in the last nine months than I probably ever have been, through my involvement in the working group and responding on this. But I think that's probably changed as well over the last ten, you know, fifteen years that we have gone from being – I think there is a view that we are part, you know, are sort of an important part of the market and some corporate treasuries are very sophisticated places and these are big users of the financial markets, so, yeah.[9]

By contrast, I also interviewed corporate treasurers who were not involved in reform work.[10] These were individuals who were no less technically expert than their counterparts but they had a very different idea of their stake in a post-Libor world. On the whole they saw Libor reform as something from which they had little to gain. They had fewer resources at their disposal and were aware of the reform agenda peripherally, from business news or trade bodies or simply by relying on their usual banks to inform them of what they needed to know. One, a head of corporate finance for a UK housing association, commented: 'you know, we're a consumer of a rate – a variable rate – and whatever that variable rate is called or how it's derived, we will still have to consume it'.[11]

This is not to suggest that these financial actors are politically powerless, however. They are given a voice by industry associations such as the ACT and LMA. They are also the target of much speech-making by regulators and concerted 'outreach'

[9] Interview 57658, Corporate Treasurer (UK, 2018).

[10] My sample of six corporate treasurer interviewees was evenly split, comprising three who were closely involved in reform work and three who were not.

[11] Interview 74525, Corporate Treasurer (UK, 2018).

efforts by the Sterling RFR Working Group and other working groups. As noted above, for reformers 'the biggest worries are with the tail'. This is because the very *passivity* of these actors is a challenge to reform. By doing nothing, they expose the limits of reform, demonstrating the contradictions in Libor's problematisation, and the essential redundancy of the colossal investments being made to develop new benchmarks, by the simple fact that they continue to use Libor in their transactions unproblematically. Indeed, for my interviewee quoted above, a successful outcome of reform would be one in which 'we end up with the same rate, just with a different name and a process people are happier at'.[12]

The issue of term rates is a key setting for this politics of passive resistance, in which the limits of reform are brought into sharp focus. I illustrate this below by showing how reformers have resorted to more and more elaborate strategies to recreate the affordances of Libor's term structure for a post-Libor world – only to draw attention to the ways in which a world without Libor is a vain ambition.

7.3.1 Refusing to calculate

As noted above, reformers' advice to those financial actors who value Libor as a term rate has been to 'transition' to the recommended alternative 'near risk-free' rates regardless and to calculate a term structure instead. This involves compounding the overnight rate over different periods in order to generate a time series similar to that of Libor.

[12] Interview 74525 (n 11).

However, the mathematicisation of benchmarks creates its own challenges. The ACT and the LMA were among those citing concerns over the 'onerous' calculation required (see Figure 4), as well as the time and expense involved in adapting systems to cope with the changes.[13]

I found that among my (non-working group) interviewees the idea of adjusting an overnight rate in this way was often regarded with a degree of scepticism precisely due to its constructedness. One concern was that different calculation methodologies could yield different results, leading to a greater chance of dispute. As one corporate treasurer put it: 'You know, I calculate it this way, he'll calculate it that way, tax authorities calculate it another way. Who wins?'[14]

For others, a benchmark that has to undergo complicated adjustments before it can be used was something less than a 'real' benchmark. For example, when I raised the possibility of compounding an overnight rate to get a term rate with a treasurer at a regional UK bank, I was told:

> OK, so I accept that argument but that's just theory. That's just more academia. Yes, I can compound out to 6 months but I want the real 6 month rate. I don't want the theoretical 6 month rate based on the overnight rate.[15]

I heard a similar view expressed by a former working group member at a global bank, indicating that some forms of dissent, if not resistance, were not confined to the 'tail'.

[13] LMA and ACT (n 5).

[14] Interview 97659, Corporate Treasurer (UK, 2018).

[15] Interview 94866, Bank Treasurer (UK, 2018).

$$Compound\ Interest\ Formula = \left[\prod_{i=1}^{d_b}\left(1+\frac{r_i \times n_i}{N}\right)-1\right]\times\frac{N}{d_c}$$

$$Simple\ Interest\ Formula = \left[\sum_{i=1}^{d_b}\left(\frac{r_i \times n_i}{N}\right)\right]\times\frac{N}{d_c}$$

Where

d_b = the number of *business days* in the interest period

d_c = the number of *calendar days* in the interest period

r_i = the interest rate applicable on business day *i*

n_i = the number of calendar days for which rate r_i applies (on most days, n_i will be 1, but on a Friday it will generally be 3, and it will also be larger than 1 on the business day before a holiday).

N = the market convention for quoting the number of days in the year.

Figure 4. Compound and simple interest formulae published by the FSB. Reprinted from FSB, 'Overnight Risk-Free Rates: A User's Guide', 4 June 2019.[16]

Ultimately at stake in the debate about term rates are questions of *when and how much to calculate*. As discussed in Chapter 4, I have found that a benchmark works by enabling its users to know themselves as accountable for their promises and to trust that others are accountable in the same way. It is a starting point for negotiations and a way of setting limits on what needs to be calculated in order for a transaction to occur. Put simply, financial actors who value a term rate refuse to be told that they have to calculate more. When faced with taking an overnight rate and applying a complex formula to arrive at, say, a twelve-month compounded interest amount, they prefer to use the 12 month Libor number instead.

[16] FSB, 'Overnight Risk-Free Rates: A User's Guide' (2019) Annex 1 <https://www.fsb.org/wp-content/uploads/P040619-1.pdf> accessed 25 May 2021.

One way in which reformers have sought to address this kind of concern is by encouraging the take up of online 'calculators', designed to do the necessary calculations so that financial actors do not have to.[17] In 2020, a Bank of England proposal to publish a daily Compounded SONIA Index, simplifying the necessary calculations, met with 'near universal support'.[18]

But perhaps the biggest hurdle to mimicking Libor's term structure using an overnight rate is that, even after mathematical adjustment, the result is a 'backward-looking' rate. That is, the calculation is seen to relate to a period over which interest has already accrued. As I show below, this apparently minor technical detail can have huge ramifications for the way that financial actors conduct their affairs and write their contracts.

7.3.2 Looking backwards

Take, for example, a standard 3 month Libor-linked loan agreement. Interest on the loan will fall due at three monthly intervals based on the published Libor at the start of each interest period. As a result of Libor's 'forward-looking' term structure, the borrower always has three months' notice of the next payment. However, if the same loan were to use a 'backward-looking' term rate based on SONIA, interest would be calculated by compounding the daily SONIA values over the three month interest period, meaning that

[17] Sterling RFR Working Group, 'Freely Available Independent RFR Calculator Summary' (2021) <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/rfr/rfrwg-freely-available-calculator-summary.pdf?la=en&hash=A31D445ED76D918B0E33E749D11DF2D917BFD4E5> accessed 25 May 2021.

[18] Bank of England, 'Supporting Risk-Free Rate Transition through the Provision of Compounded SONIA' (*Bank of England*, 2020) <http://www.bankofengland.co.uk/paper/2020/supporting-risk-free-rate-transition-through-the-provision-of-compounded-sonia> accessed 25 May 2021.

the contractual payment obligation would become known at the *end* of the period, ie shortly before it falls due. Mitigating these effects would mean reconsidering the parties' agreement in other ways, eg by building in a payment 'lag' at the end of each period, or reconfiguring the payment provisions so that each interest payment relates to the last-but-one calculation period (a so-called 'observation shift'), or a hybrid approach that involves paying a fixed instalment amount at the beginning of the period and an adjustment at the end.[19]

As a result, adding a 'backward-looking' term rate into a loan agreement instead of Libor is not merely a case of plugging in a new number – it also involves a new way of making sense of it. Should compounding be done on the rate or on the balance of the loan? Daily or at the end of the interest period? To how many decimal places should the compounded rate/ interest amounts be rounded? As part of its efforts to spur 'transition', the Sterling RFR Working Group has issued a series of recommended 'conventions' covering these and other issues.[20]

The prospect of a post-Libor world is also forcing debt market lawyers and documentation experts to re-examine long-established practices. For example, it is common for Libor-linked loan documents to provide for the payment of so-called break costs if the borrower repays the loan early. This assumes that the lender pre-arranges back-to-back Libor-linked funding in the interbank market to cover the loan for each forthcoming interest period and hence, if the borrower prepays the loan, say, two weeks

[19] For a review of the various approaches see FSB, 'Overnight Risk-Free Rates: A User's Guide' (n 16).

[20] Sterling RFR Working Group, 'Statement on Behalf of the Working Group on Sterling Risk-Free Reference Rates – Recommendations for SONIA Loan Market Conventions' (2020) <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/rfr/statement-on-behalf-of-rfrwg-recommendations-for-sonia-loan-market-conventions.pdf> accessed 25 May 2021.

into a three month interest period, the lender stands to lose out by a measure of the cost of maintaining its pre-arranged funding commitments until the three months is up. While, mathematically-speaking, Libor could be substituted for a 'backward-looking' term rate in such a provision, the effect is to call into question the whole rationale for break costs. Transposing the logic of back-to-back funding to a situation where the benchmark is derived from an overnight rate such as SONIA would imply that the lender funds its operations on a daily basis, and that its committed costs of funding the loan will always be minimal, regardless of when the loan is repaid – ie in effect, the break costs are always nil. One financial news article quoted a legal expert as saying: 'If it is an overnight market the theology of break costs goes out of the window'.[21]

In some circumstances, the implications of switching to a 'backward-looking' term rate can threaten the entire agreement. For example, in some jurisdictions, the use of compounded interest is prohibited by usury laws.[22] A benchmark that is compounded in arrears also poses particular problems for Islamic financing transactions, where Shari'a principles require that the return on a financing contract must be known at the time the contract is entered into.[23]

In the end, faced with the prospect that many financial actors would passively resist calls to 'transition' to a new benchmark they had no use for, reformers have had to

[21] Louise Bowman, 'Libor Transition: Are Markets Ready for a $350 Trillion White-Knuckle Ride?' *Euromoney* (10 September 2019) <https://www.proquest.com/trade-journals/libor-transition-are-markets-ready-350-trillion/docview/2304751937/se-2?accountid=13042> accessed 25 May 2021.

[22] G Massimiliano Danusso and Matteo Bencic, 'Benchmarks Reform: Risk-Free Benchmarks, IBOR Fallbacks and the Prohibition on Compound Interest under Italian Law' Capital Markets Law Journal <https://academic.oup.com/cmlj/advance-article/doi/10.1093/cmlj/kmaa017/5964098> accessed 25 May 2021.

[23] Clifford Chance, 'Transitioning from LIBOR: Implications for Islamic Finance' (2020) <https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2020/07/transitioning-from-libor-implications-for-islamic-finance.pdf> accessed 25 May 2021.

accept that, as the MPG advised back in 2014, 'the more the solution resembles LIBOR, the easier it will be to transition'.[24] In July 2018 the FSB put out a statement backing the creation of new 'forward-looking' term rates, to be derived from the recommended 'near risk-free' rates.[25] These new benchmarks, known as 'term RFRs', were seen strictly as a means of facilitating the 'transition' to a post-Libor world for financial actors who could not do without a 'forward-looking' term rate (see Figure 5).[26] As such, they came with heavy caveats. Warning that it did 'not expect such RFR-derived term rates to be as robust as the RFRs themselves', the FSB indicated that 'they should be used only where necessary'.[27] As at the start of 2021, there were two privately developed term SONIA rates in publication.[28]

* * *

Overall, the vexed debate over term rates brings home the tensions and insecurities in Libor's problematisation. The discussion in this part shows that what is at stake in this debate is a contest over the kind of knowledge that counts for determining the role of benchmarks such as Libor in financial transactions. On one hand is a formal, economic-

[24] MPG, 'Final Report of the Market Participants Group on Reforming Interest Rate Benchmarks' (2014) 81 <https://www fsb.org/wp-content/uploads/r_140722b.pdf> accessed 23 May 2021.

[25] FSB, 'Interest Rate Benchmark Reform - Overnight Risk-Free Rates and Term Rates' (2018) <https://www.fsb.org/wp-content/uploads/P120718.pdf> accessed 25 May 2021.

[26] Term RFRs are calculated based on derivatives transactions (such as interest rate futures) linked to the relevant 'near risk-free' rate. Their contemplated creation highlighted yet another 'chicken and egg conundrum' for reformers, since it meant that the possibility of creating a term RFR depended on there already being a sufficiently active market in derivatives linked to the new rate.

[27] FSB, 'Interest Rate Benchmark Reform - Overnight Risk-Free Rates and Term Rates' (n 25) 3.

[28] For an overview see LMA, 'Considerations in Respect of the Use of Forward-Looking Term SONIA Reference Rates' (2021) <https://www.lma.eu.com/application/files/2116/1674/0528/Considerations_in_respect_of_the_use_of_term_SONIA_reference_rates.pdf> accessed 25 May 2021.

scientific knowledge of what benchmarks are for and how to use them. On the other hand, a benchmark equips financial actors with a kind of *self-knowledge* of the measure of their promises, which obviates and sets limits on formal knowledge. It is a way of knowing when to *stop* calculating. Hence, it tends to be denigrated in the reform discourse as irrational and unscientific. In Foucault's terms, it constitutes a 'naïve [knowledge], located low down on the hierarchy, beneath the required level of cognition or scientificity'.[29]

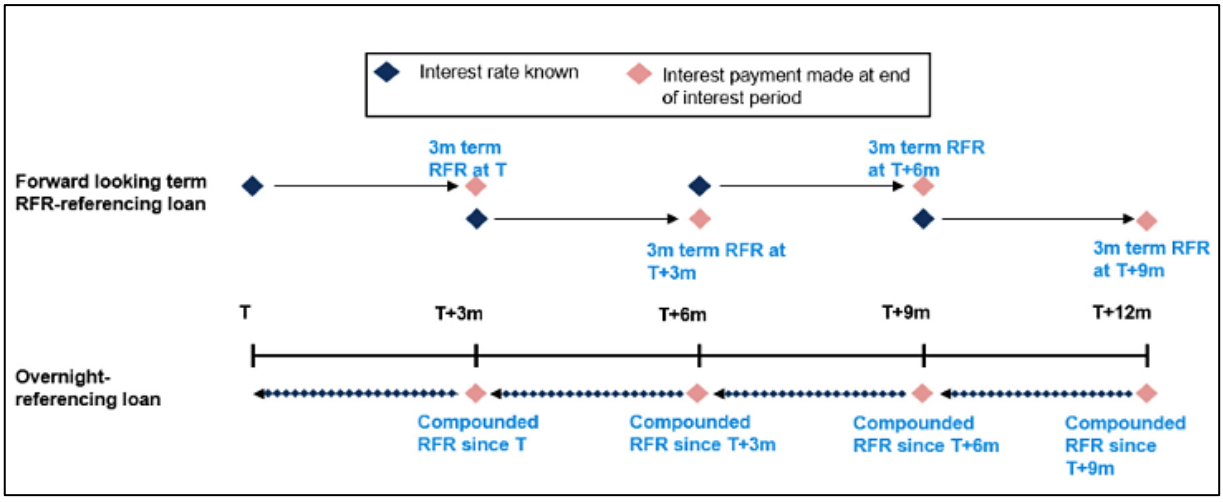


Figure 5. Conceptualisation of 'forward looking' and 'backward looking' rates published by the FSB. Reprinted from FSB, 'Interest rate benchmark reform – overnight risk-free rates and term rates', 12 July 2018.[30]

[29] Michel Foucault, 'Two Lectures' in Colin Gordon (ed), *Power/knowledge: selected interviews and other writings, 1972-1977* (Vintage 1980) 82.

[30] FSB, 'Interest Rate Benchmark Reform - Overnight Risk-Free Rates and Term Rates' (n 25) Annex.

However, it is also clear from the above that this naïve knowledge does not stand on its own. By refusing to calculate, financial actors who value Libor's term structure reveal the ultimately superfluous character of scientific justifications for Libor's role in economic life. But these actors do not simply pluck numbers from the air to use in their transactions. The legitimacy of a benchmark and the affordances it provides to these actors are evidently closely linked to the manner in which their naïve knowledge of 'what to do and how to behave' is presupposed and reinforced in particular ways by legal contracts.

I develop these insights in the next part, where I discuss another highly contentious issue that has come to dominate the reform debate as Libor's putative end date comes closer. This is the thorny question of how to deal with 'tough legacy' contracts.

7.4 Libor's Tough Legacy

By the beginning of 2020 there was a growing appreciation among reformers that no amount of explaining, prodding and shoving could entirely overcome the problem of passive resistance to Libor's discontinuation. In particular, there were concerns over a subset of Libor-linked legacy contracts (mainly cash products but also some derivatives) for which there seemed little prospect of securing an orderly 'transition' to alternative rates, eg because of the lack of effective fallback mechanisms and the practical obstacles to soliciting consents to contract amendments. These make up what has come to be known as 'tough legacy'.

How to tackle tough legacy contracts was, by definition, therefore, one of the most difficult issues facing reformers as the 'transition' entered its latter stages. In response

to a call from the FCA for more debate about the issue,[31] in late 2019 the Sterling RFR Working Group established a dedicated Tough Legacy Task Force to assess the problem and determine the possible options for remediation – even if, as its Chair (the FCA's Head of Markets Policy) warned, 'there should be no expectation of a "silver bullet" to solve the problem'.[32]

7.4.1 Emergency relief

The Task Force's work was promptly interrupted by the COVID-19 pandemic and ensuing financial market disruption. In March 2020, the Bank of England along with other central banks undertook a series of emergency measures designed to stem a 'dash for cash'. These included cutting interest rates and extending emergency lending facilities.[33] The financial crisis-like dynamics were visibly manifested by rising Libors and falling overnight rates (including SONIA), which, for official sector observers, at least, confirmed 'the long-standing weaknesses of Libor benchmarks' and underlined the urgency of 'transition'.[34]

[31] Andrew Bailey, 'LIBOR: Preparing for the End - Speech by Andrew Bailey, Chief Executive of the FCA, at the Securities Industry and Financial Markets Association's (SIFMA) LIBOR Transition Briefing in New York, USA' (15 July 2019) <https://www.fca.org.uk/news/speeches/libor-preparing-end> accessed 25 May 2021.

[32] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 5 December 2019' (2019) <http://www.bankofengland.co.uk/minutes/2019/rfr-december-2019> accessed 25 May 2021.

[33] Bank of England, 'Interim Financial Stability Report May 2020' (2020) <https://www.bankofengland.co.uk/-/media/boe/files/financial-stability-report/2020/may-2020.pdf> accessed 25 May 2021.

[34] Bank of England (n 33) 13; FSB, 'FSB Statement on the Impact of COVID-19 on Global Benchmark Reform' (*FSB*, 1 July 2020) <https://www fsb.org/2020/07/fsb-statement-on-the-impact-of-covid-19-on-global-benchmark-reform/> accessed 25 May 2021.

In other ways, however, the effects of the pandemic seemed to underscore the extent of the challenges still confronting reformers. As one editorial commented: 'To press on with this transition – the deadline for which was always ambitious – seems reckless in the extreme.'[35]

Against this backdrop, the Tough Legacy Task Force concluded that the risk that some contracts could be left without a benchmark (or with an inadequate fallback) after Libor's discontinuation could not be ignored. In a paper published in May 2020, the Task Force observed that the pandemic had strengthened the case for action, noting: 'While the deadline for the market to be ready for the cessation of LIBOR by the end of 2021 remains the same, there is less time available in practice to meet it.'[36]

Ultimately, the Task Force considered, rescuing contracts that are 'genuinely stranded' would require legislative relief of some kind.[37] Echoing previous gloomy noises from the FCA,[38] it acknowledged that such a solution could not be counted on. However, within a matter of weeks UK Chancellor, Rishi Sunak, announced in a

[35] Euromoney, 'Libor and Covid-19: Risk-Free Rates No More' *Euromoney* (30 March 2020) <https://www.proquest.com/trade-journals/libor-covid-19-risk-free-rates-no-more/docview/2397438361/se-2?accountid=13042> accessed 25 May 2021.

[36] Sterling RFR Working Group, 'Paper on the Identification of Tough Legacy Issues' (2020) 3 <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/paper-on-the-identification-of-tough-legacy-issues.pdf> accessed 25 May 2021.

[37] Sterling RFR Working Group, 'Paper on the Identification of Tough Legacy Issues' (n 36) 3.

[38] Bailey (n 31); Helen Bartholomew, 'Synthetic Libor Mooted as "Tough Legacy" Fix' *Risk.net* (1 October 2019) <https://www risk.net/derivatives/7039441/synthetic-libor-mooted-as-tough-legacy-fix> accessed 25 May 2021.

statement to Parliament that the Government would bring forward legislation to deal with the issue.[39]

7.4.2 Synthetic Libor

The proposed UK legislative fix involves giving the FCA a suite of new benchmark-related powers, including the ability to direct an administrator to change the calculation methodology for a critical benchmark (ie Libor) that has been designated as no longer 'representative', and to exempt tough legacy contracts from a prohibition that would otherwise prevent financial actors from continuing to use the benchmark. The overall effect is to give the FCA the ability to engineer the continued production of a Libor number beyond the benchmark's regulatory shelf-life, with the result that tough legacy contracts could continue to reference this so-called 'synthetic Libor' as if nothing had changed.[40]

7.4.2.1 The 'page-driven' approach to legal definition

The concept of synthetic Libor exploits a specific legal technicality; namely the standard way that Libor is defined in financial contracts by reference to the manner in which the benchmark value is disseminated each day. This is done via providers of real-time market

[39] HM Treasury, 'Financial Services Regulation - Statement Made on 23 June 2020 by Rishi Sunak, The Chancellor of the Exchequer' (2020) Statement UIN HCWS307 <https://questions-statements.parliament.uk/written-statements/detail/2020-06-23/HCWS307> accessed 25 May 2021.

[40] The new powers were introduced by way of amendments to the UK Benchmark Regulation enacted by the Financial Services Act 2021. For a detailed overview see FCA, 'Benchmarks Regulation and Amendments under the Financial Services Act 2021' (2021) <https://www.fca.org.uk/publication/policy/benchmarks-regulation-proposed-amendments-financial-services-bill.pdf> accessed 25 May 2021.

data and news services which receive the result of the daily Libor calculation from Libor's administrator and display it onscreen to financial actors subscribing to their services.

This approach to defining Libor goes back to the mid-1980s, when ISDA adopted BBA Libor in its standard terms for swap contracts (as discussed in Chapter 3). At that time BBA Libor was distributed by a US company, Telerate, an early leader in the global market data industry whose business model was based on selling subscriptions to the stock prices, bond prices, and other data displayed on its 'pages' together with the technological means for customers to access the content via their computer screens and terminals.[41] For ISDA's purposes, Libor became, simply, the number that appeared on a given Telerate page at a given time on any given publication day.[42]

As one of my interviewees, a lawyer who co-authored the original ISDA Master Agreement, explained:

> if you try to describe, you know, what it is made up of or what it is, you can get into more difficulty, a difficulty we tried to avoid by saying "for our purposes, Libor means the rate that appears at a given time on a [given] page", you know. "Don't look beyond that"…[43]

In this way, the 'page-driven'[44] approach to defining Libor (and other contractual benchmarks) obviated the need for a theory of what Libor 'is made up of or what it is'.

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[41] John Jessop, *Tales from the South Pier* (Athena Press 2008).

[42] See eg ISDA, *2000 ISDA Definitions* (ISDA 2000).

[43] Interview 13736, Lawyer (UK, 2018). Bracketed text indicates post-interview clarification suggested by interviewee.

[44] ISDA, 'Response from the International Swaps and Derivatives Association Inc. ("ISDA") to the Wheatley Review of Libor Initial Discussion Paper' (7 September 2012) <https://www2.isda.org/attachment/NDc2OA==/Response%20to%20Wheatley%20Review%2009-07-2012.pdf> accessed 25 May 2021.

For the purposes of giving effect to the agreement, all that was needed was a number in the right form: 'on a screen, at a time, on a right day'.[45]

The UK legislative approach embraces the 'page-driven' logic by giving the FCA the power to determine what will appear on the screen, and hence what will count as Libor. A synthetic Libor is thus the consummate expression of what goes unsaid in the reform discourse: that what accounts for a benchmark's role in financial transactions is not what can be theorised and accounted for 'publicly', but what remains when the epistemological debates are exhausted – that is, pure legal technicality.

In the final part of the chapter I consider the implications of this analysis for understanding Libor's role in financial transactions. In doing so, I have found it helpful to draw on scholarship concerned with the productive capacities of legal knowledge, and especially Riles' insights into the 'agency of legal form'.[46] I discuss this concept and my use of it below.

7.5 The Agency of Legal Form

As noted in the Introduction, Riles' work on legal form forms a key contribution to scholarship concerned with the 'technicalities' of legal knowledge.[47] The central insight of this scholarship is that legal expertise is not simply a means for the accomplishment of (social, economic, etc) ends that lie outside of it and are given for it. What lawyers

[45] Interview 13736 (n 43).

[46] Annelise Riles, 'A New Agenda for the Cultural Study of Law: Taking on the Technicalities' (2005) 53 Buffalo Law Review 973, 982.

[47] David Cowan and Daniel Wincott (eds), *Exploring the 'legal' in Socio-Legal Studies* (Palgrave Macmillan 2016).

know, and how they put their knowledge to work, produces real world effects beyond the merely instrumental and representational. What appears to the non-expert as legal technicality, at one remove from real world problems, is appreciated by its practitioners for its own sake, as a kind of performance that can be judged on its *form*, as legal technique.

For example, in her study of legal documentation experts in Tokyo's financial markets, Riles considers the role of techniques of legal standardisation, such as those entailed in ISDA's documentation regime.[48] She argues that, rather than being read for their 'meaning', standard form contracts act as a script for certain kinds of activity (ie form-filling), setting limits on what it is necessary to know in order to transact and obviating the need to refer to the untidy normative context within which financial transactions take place.[49] In other words, when remade as objects of legal technique, transactions become governable according to the material and aesthetic criteria that lawyers recognise as the tools of their trade. This is what I understand Riles to mean by the agency of legal form. The practice of legal knowledge is the art of working legal forms to produce their effects.[50]

In benchmark reform discourse, legal knowledge is everpresent, but never the centre of attention. Lawyers are in attendance at working group meetings, but either as non-member advisers or as representatives of financial actors such as ISDA and the LMA; they speak on conference panels, contribute to public consultations, and behind

[48] Annelise Riles, *Collateral Knowledge: Legal Reasoning in the Global Financial Markets* (University of Chicago Press 2011) 46–57.

[49] Riles (n 48) 54.

[50] Alain Pottage, 'Law after Anthropology: Object and Technique in Roman Law' (2014) 31 Theory, Culture & Society 147.

the scenes spend countless hours poring over, critiquing, and trying to manage the implications of reform for their clients. In interview, lawyers often had forthright opinions about the reforms. However, they were also clear about how they saw their role. As one senior financial lawyer put it:

> We think of the investment bankers and financial market types as the chaps in the racing cars going around the track. We're the men [sic] [51] in the overalls in the pits. We keep the show on the road but we don't drive, we just mend the bent bits.[52]

This attitude resonates strongly with Riles' observation that lawyers' claim that their knowledge is merely 'collateral' to financial action belies a sophisticated appreciation of the capacity of legal expertise to solve problems and facilitate financial action in ways that can also shape and redirect it.

Based on my empirical findings as discussed above, I analyse below three elements of the agency of legal form in this context, which I refer to as Libor's legal form. These are, first, the dispositive character of the benchmark, having effects that are binding and irreversible. Secondly, its 'forward-looking' dimension, which allows financial actors to know in advance what their obligations will be. Thirdly, the manner in which the benchmark is communicated, ie in the right way, at the right time. I discuss each of these in turn.

[51] Of the six lawyers in my interview sample, two were women.

[52] Interview 97629, Financial Markets Lawyer (UK, 2018).

7.5.1.1 Truth and juridical forms[53]

A key theme of my empirical findings in this thesis has been that a benchmark such as Libor is valued by financial actors for its capacity to set limits on what needs to be known and 'publicly' accounted for before a transaction can take place. For example, as discussed above, I found that for many financial actors a term rate constitutes a way of knowing when to *stop* calculating. The 'essence' of a benchmark for its users lies in this capacity to put questions of 'how much we pay and what we do and how we behave' beyond reasonable argument.

In my interviews, one of the ways in which this appreciation for a benchmark's capacity to set limits on calculation and close down debate was manifested was in the widespread view that the only way to replace Libor was by legislative fiat.[54] As described in Chapter 5, the 'market-led' model of reform has been a recipe for indecision and incrementalism. As one interviewee, an interest rate strategist at a European bank, commented:

> at some point you just need someone whose authority is indisputable to just say "Look, you know, it could be this, it could be that, we're going to take this average level and no one will be entirely happy but no one will be entirely unhappy and it will just be that".[55]

I heard a similar view expressed by other financial actors from across the spectrum of roles in my interview sample. One corporate treasurer close to the UK reforms told me:

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[53] Here I borrow the title of a series of lectures given by Foucault in 1973 in Rio de Janeiro, which I draw on below. Michel Foucault, 'Truth and Juridical Forms' (1996) 2 Social Identities 327.

[54] My interviews took place in 2018-19, before the announcement of the legislative measures to assist 'transition' discussed above.

[55] Interview 18799, Rates Strategist (UK, 2018).

'Everyone thinks they're going to get hurt [by the economic consequences of substituting Libor for a different benchmark]… You want God to come down and tell you "this is the way to make it fair".'[56]

Another interviewee, a former derivatives trader who worked for a financial consultancy firm, described how the firm had developed a new valuation service to help clients (banks) resolve 'transition'-related disputes. Benchmark reform has spawned a new industry in such services designed to help financial actors to re-paper their contracts in a way that avoids costly litigation.[57] In the event of a dispute arising over the effects of 'transition' on a given contract, my interviewee's firm would step in and provide an independent valuation that the contracting parties accept as binding. In this respect, my interviewee explained: 'it's not really arbitration, we say "that's the price". That is the price.'[58]

For similar reasons, among my interviewees I also found a cross-section of support for a synthetic rate (at that time more in hope than expectation). One might have expected such transparent interference in private property rights to stir controversy. But the announcement by the UK Government was widely welcomed by financial actors as obviating the worst effects of 'transition'.[59] In an October 2020 paper reviewing the options for addressing legal uncertainties arising from 'transition', the Financial Markets

[56] Interview 48017 (n 8).

[57] See eg Duff & Phelps, 'LIBOR Transition Advisory and Implementation' (*Duff & Phelps*) <https://www.duffandphelps.com/services/libor-transition-advisory> accessed 25 May 2021.

[58] Interview 27381, Consultant – Derivatives Advisory (UK, 2018).

[59] See eg UK Finance, 'UK Finance Responds to Government's Intention to Legislate to Facilitate Libor Transition' (*UK Finance*) <https://www.ukfinance.org.uk/covid-19-press-releases/uk-finance-responds-to-governments-intention-to-legislate-to-facilitate-libor-transition> accessed 25 May 2021.

Law Committee ('FMLC'), a City-based group of financial law experts, concluded that 'the possibility of amending the feeds on the [onscreen] pages so that a successor rate is displayed instead, under the "LIBOR" rubric appears to offer the best prospect for avoiding disruption in the wholesale financial markets'.[60] Whereas the creation of ISDA's fallbacks involved a set of techniques for navigating and routinising the politics of 'transition', a synthetic Libor speaks to the aspiration to *bypass* these politics altogether.

In sum, all of these examples reflect different strategies for trying to recapture the dispositive effect that Libor has on financial valuations. The agency of a benchmark, it seems, is intimately linked with practices of judgement, of which Libor's submissions-based (ie judgement-based) calculation methodology is the epitome rather than an outlier. Hence, a benchmark, as it appears from my analysis of my empirical data, closely resembles what Foucault calls a 'juridical form' – a particular way of proceduralising political struggles that is bound up with the history of truth-making in the West.[61] For Foucault, the institutionalisation of practices of judgement in the form of courts and judicial procedures is a historically significant stage in the reproduction of juridical

[60] FMLC, 'LIBOR Transition: Issues of Legal Uncertainty' (2020) 26–27 <http://fmlc.org/wp-content/uploads/2020/10/FMLC-LIBOR-Transition-FINAL.pdf> accessed 25 May 2021.

[61] Foucault, 'Truth and Juridical Forms' (n 53).

forms. But that does not mean that juridical forms are exclusively a judicial phenomenon. As Foucault puts it:

> What characterizes the juridical act, the process or the procedure in the broad sense, is the regulated development of a dispute. And the intervention of judges, their opinion or decision, is only ever an episode in this development. What defines the juridical order is the way in which one confronts one another, the way in which one struggles. The rule and the struggle, the rule in the struggle, this is the juridical.[62]

Hence, I argue, one of the key elements of the agency of Libor's legal form lies in its capacity to constitute judgements about financial value with the status of truth. How it does so is linked in turn to the other two elements which I discuss below.

7.5.1.2 The temporality of the benchmark

As discussed in part 7.3, the debate over term rates took the form of a contest over the kind of knowledge that counts for determining the role of benchmarks such as Libor in financial transactions: a formal, economic-scientific knowledge concerned with constituting benchmarks as 'facts' versus a naïve, unsophisticated knowledge of the affordances that a benchmark provides in economic life, such as the ability to know one's obligations in advance. Contrary to appearances, the defining theme of this debate – the temporality of term rates – has nothing intrinsically to do with how the benchmark is produced or its make-up. Rather, it is a contingent effect of how the benchmark is entextualised in legal contracts.

[62] Michel Foucault, *Penal Theories and Institutions: Lectures at the Collège de France, 1971-1972* (Springer Nature 2019) 115.

As the above discussion has illustrated, in Libor's case, the theory of its construction as a term rate – ie that banks fund themselves in the interbank market by taking out loans of different maturities – has long ceased to be the point (if ever it was). Libor's 'forward-looking' character is not determined by the slice of chronological time that it is understood to 'represent' so much as the time of the contract, in which legal obligations accrue, crystallise, and are performed.[63] To say Libor is a term rate, therefore, is simply to say that it is in *the form that the contract demands*. As one of my interviewees, a senior financial regulatory lawyer, put it: 'It is another magnificent attribute of Libor's fictionality. You can do things like that – set rates three months in advance without knowing what they're going to be.'[64]

In this sense, I argue, Libor is a legal artefact through and through. It is an example of how the legal form can 'travel', colonising and subverting apparently 'non-legal'[65] calculative rationalities. Its calculation methodology is custom-made for a set of contract mechanics in which the near future of the parties' legal relationship is always in view. While compounding a daily rate might produce a *theoretically* equivalent result, it does not make the same sense contractually. This is because a benchmark such as Libor is not a way of 'representing' an external reality, but of bringing into being the world envisaged by the contract. It is performative rather than descriptive.

As I noted in the Introduction, the concept of performativity has featured prominently in social studies of finance scholarship as a way of understanding the manner

[63] Cf Alain Pottage's re-reading of Yan Thomas, 'Acte, Agent, Société: Sur l'homme Coupable Dans La Penseé Juridique Romaine' (1977) 22 Archives de la philosophie du droit 67, in Pottage (n 50) 153.

[64] Interview 97629 (n 52).

[65] Fleur Johns, *Non-Legality in International Law: Unruly Law* (Cambridge University Press 2013).

in which economic theories act on the economic reality they claim to describe, eg where the use of a theoretically-informed pricing model tends to bring about pricing effects that conform to the theory.[66] The performative effects of Libor's legal form are evidently somewhat different. Transacting using a benchmark does not just *tend* to create certain effects: as a juridical form it creates what it names in the same way as, say, a judicial declaration. At the same time, its effects are explicitly time-bound, until the benchmark is recalculated. This chimes with Judith Butler's conception of performativity as involving a process of constant reiteration:

> it is not simply that a subject performs a speech act; rather, a set of relations and practices are constantly renewed, and agency traverses human and non-human domains.[67]

Hence, a further key empirical finding of this thesis is that the temporality of Libor's legal form is neither that of a sovereign speech act, such as a court ruling, nor a probabilistic inference, such as the prediction of a model, but somewhere in between. As one interviewee, a corporate treasurer in a large multinational, put it: '3 month Libor, if you like, is a bastard because it's neither a floating rate nor a fixed rate.'[68]

This finding resonates with Riles' discussion of the legal knowledge practices entailed with exchanges of collateral in financial transactions.[69] Here, too, ISDA's documentation regime performs a crucial role in standardising the terms on which derivatives transactions are collateralised. As Riles observes, this is no mere technical

[66] Donald MacKenzie, *An Engine, Not a Camera: How Financial Models Shape Markets* (MIT Press 2006).

[67] Judith Butler, 'Performative Agency' (2010) 3 Journal of Cultural Economy 147, 150.

[68] Interview 48017 (n 8).

[69] Riles (n 48).

exercise; it is also politically consequential. Among other things, collateral is a way of immunising contracting parties against the risk that one or other goes bankrupt – more specifically the risk associated with having to rely on national bankruptcy procedures in order to recover what is owed.[70] In the meantime, the granting and holding of collateral gives rise to its own politics – what kinds of rights and duties does each party have? How do these interact with other rights and duties under state law?

As Riles analyses them, the legal knowledge practices entailed in asking and answering these questions in the context of ISDA's documentation regime amount to a kind of legal fiction – a provisional solution to the difficult political issues arising out of the parties' relationship. Instead of tackling these issues head on, it calls on the actors involved to act 'as if' they were resolved. In doing so, it determines the parties' relationship for the 'meantime' – ie while the collateral is in place and the debt remains outstanding. Riles calls this temporal effect of legal form a 'placeholder'.[71]

As described above, the analysis of the temporality of Libor's legal form that emerges from my own empirical data has strong affinities with Riles' conception of a placeholder. If the parties to a Libor-linked contract are able to act 'as if' the economic consequences of their relationship are predetermined, it is because *for the meantime* (the next three/ six months etc) they always already are.

But my analysis also suggests a subtle qualification to Riles' account. By transacting using Libor, financial actors participate in the legal fiction that the benchmark plays no part in governing their relationship that has not already been calculated.

[70] Riles (n 48) 42.

[71] Riles (n 48) 170.

However, this is not a legal fiction in the sense that Riles envisages: 'a statement that is consciously understood to be false, and hence is irrefutable.'[72] Benchmark users do not merely go along with what they know to be a fiction, albeit a convenient one. Libor's redistributive effects are naturalised because they conform to a shared and self-evident economic reality. In this sense, the agency of Libor's legal form also involves a distinct phenomenology, to which I turn below.

7.5.1.3 The world on screen

As discussed in part 7.4.2, the UK proposal for a synthetic Libor takes the material and aesthetic dimensions of Libor's definition in standard form contracts and places them explicitly to the fore. What is being 'synthesised' in this manner is precisely the benchmark's capacity to perform economic realities in a way that financial actors recognise as truthful. Hence, I argue, this tells us something important about the agency of Libor's legal form, and in particular the specific phenomenology of the 'page-driven' approach to defining Libor in contracts.

At the time of my fieldwork, the proposal for a synthetic rate was still a long way off but nevertheless this aspect of Libor's legal form came across regularly in interview in various different ways – for example, in talk about the need for benchmarks to be 'visible', 'transparent', or 'accessible'. What was being valorised in all of these descriptions was the capacity of the onscreen benchmark – or 'screen rate', as it is

[72] Riles (n 48) 172–73.

commonly defined –[73] to enact a shared social world. As one corporate treasurer explained:

> It's got to be accessible. Where do I find that rate? And not only accessible but having found it, that that is also the point where other people are going to going to, so it's an accepted reference point. Yeah? And that everybody will be going into that internet site or whatever to get that.[74]

For this individual, the screen rate constituted a focal point for financial action, in view of which financial actors could make their decisions and calculations and form their plans in the knowledge that others were doing the same.

But evidently the screen rate is more than just a useful coordination device. In the following quote, another interviewee, a lawyer and documentation expert in the syndicated loan market, highlights the subtle performative agency of the screen rate:

> [A]ctually having something on a screen (a) makes it very easy from a drafting perspective because you just say "right, it's the rate available on this screen or any other replacement screen". It makes it easier for the agent[75] as well because they can then source the rate and then also the borrower can see "OK, I know I'm not sort of being fed an incorrect calculation or someone's made something, made a mistake somewhere and I need to check it." It is somewhere, it's available, and we don't have to go through sort of laborious drafting and formulae and things to kind of work things out.[76]

[73] See eg Sterling RFR Working Group, 'Syndicated Loan Replacement of Screen Rate Clause' (2018) <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/risk-free-reference-rates-replacement-of-screen-rate-clause> accessed 26 May 2021.

[74] Interview 97659 (n 14).

[75] The agent bank in a syndicate of banks, which performs various administrative functions on behalf of the group.

[76] Interview 73513, Loan Markets Lawyer (UK, 2018).

We can see from this that the phenomenology of the world on screen and Libor's legal form are mutually reinforcing. Each supplies the context for the other. The relevance of the world on screen is affirmed and extended through the 'page-driven' approach to defining the benchmark. At the same time, the visibility of the onscreen world provides the criterion by which the truth of the benchmark is evaluated – ie as a natural order to which the contract merely conforms.

These empirical insights therefore strongly suggest that the performative effects that Libor produces in financial transactions are closely linked to the manner in which the benchmark is communicated via screen technologies. One way to understand these effects is suggested by scholarship exploring the interactions between technology and society. For Introna and Ilharco, the everpresence of the screen in the modern world elicits particular kinds of engagement; our every interaction with a TV or a computer screen engages a tacit presumption that what appears on the screen is worthy of our attention, liable to carry meaning for us, and true to life as we live it. They characterise this effect as the 'screenness' of screens.[77]

Pursuing a similar insight in the context of financial markets, Knorr Cetina argues that the hundreds of thousands of trading screens and computer terminals fed by market data providers have shaped a distinct form of market coordination, whose organising principle is temporal as opposed to the spatial logic of networks.[78] In the foreign exchange dealing rooms of the investment banks that she studied, traders could watch an emergent market reality unfold before their eyes in which they themselves were actors and co-creators. The computer technology supplied by market data providers such as

[77] Lucas D Introna and Fernando M Ilharco, 'On the Meaning of Screens: Towards a Phenomenological Account of Screenness' (2006) 29 Human Studies 57.

[78] Karin Knorr Cetina, 'How Are Global Markets Global? : The Architecture of a Flow World' in Karin Knorr Cetina and Alex Preda (eds), *The sociology of financial markets* (Oxford University Press 2004).

Bloomberg is equipped with integral messaging functions so that users can communicate in real time, exchange information, form friendships, and conclude transactions, all within the world framed by the screen:[79]

> The terminals deliver much more than windows to physically distant counterparties. In fact, they deliver the reality of financial markets - the referential whole to which "being in the market" refers, the ground on which traders step as they make their moves, the world which they literally share through their shared technologies and systems.[80]

For Knorr Cetina, what distinguishes this form of coordination is its performative character. The world on screen is continually remade through the very interactions that it enables. Not only does this have the effect of constituting the market as a totalising presence, but everything on the screen *is* 'the market', all the time.

These insights help to further specify the agency of Libor's legal form as closely linked to the way that legal techniques of standardisation exploit the 'screenness' of financial markets. Constituted as a screen rate, the benchmark is part of the continuous flow of meaning-making that renders the market ever-present, in identical form everywhere, as a 'reality in time'.[81] Each time the screen rate 'resets', it reaffirms benchmark users' subjectivity as guarantors of themselves who 'remember' how much to pay, what to do, and how to behave, since the measure of their promises is displayed on screen for all to see.

[79] The vast majority of the communications at the heart of the Libor scandal were instant messages sent using these technologies.

[80] Knorr Cetina (n 78) 45.

[81] Knorr Cetina (n 78) 50.

7.6 Conclusion

In this chapter I set out to consider those areas in which the 'transition' to a post-Libor world has not gone to plan for reformers. I have explored certain forms of passive resistance among financial actors, in which their refusal to be governed by new benchmarks stands as a reminder of the limits of reform – as manifested in particular by the debates over term rates and how to deal with tough legacy contracts. By continuing to use Libor in their transactions unproblematically, these financial actors expose the essential redundancy of reforms designed ultimately to leave the political and economic status quo intact.

I use my analysis of these aspects of the reform discourse as a way of addressing the fourth set of questions in the WPR analytical scheme: 'What is left unproblematic in this problem representation? Where are the silences? Can the 'problem' be thought about differently?'

My approach to these questions has involved taking seriously under-privileged perspectives and concerns (such as the desire to know one's payments in advance) that tend to be minimised in the mainstream reform discourse. I have shown how the development of term rates and recognition of tough legacy transactions indicate areas in which reformers have been obliged to make provision for benchmark users to be able to replicate Libor's role in their transactions in a post-Libor world. In doing so, these efforts reveal what remains unproblematic and unspoken in the reform discourse – namely, the benchmark's legal form.

My findings nuance and extend the Rilesian conception of the agency of legal form in a financial markets context. I have identified three distinct but interrelated

elements of Libor's legal form: (i) a juridical capacity to constitute its judgements as truths and close down debate irreversibly; (ii) the distinctive temporality of the benchmark; and (iii) the manner of its communication in a way that naturalises its effect of creating the realities it purports to describe.

I argue that these elements add up to something more than a coordination device. Libor governs financial transactions by enabling financial actors to know the truth of their relationships. It does this by actualising a measure of value whose reality test is embedded within the legal form itself.[82] What is more, the actors themselves know this. The picture that emerges from my empirical data is one in which the performative power of Libor's legal form is appreciated by lawyers and non-lawyers alike. Indeed, it is the perennial fear of reformers that in opening the door to term rates and synthetic Libor, if only for narrow 'use cases', their creations could take on lives of their own, zombie-like, and become established in preference to the alternatives. As one corporate treasurer close to the UK reforms put it: 'As soon as someone plants a number on [the] screen [for Libor], it's going to be there [as Libor].'[83]

Overall, the discussion presented in this chapter opens up a new perspective on Libor's problematisation and new questions for consideration. If Libor is a legal artefact, what does this say about how financial transactions are governed? Whose judgements does the benchmark constitute as truths? I explore these questions in the next chapter, where I consider the key ideas and assumptions motivating Libor's problematisation.

[82] Pottage (n 50).

[83] Interview 91466, Corporate Treasurer (UK, 2018). Bracketed text indicates post-interview clarifications suggested by interviewee.

8. Governing by Benchmark

8.1 Overview

In this chapter I develop the explanatory power of my analysis of Libor's problematisation so far in this thesis as a means of addressing my overarching research aim to understand the role that benchmarks play in economic government. In doing so, I address the second question in the WPR framework: What presuppositions or assumptions underlie this representation of the 'problem'?

As I showed in the previous chapter, a key finding of this thesis is that Libor is a legal artefact, which works by constituting value judgements as truths. But whose judgements are these? Who determines the allocation of wealth and political power that Libor sets in place? In short, who sets the benchmark? In the first part of the chapter I use this question to frame a critical examination of a prominent theme of the existing literature in which Libor's problematisation is depicted in terms of a power struggle between state and markets.

Part 8.3 presents a discussion of the role of the State as it features in benchmark reform discourse in the shape of the central bank. I refer to scholarly literature on the central bank's role as it is conventionally understood in monetary theory and policy, and to my analysis of my empirical data, which included interviews with four current and former central bankers and monetary policymakers, as well as documentary materials such as central bank publications and media commentary on the reform process. I consider how reform has given rise to a new generation of benchmarks that are effectively underwritten by central banks – in apparent contrast to Libor, which is seen to be

determined on private authority. Yet, my data suggest that most financial actors would be content for benchmark-setting to be explicitly under central bank control, and that it is the preference of central bankers to persevere with a 'market-led' governance model of which they are the tacit and reluctant guarantors.

In order to unpick this puzzle, in part 8.4 I draw further on analysis of my interview data and secondary sources such as speech-making by the former Bank of England governor, Mark Carney, which I read for its structuring themes and presuppositions. I also engage with political economist William Davies' Foucauldian-influenced diagnosis of the characteristics of neoliberal economic government, as a way of reconsidering Libor's problematisation and its animating ideas and assumptions.[1] My main finding is that, rather than manifesting a struggle between state and markets, the tensions in benchmark reform discourse are better understood as effects of a neoliberal style of governing-by-benchmark *as if* financial actors were governed only by themselves.

In part 8.5, I go on to consider what it means for financial actors to be governed in this way. Drawing further on my analysis of my interview data, I first show how, for financial actors, a benchmark is a provisional 'solution' to the 'problem' of how to evaluate economic value. Seen from this perspective, I argue, Libor's problematisation is one that has a long history in Western thought and takes a specific shape in financialised societies. Specifically, I develop the argument that this 'problem' finds its template and archetypal 'solution' in the emergence of money as a means of commensurating values

[1] William Davies, *The Limits of Neoliberalism: Authority, Sovereignty and the Logic of Competition* (SAGE 2014); William Davies, 'Elite Power under Advanced Neoliberalism' (2017) 34 Theory, Culture & Society 227.

in economic exchange. I draw on Foucault's genealogical reading of the institution of money in Ancient Greece to show how the discourses and practices constituting money's emergence in the West map onto key features of Libor's problematisation today.

8.2 Who Sets the Benchmark?

So far in this thesis I have shown how 'market-led' reform has generated its own particular politics, resulting in a tortuous reform process, in which regulators have been obliged to ratchet up the intensity of their interventions at key moments with a view to bringing about a 'transition' to a post-Libor world. Indeed, reformers have had to accept that their interventions will have to emulate Libor's truth effects in certain ways if they are to be successful. As I showed in Chapter 7, this means exploiting the agency of Libor's legal form in ways which involve obviating calculations and reverting to value judgements, eg through the creation of fallback rates, term RFRs, synthetic Libor, etc.

The apparent paradox of the 'market-led' approach to reform, therefore, is that it simultaneously denies and presupposes the need for a decision-maker to conduct the evaluations that a benchmark sets in place. In Libor's case that role is fulfilled overtly by a panel of banks, constituted in a juridical capacity by virtue of their status and expertise. However, as I show below, in a post-Libor world the mantle of decision-maker has had to be taken on, tacitly and reluctantly, by public authorities – notably central banks.

This seems to chime with existing literature which understands Libor's problematisation primarily in terms of the relationship between state and markets. As I noted in the Introduction, according to a common scholarly critique the essential 'problem' to which reform is addressed is a problem of financial power, which is also

manifested in eg the emergence of the Eurodollar market as a means for financial actors 'to *avoid* the jurisdiction of the central banks',[2] 'the too-big-to-fail (TBTF) nature of the banks at the centre of the City of London and the international money markets',[3] and the opacity and complexity of derivatives markets.[4] In retrospect, Libor's problematisation appears inevitable; a natural consequence of financialisation – as Seabra Lopes puts it: 'the road that leads from convenient practice to contagious expansion to manipulation and, finally, to a promise of reform.'[5]

From this point of view, benchmark reform is a way of redressing the balance of power between state and markets. There are echoes of Karl Polanyi's notion of a 'double movement', in which the excesses of a global financial elite are reined in for the good of society. As Mehrling notes, in a different context:

> where Polanyi chronicled the nineteenth-century construction of a new Market Society by a newly powerful nation state, we today confront instead the construction of a new Financial Society by powerful private actors operating on a global stage.[6]

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[2] Alexis Stenfors and Duncan Lindo, 'Libor 1986–2021: The Making and Unmaking of "the World's Most Important Price"' (2018) 0 Distinktion: Journal of Social Theory 1, 185, original emphasis.

[3] Philip Ashton and Brett Christophers, 'On Arbitration, Arbitrage and Arbitrariness in Financial Markets and Their Governance: Unpacking LIBOR and the LIBOR Scandal' (2015) 44 Economy and Society 188, 194.

[4] Robert Tillman, 'The Price Is Not Right: Financialization and Financial Crime' in Jens Beckert and Matías Dewey (eds), *The Architecture of Illegal Markets: Towards an Economic Sociology of Illegality in the Economy* (Oxford University Press 2017).

[5] Daniel Seabra Lopes, 'Libor and Euribor: From Normal Banking Practice to Manipulation to the Potential for Reform' in Ismail Ertürk and Daniela Gabor (eds), *The Routledge Companion to Banking Regulation and Reform* (Routledge 2016) 226.

[6] Perry Mehrling, 'Financialization and Its Discontents' (2017) 3 Finance and Society 1, 2. Karl Polanyi theorised the historical changes entailed with the rise of the market economy in Britain as effects of a tension between 'society' and 'the economy'. This tension, he argued, is manifested in a 'double movement' characterised by the expansion of *laissez faire* principles at the expense of social dislocation, until eventually these effects trigger a reaction in the form of reforms to limit the power of markets. Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Beacon Press 2001).

However, I have shown in this thesis how my own empirical findings complicate the Polanyian framing of benchmark reform discourse. As much as 'public' accountability talk contains a critique of benchmarks such as Libor as a 'public good',[7] to be stewarded in the collective interest rather than left to banks, the aim of reformers is evidently not to reassert public control over benchmarks. On the contrary, as discussed in Chapter 5, the conceptual and organisational apparatus of 'market-led' reform is geared towards assuring the impression that *nobody* exercises control over the economic outcomes the benchmark produces.

In the next part I examine more closely the ideas and assumptions entailed with this curious state of affairs. I first consider the role of the central bank in economic government as it is conventionally understood in monetary theory and policy, and what this means for thinking about the state-markets relation in the context of Libor's problematisation. I then discuss the perspectives of my interviewees (including both public and private sector actors) on the Bank of England's role in benchmark reform, which I use as the basis for a critical reading of what it means to govern by benchmark.

8.3 Benchmarks and the State: An Odd Sort of Delicacy

8.3.1 The central banking model

The modern, taken-for-granted notion of a central bank such as the Bank of England as the guardian of monetary and financial stability in an economy assumes a very specific

[7] Viviane Reding, 'Speech by Viviane Reding Vice-President of the European Commission, EU Justice Commissioner: Amended Proposal for a Directive on Criminal Sanctions for Insider Dealing and Market Manipulation' (25 July 2012) <http://europa.eu/rapid/press-release_SPEECH-12-569_en htm> accessed 22 May 2021.

model of economic government. Modern monetary regimes are typically imagined as 'an inverted pyramid, with the central bank at the apex'.[8] While most of the money in circulation takes the form of bank deposits (IOUs issued by commercial banks), in which the majority of payments are made, final settlement of all claims in the system takes place as between accounts held at the central bank.[9]

Aglietta and Mojon identify three 'rules', or conditions of possibility, for the operation of a monetary regime on the central banking model.[10] The first is the institution of a unit of account such as the Pound sterling or US dollar. Secondly, issued debts must be able to circulate as means of payment, ie as a workable currency capable of settling accounts and being exchanged for goods and services. Thirdly, settlements have to be made final.

Under this model of economic government, the central bank is 'the bank that issues the debt in which all other debts are settled'.[11] That is, the central bank is able to have its issued debts accepted in final settlement of payment obligations, *including its own*. This sovereign capacity to create the 'ultimate settlement asset'[12] is what makes the central bank the 'paramount monetary institution'[13] in a modern monetary economy –

[8] Bruce J Summers, 'The Payment System in a Market Economy' in Bruce J Summers (ed), *The payment system: design, management and supervision* (International Monetary Fund 1994) 5.

[9] Michael McLeay, Amar Radia and Ryland Thomas, 'Money Creation in the Modern Economy' (*Bank of England Quarterly Bulletin 2014 Q1*, 14 March 2014) <http://www.bankofengland.co.uk/quarterly-bulletin/2014/q1/money-creation-in-the-modern-economy> accessed 26 May 2021.

[10] Michel Aglietta and Benoît Mojon, 'Central Banking' in Allen N Berger, Philip Molyneux and John OS Wilson (eds), *The Oxford Handbook of Banking, Second Edition* (Oxford University Press 2014).

[11] Aglietta and Mojon (n 10) 432.

[12] Mark J Manning, Erlend Nier and Jochen Schanz, *The Economics of Large-Value Payments and Settlement: Theory and Policy Issues for Central Banks* (Oxford University Press 2009) 3.

[13] Aglietta and Mojon (n 10) 433.

able, uniquely, to intervene in the supply of money and to defuse crises as the 'lender of last resort'.[14] Hence, in finance theoretical terms, an IOU issued by a central bank is about as near to a 'risk-free' asset as it is possible to get.[15]

In such a system, the rate at which the central bank will lend to commercial banks (ie by setting the price of the ultimate settlement asset) is a powerful tool of monetary policy. The setting of a central bank policy rate – also commonly referred to as a 'base rate' – for interest rates in the economy – is understood to be, by definition, a political act. That is, it does not pretend to describe economic reality, at least in a conventional sense, but explicitly intervenes in it. As one of my interviewees, a monetary policymaker, put it: '[the policy rate] is what we say it is'.[16] In this way, the central bank is seen to govern the economy at a distance via what central bankers and economists call the 'monetary transmission mechanism'.[17] As the same interviewee explained:

> so what we mean by the monetary transmission mechanism is that ultimately it's the mechanism that goes from the very start, which is our own policy rate, all the way to broad macroeconomic outcomes, meaning growth and inflation. But the beginning of that chain is all about financial markets prices. So, you know, we change the overnight rate, therefore Libor changes, therefore mortgage rates change, corporate borrowing rates change…, depending on various ways in which we communicate, we might change the expectation of those things over a horizon of several quarters or even several years, and so all these things then determine whether it's going to have a big or a small effect on the economy and ultimately inflation.[18]

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[14] European Central Bank (ECB), 'What Is a Lender of Last Resort?' (*ECB*, 26 August 2019) <https://www.ecb.europa.eu/explainers/tell-me-more/html/what-is-a-lender-of-last-resort.en html> accessed 26 May 2021.

[15] Nina Boy, 'Sovereign Safety' (2015) 46 Security Dialogue 530.

[16] Interview 23455, Monetary Policymaker (UK, 2018).

[17] European Central Bank (ECB), 'Transmission Mechanism of Monetary Policy' (*ECB*) <https://www.ecb.europa.eu/mopo/intro/transmission/html/index.en.html> accessed 26 May 2021.

[18] Interview 23455 (n 16).

Form a monetary policy perspective, therefore, Libor's role in this system of economic government is as a link in the chain of transmission that sees changes in the central bank's policy rate ripple out into the interest rates charged by commercial banks for lending money to one another and, as one goes further up the 'inverted pyramid', eventually to their customers in the 'real' economy.

8.3.2 Benchmark creator of last resort

Libor's problematisation following the financial crisis of 2007-8 raised concerns over the stability and effectiveness of the monetary transmission mechanism in financialised economies. Not only did it suggest that key links in the chain might not respond consistently to the central bank's policy actions, but also that use of benchmarks such as Libor in circumstances where they are not 'fit for purpose' (that is, according to the finance theory view of benchmarks discussed in Chapter 5) could have unpredictable side-effects that cascade through the economy. That Libor is a measure of interest rates in *transnational* money markets – ie the Eurodollar market, introduced in Chapter 3 – was seen to further complicate the link between a central bank's policy rate and the domestic economy.[19]

In important ways, then, benchmark reform has the effect of reinforcing the central banking model. By definition, under this model 'near risk-free' rates such as SONIA are the closest to the ultimate 'risk-free' rate – the central bank policy rate. They

[19] BIS, 'Towards Better Reference Rate Practices: A Central Bank Perspective - A Report by a Working Group Established by the BIS Economic Consultative Committee (ECC) and Chaired by Hiroshi Nakaso, Assistant Governor, Bank of Japan' (2013) 19 <http://www.bis.org/publ/othp19 htm> accessed 30 May 2021.

form the very first link in the monetary transmission mechanism, and generally track the central bank policy rate closely.

In a post-Libor world the adoption of 'near risk-free' rates ostensibly gives the central bank greater control over the monetary transmission mechanism, since the benchmark of choice in financial products of all kinds would ideally be a reflex of the central bank's own policy rate. As a result the central bank is theoretically able to exert more direct influence via its monetary policy tools over the markets measured by these rates than those measured by Libor.

When added to the post-crisis financial stability mandate of the Bank of England and other central banks, these monetary policy concerns help to explain the active (and activist) role of central banks in the benchmark reform discourse. Thus, central banks are the official sector convenors of the 'market-led' working groups in each of the Libor currency areas, and administrators of four of the five alternative benchmarks recommended by these groups.[20]

Overall, then, inasmuch as Libor reform reinforces and reproduces the role of the central bank as the 'paramount monetary institution' in a financialised economy, it affirms the already existing relations of power between state and markets. The impact of reform is a symbolic one. In a post-Libor world, the power of the central bank to determine financial valuations is made more conspicuous by the absence of any

[20] Excepting the replacement for Swiss franc Libor, the Swiss Average Rate Overnight ('SARON'), which is administered by a private market infrastructure company, SIX Group.

equivalent decision-making body in the private sector.[21] As a result the central bank is also a more visible guarantor of the benchmarks financial actors use in their transactions. As one former central banker I spoke to remarked: 'When it comes to it, and the system is about to fall over, you know, you're index [ie benchmark] creator of last resort!'[22]

8.3.2.1 The SOFR Surge

This new dynamic was exhibited in dramatic fashion when, in September 2019, the markets for overnight lending in the US briefly seized up. As a result, the recommended replacement for US dollar Libor, the Secured Overnight Financing Rate ('SOFR'),[23] jumped from one day to the next from under 2.5% to over 5%. By comparison, over the same period US dollar Libor barely moved.[24]

After emergency intervention from the Federal Reserve ('in its first direct injection of cash to the banking sector since the [2007-8] financial crisis, it laid out as much as $75 billion a day in temporary cash over four days'),[25] SOFR eventually stabilised. However, the so-called SOFR Surge sparked concerns over the new rate's

[21] Cf Robert C Hockett and Saule T Omarova, 'Systemically Significant Prices' (2016) 2 Journal of Financial Regulation 1, 7. 'Whoever sets LIBOR... exercises an influence comparable to that of the world's most influential central bank.'

[22] Interview 98996, Former Central Banker (UK, 2018).

[23] Federal Reserve Bank of New York, 'Secured Overnight Financing Rate Data' (*Federal Reserve Bank of New York*) <https://www newyorkfed.org/markets/reference-rates/sofr> accessed 26 May 2021.

[24] Euromoney, 'Libor Transition: Surge Pricing' *Euromoney* (2 October 2019) <https://www.proquest.com/trade-journals/libor-transition-surge-pricing/docview/2311455998/se-2?accountid=13042> accessed 25 May 2021.

[25] Liz McCormick and Alex Harris, 'What Is the Repo Market? Explaining The Rate Spike and Fed Moves' *Bloomberg* (19 September 2019) <https://www.bloomberg.com/news/articles/2019-09-19/the-repo-market-s-a-mess-what-s-the-repo-market-quicktake> accessed 26 May 2021.

credentials as a successor to Libor.[26] That the benchmark was nominally doing its job (ie measuring the 'underlying' transactions it was designed to measure) was not in question. The simple problem was that, for the duration of the surge, it was seen to be the 'wrong' rate. As one observer put it:

> Realism seems like a good feature in a reference interest rate, but I am not sure that it is essential, and to the extent that reality is messy and idiosyncratic there is something nice about abstracting away from it. If you had called banks yesterday and asked what the [overnight funding] rate ought to be, they would have said some number starting with a 2, and they would have been about right. It's reality that was wrong.[27]

In a post-Libor world, it is the central bank, rather than a panel of commercial banks, whose actions come under scrutiny when reality is 'wrong'. In place of the expert judgement of Libor panel banks an analogous set of value judgements is now implicitly asked of the Federal Reserve and other central banks in respect of Libor's transaction-based replacements: ie notwithstanding what the rate is calculated to be, is it at the 'right' level? Is it 'too' volatile? Does it give a 'true' picture?

'It may preserve SOFR, but it's a different kind of benchmark,' one analyst was quoted as saying of the Federal Reserve's action. 'It's another piece of government control over the market.'[28] Yet, among my own interviewees, I found that attitudes

[26] Shearman & Sterling, 'SOFR Surge Event: What Just Happened?!' (*Perspectives*, 18 September 2019) <https://www.shearman.com/perspectives/2019/09/sofr-surge-libor-stable-what-just-happened> accessed 26 May 2021.

[27] Matt Levine, 'Interest Rates Shouldn't Be Interesting' *Bloomberg* (18 September 2019) <https://www.bloomberg.com/opinion/articles/2019-09-18/interest-rates-shouldn-t-be-interesting> accessed 26 May 2021.

[28] John Heltman, 'What Ongoing Repo Turmoil Means for Banks' *American Banker* (3 December 2019) <https://www.americanbanker.com/list/what-ongoing-repo-turmoil-means-for-banks> accessed 26 May 2021.

towards central bank involvement in benchmark-setting were generally much more pragmatic.

8.3.2.2 Non-ideologies of reform

The most *laissez faire* view I encountered was that of a non-banker and Sterling RFR Working Group member who felt that reform should ideally be about doing away altogether with the concept of a benchmark and relying on the informational efficiency of markets.

This was an isolated perspective, however. Others, particularly those making up the 'tail' (as that designation is understood in the last chapter), had no strong ideological stance on reform. However you looked at it, benchmark reform was something done to them. 'We're price takers in the market', one regional bank treasurer explained, 'So for a small bank like [Bank name] who cares?'[29] Indeed, it was widely understood that the notion of 'market-led' reform was something of a fiction, often eliciting a wry smile when I asked about it. As the same interviewee told me:

> The idea that anything is market-led is just garbage. Nothing in 2018 to do with the banking industry, certainly in the UK, is market-led. The Bank of England, the PRA[30] and the FCA call the shots on everything, and they will tell you what to do for this, this, this and this, right down to the nth degree. ...So if they say it's market-led it suits them to say that. It's not really market-led, it's led by the regulator.[31]

[29] Interview 94866, Bank Treasurer (UK, 2018).

[30] Prudential Regulation Authority – part of the Bank of England, established under financial regulatory reforms introduced after the 2007-8 financial crisis. Bank of England, 'What Is the Prudential Regulation Authority (PRA)?' (*Bank of England*) <https://www.bankofengland.co.uk/knowledgebank/what-is-the-prudential-regulation-authority-pra> accessed 26 May 2021.

[31] Interview 94866 (n 29).

At the other end of the spectrum were those who felt that rate-setting *should* be a public responsibility. The most vocal arguments I heard in this regard came from bankers and derivatives experts whom one might expect have most to gain from being left to determine their own benchmarks. For example, one interest rates strategist for a European bank told me:

> I've yet to meet anyone, other than maybe somebody who's got some ideological axe to grind, but anyone on the business side who said, who thinks it's very important that, you know, a bunch of people who work in banks in the City set this price [the benchmark]. Central banks have a short-term rate. They have the tools and the will to set the level of very short term interest rates and any rate that doesn't have crazy distortions or a number of other risks embedded in it will follow the central bank rate very very closely, so it's not clear to me to whom it is important that, you know, the let's say 1 month rate or 3 month rate or 6 month rate but especially the overnight rate, other than the actual central bank rate, somehow is set by other people. I don't really have an answer to that. It seems strange to me. It's an odd sort of delicacy. It's, you know, if I can use a metaphor, it's like somebody that tells you what to eat, what to wear, when to go to the bathroom, who you should marry, da da da da, but then at some point says "well, it's free will, it's free will!"[32]

From this individual's perspective, thinking about benchmark reform in ideological terms is simply to ignore the realities of the central banking model in which benchmarks such as Libor are embedded. The tension between intervening and not intervening that characterises 'market-led' reform is here experienced as an 'odd sort of delicacy' with moralising overtones. In fact, my informant suggested, the natural means of accomplishing Libor reform is that the central bank should simply set the benchmark itself – or, putting it another way, that the central bank's policy rate should be adopted as Libor's replacement rather than a rate that is deliberately chosen to be *near* the policy rate.

[32] Interview 18799, Rates Strategist (UK, 2018).

8.3.2.3 Why not use Bank Rate?

The Bank of England's policy rate, Bank Rate, was considered among the early contenders to replace sterling Libor. However, it was soon discounted by the Sterling RFR Working Group because it 'did not represent market transactions and widespread use of the rate as an RFR could place an undue restriction on the future implementation of monetary policy.'[33] In other words, not only was it seen as unworkable for ideological reasons but it was also not an outcome that the Bank of England favoured on policy grounds.

Yet, the working group's own market testing revealed that for private actors evidently one of the attractions of SONIA as a replacement for sterling Libor was its 'strong correlation with Bank Rate'.[34] Several of my interviewees also agreed that a correlation with Bank Rate was a useful feature in a benchmark, although it was typically not seen as being of main significance. Many were agnostic about the issue. When I asked interviewees about why it was, then, that Bank Rate could not simply be adopted as sterling Libor's replacement, the general response was a bemused shrug. As one derivatives trader close to the reform work put it: 'no-one's ever given me a completely

[33] Sterling RFR Working Group, 'Minutes of the Working Group on Sterling Risk-Free Reference Rates - 2 June 2015' (2015) <http://www.bankofengland.co.uk/minutes/2015/rfr-june-2015> accessed 26 May 2021.

[34] Sterling RFR Working Group, 'Summary Responses to White Paper Questions' <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/summary-responses-to-white-paper-questions.pdf> accessed 26 May 2021. The White Paper in question was issued in June 2017, to invite feedback on the group's selection of SONIA as a 'near risk-free' alternative to Libor and plans for its adoption: Sterling RFR Working Group, 'SONIA as the RFR and Approaches to Adoption' (2017) <https://www.bankofengland.co.uk/-/media/boe/files/markets/benchmarks/sonia-as-the-risk-free-reference-rate-and-approaches-to-adoption.pdf> accessed 26 May 2021.

obvious answer to that question'.[35] Another interviewee, the regional bank treasurer quoted above, reflected:

> What a good question – why not? Why not, why not? If the Bank [of England] would then just publish its equivalent 3 month and 6 month rates then we'd be in – we're in business. We don't need to – excuse my French – piss around with SONIA.[36]

The only interviewees to actively doubt the logic of selecting Libor's replacement on the basis of its proximity to the central bank policy rate were former monetary policymakers. These individuals considered that the benchmark had a specific job to do as part of the workings of the monetary transmission mechanism, ie as an indicator of what is going on in financial markets.[37] As one put it: 'if you choose your key indicator because it moves in line with Bank Rate, then, you know, have you chosen the wrong indicator?'[38]

* * *

Overall, the picture that emerges from my data is that private actors want a benchmark that can be publicly or privately determined – ultimately it does not matter as long as it takes the right form. Far from being the scene of a power struggle between state and markets, those public actors, such as central banks, who are well-placed to decide the benchmark in a post-Libor world are constitutionally averse to doing so. Where they find themselves compelled to act as 'benchmark creator of last resort', it is in spite of objections that are seemingly of their own making rather than reflecting any general

[35] Interview 83009, Derivatives Trader (UK, 2018).

[36] Interview 94866 (n 29).

[37] Two interviewees expressed this view.

[38] Interview 42125, Economist (UK, 2018).

resistance from those who stand to be governed in this way. As my informant quoted above put it, it seems they have 'an ideological axe to grind' that was apparently not shared by most of the financial actors I spoke to. Another interviewee, a senior financial regulatory lawyer not directly involved in the reform work, commented:

> There are an awful lot of people in the public sector who are still really dyed-in-the wool market fundamentalists. There is now less market fundamentalism in the private sector than there is in the public sector.[39]

In the next part I consider how we might understand the particular kind of 'market fundamentalism' that is on display here and the ideas and assumptions at stake in this debate.

8.4 Real Markets Don't Just Happen

In December 2020, the BBC's annual Reith Lectures were given by the ex-Bank of England governor, Mark Carney. Under the title 'How We Get What We Value', the lectures defended the Polanyian thesis that 'we have come to esteem financial value over human value', and asserted that this problem of valuation has 'contributed to a trio of crises: of credit [ie the financial crisis of 2007-8], Covid and climate'.[40]

Carney, whose governorship of the Bank of England spanned the period of the Libor reforms from 2013 to 2020, and who also chaired the FSB for much of that period, located the root causes of the first of these crises (credit) in 'an age of disembodied

[39] Interview 97629, Financial Markets Lawyer (UK, 2018).

[40] BBC, 'BBC Radio 4 - The Reith Lectures 2020 - How We Get What We Value' (*BBC*) <https://www.bbc.co.uk/programmes/articles/43GjCh72bxWVSqSB84ZDJw0/reith-lectures-2020-how-we-get-what-we-value> accessed 26 May 2021.

finance where markets grew far apart from the households and businesses they ultimately served':[41]

> …[R]ather than being professional and open, some critical markets, such as those for bonds, currencies and derivatives, became informal and clubby. Rather than competing on merit, participants colluded online. Rather than everyone taking responsibility for their actions, few were held to account. The global financial crisis reminded us that real markets don't just happen, they depend on the quality of market infrastructure, that means both hard infrastructure, in other words the structure of the markets themselves, such as the design of financial market benchmarks, and it means soft infrastructure, like regulations, codes, and culture that govern behaviour in those markets. It's critical to get this infrastructure right because financial markets serve us all.[42]

This is a familiar form of 'public' accountability talk, as discussed in Chapter 4. As such, it also rearticulates the basic tension at the heart of Libor's problematisation. A benchmark is something infrastructural – collateral to the 'real' forces of supply and demand in financial markets. Yet, it also stands as a reminder that 'real markets don't just happen'. They depend on the affordances that a benchmark provides. It speaks to a kind of market fundamentalism that is concerned less with recovering an imagined pre-political reality and more with the creation of a world that conforms to a particular vision of what a 'real market' should look like – eg professional, open, competitive.

8.4.1.1 The neoliberal economic critique

For sociologist and political economist, William Davies, this way of thinking is characteristically neoliberal. Following Foucault, Davies argues that for early neoliberals

[41] Mark Carney, 'Lecture 2: From Credit Crisis to Resilience (BBC Transcript)' (*BBC Radio 4 - The Reith Lectures 2020 - How We Get What We Value*, 9 December 2020) 2 <https://downloads.bbc.co.uk/radio4/reith2020/Reith_2020_Lecture_2_transcript.pdf> accessed 26 May 2021.

[42] Carney (n 41) 4.

'[t]he idea and formal characteristics of a market [were] more important… than any particular institutions or historical examples of markets.'[43] The 'economic form of the market'[44] was identified with the 'competitive rituals' by which economic exchanges took place, designed to ensure that prices were spontaneously generated.[45]

Later forms of neoliberalism abstracted away still further from these institutional points of anchorage. 'Competitiveness' stopped being a structural property of markets and became a principle of social relations.[46] Today's 'advanced neoliberalism', Davies suggests, involves valorising 'unconscious decisions over conscious ones', invoking the price system as a paradigm.[47] In doing so, advanced neoliberal rationalities denigrate juridical forms of decision-making consisting in the exercise of a priori authority or jurisdiction. The basic problematic of advanced neoliberal government takes the form of an economic critique of juridical forms of power wherever they are found.

Davies develops these theoretical insights in the light of his reading of reportage on the financial crisis of 2007-8 as a way to understand contemporary financial power. As he understands it, financial power is a special case in the neoliberal project. Rather than claiming to speak as 'experts' from a position of juridical authority, the status of financial 'elites' derives from their role as 'intermediaries', 'communicating what "the

[43] Davies, *The Limits of Neoliberalism: Authority, Sovereignty and the Logic of Competition* (n 1) 43–44.

[44] Michel Foucault, *The Birth of Biopolitics: Lectures at the Collège de France, 1978-79* (Palgrave Macmillan 2008) 243.

[45] Davies, *The Limits of Neoliberalism: Authority, Sovereignty and the Logic of Competition* (n 1) 43.

[46] Foucault (n 44) 243; Davies, *The Limits of Neoliberalism: Authority, Sovereignty and the Logic of Competition* (n 1) ch 2.

[47] Davies, 'Elite Power under Advanced Neoliberalism' (n 1) 230–231.

markets" (or other machines) are saying, for a liberal, public audience which is otherwise excluded from such knowledge'.[48]

Davies' diagnosis resonates with the picture that emerges from my empirical data, which indicates that benchmark reform discourse is not primarily a site of struggle between state and markets. Rather, it suggests, the tensions that manifest themselves in the 'odd sort of delicacy' detected by my informant can be better understood as internal to the political programmes and rationalities of neoliberal economic government.

In particular, 'public' accountability talk speaks to a sense that financial actors – notably Libor panel banks, derivatives traders, and submitters – were behaving less like intermediaries and more like classical liberal elites, such as academics and lawyers, who exercise a public role linked to their status as experts. This epistemological leadership role was epitomised by a benchmark determined behind closed doors by the expert judgement of a privileged few. Accordingly, the 'problem' that Libor highlighted for reformers such as Mark Carney was not so much a failure of neoliberal economic government as a failure to perfect it. The real scandal for Carney and others was the persistence of anachronistic, juridical forms of power in a supposedly 'post-juridical' financial domain.

[48] Davies, 'Elite Power under Advanced Neoliberalism' (n 1) 230.

As a version of the neoliberal economic critique, therefore, the logic of benchmark reform is not to roll back financial power, as such, but to rationalise and discipline its intermediary role. As Davies argues:

> When liberal disciplines, methodologies, laws and regulations are abandoned in favour of cybernetic systems of digits, machines and prices (including those of markets), what remains is a type of elite power which interprets what is on the screen, explains what it means, converts it into narrative, but possesses no authorship or authority over it.[49]

This seems to capture well the reformist dream of a financial system governed by algorithmic benchmarks. But it also points to what is missing from Davies' account when considered in the light of my analysis of Libor's problematisation. As the discussion in Chapter 7 has shown, the stabilisation of such an effect of seamless communication depends on a set of legal techniques and practices which together constitute a benchmark such as Libor with its legitimacy in the eyes of its users and make it more 'real'. A benchmark is not an emergent property of 'cybernetic systems' but an artefact of legal knowledge constructed quite deliberately to achieve an effect – namely to realise 'the market', in precisely the abstracted economic form valorised by neoliberal thinking, as a 'given', whose authorship is forgotten.

For reformers, then, abolishing Libor is something of a hollow gesture. They know that 'real markets don't just happen'. The possibility of governing by reference to the economic form of the market relies on juridical authority to set a benchmark in place and underwrite its use. Hence, they are caught in a dilemma of their own making. With financial 'elitism' exposed, doing nothing is not an option. Yet transparently taking benchmarks into public control would make it hard to sustain the fiction of a financial

[49] Davies, 'Elite Power under Advanced Neoliberalism' (n 1) 230.

domain governed by 'unconscious' decision-making. The 'problem' for both public and private actors, alike, is that reform constantly reminds them of the odd delicacy of the roles they are required to inhabit, as neoliberal financial actors who are governed by benchmark *as if* they were governed only by themselves. I develop this analysis in the next part, where I turn to consider what it means for financial actors to be governed in this way.

8.5 Neoliberal Finance: How We Forget What We Value

As noted above, considering Davies' diagnosis of neoliberal economic government in the light of my own empirical findings in the context of benchmark reform suggests that the nature and role of contemporary financial power needs to be more finely drawn than his theorisation allows.

For example, Davies suggests that the neoliberal financial actor 'responds to technological cues without conscious reflection or discursive deliberation'.[50] However, while the financial actors I spoke to recognised the number that appeared on their screens as a true statement about the world, in doing so they recognised that what mattered was not only its 'givenness', but that it was apprehended by everyone in the same way. They were not simply 'cyborg intermediaries'[51] but reflexive about their participation in a

[50] Davies, 'Elite Power under Advanced Neoliberalism' (n 1) 241. Davies draws here on the social theory of Maurizio Lazzarato, whose Nietzschean reading of neoliberal subjectivity I discussed in Chapter 4. Maurizio Lazzarato, *The Making of the Indebted Man: An Essay on the Neoliberal Condition* (Semiotext(e) 2012).

[51] Davies, 'Elite Power under Advanced Neoliberalism' (n 1) 241.

social world. Indeed, as I discussed in the last chapter, financial actors do not make up a homogeneous 'elite' and this was something my interviewees were also well aware of.

In Chapter 4 I pointed to certain ways in which my interviewees made sense of Libor and its affordances to their activities through what I have referred to as 'private' accountability talk. Here I want to explore more closely the ideas and assumptions entailed with 'private' accountability talk, in light of the insights above and my findings relating to Libor's legal form. In doing so I draw further on my analysis of my empirical data in order to explore how my interviewees understood themselves to be governed by benchmarks.

8.5.1 It just happened to be Libor

I noted in Chapter 4 how I regularly heard from interviewees that they 'did not care' whether Libor was discontinued or what it was replaced with, as long as it was replaced with *something*. For example, describing Libor as a 'fundamental building block' for financial markets, one former trader told me: 'It doesn't matter what building block you use. It just happened to be Libor.'[52]

My interviewees' understanding of a benchmark as preceding and constituting market action in this way sits awkwardly with the idea that financial power is the power

[52] Interview 27381, Consultant – Derivatives Advisory (UK, 2018).

to perform market realities in real-time as a 'self-organizing, cybernetic system'.[53] As another interviewee, an asset manager, explained:

> There's a big distinction between what [Libor] is and what it's used for. It could just as easily be the price of sugar. What's the price of sugar? Well, that's the price of sugar. What's the rate at which I'm prepared to lend to you – the price of sugar plus 10 [pounds]. OK? It's still the price of sugar, it's now being used as a benchmark.[54]

What this individual is describing is how a benchmark acts as a placeholder for the creditor-debtor relation itself. It allows the parties to financial transactions to commensurate their promises to one another by acting as if they valued them in the same way. At the same time, the benchmark says nothing about what this common valuation should be or how it should be arrived at. As my informant put it, 'it could just as easily be the price of sugar'. In whatever way it is defined, a benchmark is a provisional fix, made to do a job pragmatically so that the actors can get on with governing themselves.

We can see how this perspective chimes with one of the two main themes of 'private' accountability talk I identified in Chapter 4 – ie the idea that the benchmark is a 'given' – which I developed further in my analysis of Libor's legal form in the last chapter. Yet, it was also clear from my interviews that the relationship between a benchmark and the valuations it produces is not simply arbitrary.

One benchmark administrator I spoke to, whose role involved managing the production and licensing of hundreds of benchmarks around the world, explained the relationship between the form of a benchmark and the valuations it produces as analogous

[53] Davies, 'Elite Power under Advanced Neoliberalism' (n 1) 238.

[54] Interview 63806, Portfolio Manager (UK, 2018).

to that between a 'box' and its contents. Ideally the 'box' should be built in a way that is theoretically sound, but it is not essential that it be so:

> Benchmarks are a funny thing, right? Because everybody would like to have a benchmark that is rooted in financial theory, right. I mean the nice thing about finance is that it's all just maths, so it should all be within a box.... With benchmarks sometimes the box is kind of artificially built… Ultimately, the important thing is that the financial community thinks it's good enough and that they have a box around it. Because as long as they stay in the box nobody loses. Right? As long as they can trade this and then against that and against this and it all belongs into the same box, even though it's a kind of an artificial box, nobody loses.[55]

The point that is illustrated so vividly by this individual is that there is nothing intrinsically 'right' or 'wrong' about the outcomes that a benchmark produces. What matters is that the world it brings into being is internally consistent. That way, 'nobody loses'. Hence by asking 'who sets the benchmark?', we are asking the wrong question. It does not matter. The point is that the judgements constituting the benchmark are immediately transformed into economic realities that are the same for everyone everywhere at the same time.

As my informant continued:

> … [The benchmark] is the standard which allows the financial system to have an anchor around which, you know, to transact in a – like I said, in this box, whether the box is right in the middle of where it should be or slightly different, the important thing is that it's within that. In a way it's similar to law, right? The law is not always perfect, but if you know what it is you can adjust your life around it. And I sometimes say, it's – you know, when somebody says "yeah, but the benchmark shouldn't be like this", I'm like "you know, the speed limit shouldn't be 70 either but I still have to adhere to it."... I would say it's not about you adhering to the rules, it's knowing that other people adhere to the rules, right? So you can trust where you cross a road with the green light, you can trust that nobody's going to run you over. And that's a little bit what the benchmarks are

[55] Interview 19051, Benchmark Administrator (UK, 2018).

> also like. It's not so much to have a price to transact on, it's the whole ecosystem that is around that and a benchmark makes that possible.[56]

There is a profoundly pragmatic sensibility on display here. This individual understood that 'real markets don't just happen' – there is a need for a benchmark in economic life in the same way as there is a need for traffic laws in a society of road users. They also understood that there are different ways of realising 'the market' in financial transactions. The justifications for these – like the justifications for a particular speed limit – are arguable. But, crucially, this perspective recognises that, once set in place, a benchmark is constituted as a technical norm, the observance of which is self-reinforcing. As my informant put it 'if you know what it is you can adjust your life around it'.

To pursue the analogy suggested by my informant, national speed limits in the UK form part of a highways code which is reviewed and updated in light of people's driving habits, scientific opinion, feedback from users, new technologies, and so on. This means that the legal speed limit from time to time is not merely an arbitrary expression of state power but a product of diverse processes of observation, comparison, and negotiation involving a range of social actors. As Ewald puts it, a technical norm is 'a measurement that expresses the relation of a group to itself'.[57]

In a similar way, a benchmark such as Libor derives its normative force not only from the statement of a rule that is binding and irreversible but also from its visible correlation with other technical norms, such as other benchmarks, economic models, accounting rules, tax treaties, pricing practices, etc. In this way, the value judgements

[56] Interview 19051 (n 55).

[57] François Ewald, 'Norms, Discipline, and the Law' (1990) 30 Representations 138, 152.

that a benchmark sets in place are first overlooked as 'givens' and then re-remembered as the measure of 'the whole ecosystem' of which it forms part. This helps to further contextualise the other main theme of 'private' accountability talk I identified in Chapter 4, namely that the benchmark is simply 'the number everybody uses'.

In sum, this analysis suggests that, for the financial actors I spoke to, the question with which this chapter began – who sets the benchmark? – was the wrong question to be asking. They understood that 'real markets don't just happen'. The economic form of the market has to be synthesised in the shape of a benchmark. Just as it takes state power to establish and enforce a speed limit on the roads, insofar as a benchmark is accepted as unarguable it is because it constitutes the judgement of a standard-setting authority (whether that of a panel of bankers or a group of technocrats) in legal form. Once the standard has been set in place, not only its use but the act of deciding it is disciplined by the manner of its observance and reproduction as a technical norm in transactions.

The root of 'private' accountability talk lies in the pragmatic appreciation that in financial transactions the best benchmark is the one that is available and will preserve 'the relation of the group to itself'. This helps to understand, for example, how it is possible to say of the SOFR Surge both that the benchmark was correct and that the value it produced was 'wrong'. The truest benchmark was that which conformed to the measure of the social world in which it was embedded, whose dimensions are cognitive (ie holding up to scientific, rational scrutiny) and affective (as reflected eg in the way in which the Surge was reported as a surprise event) –[58] but also material and aesthetic. The

[58] On the affective dimension of interest rates see further Caitlin Zaloom, 'How to Read the Future: The Yield Curve, Affect, and Financial Prediction' (2009) 21 Public Culture 245.

nomenclature of ‘surge’, ‘spike’, ‘dislocation’ etc, testify to the implicit value placed on the conformity of the rate to a status quo ante made visible in eg SOFR’s historical path, its relationship to Libor and other benchmarks, and the commensurability of contracts, systems, and accounts as part of the same ‘ecosystem’.

From this perspective, the ‘problem’ that Libor represents in the reform discourse is really two nested problematisations. The effort to deal with the first – a ‘problem’ of accountability in light of the neoliberal economic critique – reveals a second, much older problem representation: how we get what we value. The latter is the more serious for the legitimacy of the neoliberal project, precisely because it threatens to turn the question ‘who sets the benchmark?’ from a question of politics into one of political philosophy.[59] A system of financialised valuations based on pure legal technicality is the essential counterpart to an effort to govern economic life *without* the epistemic anxiety of wondering how we get what we value. For my interviewees, the whole point about a benchmark was that it meant they did not have to think about where value comes from. When my own questioning encouraged this kind of reflection, it was soon abandoned. What they wanted, simply, was measure in their transactions – a benchmark that would keep the peace by closing down debate, preventing disputes and obviating complex calculations; which accounted for change but did not disturb the status quo too much with wild fluctuations; and which could be relied on to be available and accessible from one day to the next.

A core finding of this thesis, therefore, is that the subtle power of a benchmark such as Libor has to do with a profoundly pragmatic neoliberal rationality, which

[59] Cf Davies, *The Limits of Neoliberalism: Authority, Sovereignty and the Logic of Competition* (n 1).

recognises the value of forgetting about what we value and instead getting what works. This makes Libor a very special kind of 'problem' for economic government. It figures a dilemma that dates back to the beginnings of Western thought – how to establish a common measure of value. The original and enduring 'solution' to this 'problem' takes a very familiar form – namely, money.

Below I develop the explanatory power of these insights for understanding Libor's problematisation by considering the conditions of money's emergence as the archetypal common measure. In this way, I argue that both Libor and money can be seen as historical expressions of what I refer to as the *benchmark form*.

8.5.2 The original benchmark

The theme of Mark Carney's 2020 Reith Lectures, cited in part 8.4 above, reflects a burgeoning cross-disciplinary interest in questions of values and valuation in the wake of the global financial crisis of 2007-8. The crisis prompted a bout of soul-searching from regulators, policymakers, and economists about what, and whom, financial markets are for and the extent to which the kind of value they deal in is 'socially useful'.[60]

[60] Adair Turner, 'How to Tame Global Finance' (*Prospect Magazine*, 27 August 2009) <https://www.prospectmagazine.co.uk/magazine/how-to-tame-global-finance> accessed 26 May 2021. See also eg Joseph E Stiglitz, *The Price of Inequality: How Today's Divided Society Endangers Our Future* (W W Norton & Company 2013); Thomas Piketty, *Capital in the Twenty-First Century* (Harvard University Press 2017); Mariana Mazzucato, *The Value of Everything: Making and Taking in the Global Economy* (Penguin 2018).

Carney developed his theme in a follow-up book:

> Whenever I could step back from what felt like daily crisis management, the same deeper issues loomed. What is value? How is it grounded? Which values underpin value? Can the very act of valuation shape our values and constrain our choices? How do the valuations of markets affect the values of our society? Does the narrowness of our vision, the poverty of our perspective, mean we undervalue what matters to our collective wellbeing?[61]

There tends to be a strong Aristotelian influence in much of this values discourse. For Aristotle the ability to know what things are worth was at the heart of the social bond. As he saw it, Greek society was based on exchange, making it necessary to find a way to commensurate disparate goods in a way that ensured justice between the parties to transactions.[62] In this view, the justness of economic phenomena such as prices is also linked to their contribution to preserving the community as a 'going concern', to use Karl Polanyi's words.[63]

In Carney's neo-Aristotelian reading, the 'problem' today is that financial markets have grown apart from the communities they are meant to serve, leading to a disconnect between market valuations and communal values (such as solidarity, fairness, responsibility, and resilience). What is more, '[v]alue in the market is increasingly determining the values of society'.[64]

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[61] Mark Carney, *Value(s): Building a Better World for All* (McClelland & Stewart 2021) 2–3.

[62] Aristotle, *Nicomachean Ethics* (Hackett Publishing 2014) 85.

[63] Karl Polanyi, 'Aristotle Discovers the Economy' in Karl Polanyi, Conrad M Arensberg and Harry W Pearson (eds), *Trade and market in the early empires: economies in history and theory* (Henry Regnery 1971) 79.

[64] Carney (n 61) 12.

It is not my purpose in this thesis to enter into a debate with these ideas.[65] Rather, I want to highlight one aspect of this values discourse in particular which goes unarticulated – namely the need for a communal measure of value in economic life in the form of money. This is not to suggest that contemporary debates about value are silent on the role of money – on the contrary, money is central to these debates, as I discuss in the next chapter. But the point I want to notice here is that when Carney and others talk about 'market value' what they mean is a *monetary* value. The significance of this subtle slippage becomes apparent if we consider Aristotle's reflections on economic matters, at a time when the Western institutions of the market and of money were still embryonic.

In principle, Aristotle considered, true commensurability in economic exchanges was impossible. But the problem could be solved pragmatically; hence the existence of money:[66]

> It is for this purpose that money has been introduced and becomes a sort of mean. For since it measures everything, it also measures excess and deficiency and how many shoes are equal to a house or food. Just as builder is to shoemaker, then, so must such and such number of shoes be to a house or food. For if this does not happen there will be no exchange and no community. And it will not happen unless the things in question are in some way equal.[67]

[65] A burgeoning field of valuation studies post-2007/8 financial crisis brings together critical social science perspectives on the 'problem' of valuation. Universitetet i Linköping, *Valuation Studies [Electronic Resource]*. (University Electronic Press 2013) <https://valuationstudies.liu.se/> accessed 27 May 2021.

[66] In developing this reading I found it helpful to draw on Francois Ewald's consideration of Aristotle's thinking about justice, which also highlights the analogy between money and law. Francois Ewald, 'The Law of Law' in Gunther Teubner (ed), *Autopoietic Law - A New Approach to Law and Society* (De Gruyter 1987) 48.

[67] Aristotle (n 62) 85.

To the Aristotelian way of thinking, this novel institution of money is a kind of fiction:[68] a provisional answer to the philosophical problem of the common measure. As such, money does not have value except that which we attach to the 'need' for it; this shared need therefore being the 'one thing … which binds everything together'.[69] If there was no community and no exchange there would be no need for money:

> But as a sort of exchangeable representative of need, money came into existence on the basis of convention and is called "money" [*nomisma*] because of this, because it exists not by nature but by conventional law [*nomos*], and changing it or rendering it useless is up to us.[70]

If money facilitates commensuration, then, it is not because it 'represents' what things are really worth but because it bypasses such philosophical questions in order to allow exchanges to happen. Money, in other words, is the original benchmark form.

This is not to suggest that a modern-day benchmark such as Libor has to do with Aristotelian justice, any more than it is to claim that Athenian money was thought of as a financial asset. The argument I want to defend in this thesis is that both money and Libor are historical expressions of the benchmark form: a means of realising a common measure of value in economic life. Rather than 'solving' the vexed political and philosophical dilemmas entailed with questions of valuation, it is a certain way of acknowledging and getting past them.

I develop this argument below by examining more closely the historical conditions in which the institution of money emerged in Ancient Greece, drawing for this

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[68] Cf Nigel Dodd, *The Social Life of Money* (Princeton University Press 2016) 6.

[69] Aristotle (n 62) 86.

[70] Aristotle (n 62) 86, brackets in the original.

purpose on Foucault's genealogical reading of those events. In doing so, I show how Foucault's analysis of the discourses and practices constituting the invention of money in the West map onto key features of Libor's problematisation as I have analysed them.

8.5.3 Money, measure, law

While Aristotle talks about the emergence of money in rather vague terms, Foucault traces this historical development to the effects of socio-economic crisis in Greece (eg debt, war, land redistributions, food shortages) in the seventh and sixth centuries BC. The existing archaic order, he argues, was characterised by a direct link between wealth and power, underwritten by the justice of the gods.[71] In the wake of the crisis, a new discourse of measure emerged: 'an immense social and polymorphous practice of assessment, quantification, establishing equivalences, and the search for appropriate proportions and distributions'.[72] The invention of money established a form of measure which allowed for debts to be settled, bondage avoided, distributions to the poorest, and, equally, levies on the richest.

In this way, Foucault argues, the invention of money was accompanied by the emergence of new juridical forms. A system of monetary payments and reparations based on measure demanded a system of dispute resolution in which the practice of justice was linked to a new kind of 'memory' of the cycles of payments and the returns due. That is, it was no longer based on rank or status or observance of secret religious rites but a 'visible, ascertainable, measurable' truth, 'compliant with laws similar to those governing

[71] Michel Foucault, *Lectures on the Will to Know: Lectures at the Collège de France, 1970-1971, and Oedipal Knowledge* (Picador 2014) 160.

[72] Foucault (n 71) 134.

the order of the world' (*nomos*), to which everyone in society could now gain access through knowledge, ie by knowing the true measure of things.[73] The interplay between money-measure (*nomisma*) and law-order (*nomos*) underpinned the emergence of the Greek city-state or polis, whose institutions (the citizen's Assembly, the official calendar, writing) and social spaces (the public square, the tribunal) were elements in a new discourse of governing by truth, which, Foucault argues, remains largely intact in Western societies today.

For Foucault, then, money and law are co-produced as part of the same discourse of measure. This insight helps to contextualise key features of Libor's problematisation as I have analysed them.

8.5.3.1 A crisis of measure

If money and law were co-created in the wake of class conflict as part of a new template for Greek society, benchmark reform discourse emerges at a moment of crisis afflicting the creditor-debtor relation in modern financialised societies. As I showed in Chapter 4, Libor's problematisation since the global financial crisis of 2007-8 threatened the legitimacy of financialised valuations, making them appear as mere effects of power.

In the Greek polis, the justice of monetary settlements and reparations was made visible through a legal discourse of proportionality and moderation, backed by technological supports such as writing that allowed people to 'remember' the truth of their relationships. In Libor's case, the 'memory' it constitutes for financial actors – which reformers have gone to such lengths to preserve – is that of how to know the value

[73] Foucault (n 71) 228.

of their promises, by revealing them in their regularity and conformity to the world on screen.

In each case, the truth constituted by the benchmark form is a 'given': there is nothing 'behind' it but the will to sustain and preserve the social world which it underpins and of which it is an expression. Hence, for Foucault, the discourse of measure-money-law on which the Greek polis was founded did not mean that the old link between wealth and power was thereby broken; rather it was regularised and restaged in a manner that was socially and politically acceptable. The institution of money enabled the justice of measure to prevail in economic relations, but it left political power in the hands of the wealthy. At the same time, by revealing the rightful order of things, the discourse of law and order promised to usher in a new era of political accountability, but this effect, Foucault says, was merely a 'fiction'. Even where some political power was redistributed in the form of citizens' rights, it 'reproduce[d], relay[ed], and institutionalize[d] economic inequalities' (eg by poll tax classes), thus legitimising and entrenching the status quo.[74]

Today, there could hardly be a clearer demonstration of the Aristotelian 'need' for a common measure than the colossal investments – financial, political, and intellectual – that have gone into Libor's problematisation since the financial crisis of 2007-8. But, as I have shown in this thesis, the goal of reform is ultimately to preserve and stabilise the network of creditor-debtor relations that Libor underpins. Rather than sharing out political power over how, and for whom, financial markets work, the effect of the 'market-led' approach to reform is to legitimise the neoliberal financial order, minimising

[74] Foucault (n 71) 161.

'wealth transfers' and underwriting the social hierarchy in financial markets, which sees the power of certain groups, such as banks and derivatives practitioners, largely maintained. It is still these financial actors whose voices are loudest in 'market-led' working groups, whose economic-scientific discourse counts for understanding how benchmarks should be used, and whose activities mediate the realisation of 'the market' in economic form.

8.6 Conclusion

In this chapter, I set out to explore what it means to govern, and to be governed, by benchmark. In doing so I have also considered the second question in the WPR framework: What presuppositions or assumptions underlie this representation of the 'problem'?

I first showed how scholarly understandings of Libor's problematisation as the scene of a struggle between state and markets did not seem to fit my data. In a post-Libor world, the role of 'benchmark creator of last resort' is conspicuously assumed by the central bank. However, my private sector interviewees were generally sanguine about the prospect of a central bank setting the benchmark, while central bankers themselves are more circumspect about taking on that role.

Drawing on William Davies' reading of the ideas and assumptions characteristic of neoliberal thought, I have argued that this curious counterposition is the effect of tensions internal to neoliberal economic government itself. Simply put, the neoliberal ideal of a rational financial order modelled on 'unconscious' market forces depends on the exercise of 'conscious' juridical authority for its realisation. To govern by benchmark is to maintain the legal fiction that financial actors are governed only by themselves.

As I have also shown by reference to my interviews with financial actors, being governed in this way evinces a deeply pragmatic stance. Transacting by reference to an interbank rate of interest is one way to realise the economic form of the market, which has come to seem natural and necessary in a financialised society. But there are others that would be equally acceptable practically, if not philosophically or politically. A benchmark is a placeholder that obviates these considerations for the time being. Moreover, in whatever way the benchmark is defined, and whoever decides it, the arrangement of wealth and political power that it sets in place contains the 'memory' of a stable compromise, against which the economic outcomes it produces can be evaluated.

Overall, the discussion in this chapter has defended the argument that benchmark reform discourse figures an age-old dilemma: how to establish a common measure of value. I have argued that the shape of this 'problem' is a legacy of the invention of the original benchmark form: money. This analysis leaves open two related questions/ themes. First, it highlights an apparent convergence between the questions with which this thesis is concerned and a broader set of questions about the role of money in economic life. Secondly, if both money and Libor are historical expressions of the same benchmark form, how do they co-exist today? Taken together, these questions invite a closer consideration of how the neoliberal style of governing by benchmark has come about. That is to say, it means situating Libor's problematisation in benchmark reform discourse in the context of a longer historical arc in order to understand how the rate of interest has become the *sine qua non* of economic life in financialised societies. I address these questions and themes in the next chapter.

9. The Measure of Money: A Genealogy of the Benchmark Form

9.1 Overview

In this chapter I take my insights thus far into Libor's problematisation and its animating ideas and assumptions, and trace their historical antecedents. Picking up on the analytical themes discussed in Chapter 8, I argue that Libor's problematisation can only be grasped if we understand that the benchmark form has its own history, distinct from that of money or law but linked to their interrelationship as foundational elements in a longstanding discourse of measure in economic life. By disentangling this discourse from the political discourses and rationalities in which it has historically been embedded I address the third question in the WPR sequence: How has this representation of the 'problem' come about?

Consistent with my core research strategy to understand Libor's role in economic government in the Foucauldian sense I attribute to that term – ie as *liberal* government – my genealogical inquiry focuses on how money has entered into liberal economic thinking since the eighteenth century. In particular, I analyse how debates about how money should be managed have shaped and reshaped the appearance, institutions, and meanings of liberal money. While my primary focus is the UK, liberal attitudes to money over this period have been strongly influenced by its evident capacity to cross borders, and hence I also engage with relevant debates taking place elsewhere, especially in the US.

Drawing on the work of Austrian economist, Joseph Schumpeter,[1] I first sketch a brief outline of the battle of ideas that characterises liberal thinking about money. Ideological struggles over money have been a structuring feature of the forms of economic government I discuss in this chapter.

Parts 9.3 to 9.5 consider how these struggles took a particular shape in three historical moments: first, the early controversies over the role of the Bank of England and the institution of the gold standard in Britain during the early nineteenth century; secondly, the collapse of the gold standard during the early twentieth century and the Keynesian interregnum prior to the establishment of a new international monetary order after the Second World War; and thirdly, the dissolution of this postwar order in the early 1970s, marking the start of the era of financialisation. I base my analysis on the writings of key thinkers, such as John Maynard Keynes and Milton Friedman, as well as relevant secondary literature.

The discussion of these historical examples illustrates how periods of crisis and flux in monetary representation are moments when economic government is mobilised towards securing the benchmark form. What is distinctive about contemporary neoliberal societies, I argue, is that money's capacity to create measure in economic life is literalised and adapted as a tool of government. In part 9.6, I show how, over the past half century, a style of governing has emerged which works by obviating debate about the measure of money through a technical discourse of the rate of interest, of which Libor and other benchmarks form part.

[1] Joseph A Schumpeter, *History of Economic Analysis* (Routledge 2006).

9.2 Theories of Money

Ideas about the nature of money and its role in social and economic affairs have a long and contested history in the West. In his magnus opus of economic history, Schumpeter distinguishes two main theoretical approaches – 'real' and 'monetary' analysis – which I use in this chapter as a heuristic for considering the general arc of liberal thinking about monetary issues.[2]

The first, which Schumpeter attributes to Aristotle, views money as transparently representing the value of other things:

> Real Analysis proceeds from the principle that all the essential phenomena of economic life are capable of being described in terms of goods and services, of decisions about them, and of relations between them. Money enters the picture only in the modest role of a technical device that has been adopted to facilitate transactions… Thus money has been called a "garb" or "veil" of the things that really matter, both to households and firms in their everyday practice, and to the analyst who observes them. Not only *can* it be discarded whenever we are analyzing the fundamental features of the economic process but it *must* be discarded just as a veil must be drawn aside if we are to see the face behind it.[3]

For Schumpeter, this view of money goes hand in hand with a 'metallist' perspective.[4] In a world where money is analytically invisible, its functions as medium of exchange are performed by a commodity such as gold or silver whose own exchange value constitutes the value of money.[5]

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[2] Schumpeter (n 1) ch 6.

[3] Schumpeter (n 1) 277.

[4] Schumpeter (n 1) 63.

[5] Schumpeter further distinguishes between 'theoretical metallism' and 'practical metallism'. The former holds that money has to consist of a commodity as a matter of logic, while the latter sees it as a matter of convention. Schumpeter (n 1) 288–89.

By contrast, monetary analysis insists that money has economic effects which must be accounted for in their own right.[6] It is often linked to an antimetallist or 'cartalist' perspective.[7] Cartalist theories hold that money is purely conventional.[8] Its value is not intrinsic but derives instead from its acceptance by a juridical authority, such as the State, in settlement of payment obligations. For example, Ingham argues: 'Money is a form of sovereignty and as such it cannot be understood without reference to an authority'.[9]

The historical fact – until recently – of monetary exchange based on a metallic standard means that in reality these positions line up along a continuum, sometimes with little to choose between them. Nevertheless, the distinction between real and monetary analysis is useful in establishing a general historical outline. While real analysis provided the dominant framework for economic thinking about money until well into the twentieth century, and continues to exert a hold over economic theory,[10] monetary analysis has entered the mainstream over a period in which banks and credit have become familiar features of economic life.

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[6] Schumpeter (n 1) 277–78.

[7] The term cartalism (or 'chartalism') derives from the work of the nineteenth century German economist, Georg Friedrich Knapp, for whom money is analogous to a token or ticket – Knapp uses the term 'charta' in Latin – which derives its value by virtue of official edict or convention. Randall Wray, 'From the State Theory of Money to Modern Money Theory: An Alternative to Economic Orthodoxy' in David Fox and Ernst Wolfgang (eds), *Money in the Western Legal Tradition: Middle Ages to Bretton Woods* (Oxford University Press 2016) 632–33.

[8] Ironically, Aristotle is also claimed as a cartalist for this reason. Filippo Cesarano, 'The Puzzle of Metallism: Searching for the Nature of Money' (2014) 46 History of Political Economy 177, 182.

[9] Geoffrey Ingham, 'The Nature of Money' (2004) 5 Economic sociology: European Electronic Newsletter 18, 25.

[10] See eg John N Smithin, *Controversies in Monetary Economics* (Rev ed, Edward Elgar 2003) 3: 'almost all mainstream economic theory, from the time of Adam Smith onwards, has been oriented to real rather than monetary analysis'.

The tension between these competing perspectives was instrumental in the emergence of monetary management as a distinct policy field beginning in the nineteenth century. However, as I show below, the conditions for this shift can be traced back further still to the creation of the Bank of England.

9.3 A Quiet Revolution: Central Banking under the Gold Standard

The Bank of England is a creature of revolution. Its establishment in 1694 at the centre of a 'Financial Revolution' followed the constitutional upheaval of the end of the seventeenth century – the so-called Glorious Revolution – which saw Parliament circumscribe royal power and assert control over fiscal matters.[11] Originally chartered on a provisional basis to manage the national debt and war finances, the Bank of England was then no more than 'a private institution with privileges', which included a monopoly over issuing its debts as money (ie Bank notes) in London.[12] It gradually assumed a permanent and 'public' role as commercial banking developed within a system in which Bank notes were the dominant circulation.[13]

There was no corresponding revolution in monetary thinking, however. Coins continued to be 'the prototype of money'.[14] For classical liberal economists, such as

[11] PGM Dickson, *The Financial Revolution in England: A Study in the Development of Public Credit, 1688-1756* (Routledge 2017).

[12] Arie Arnon, *Monetary Theory and Policy from Hume and Smith to Wicksell: Money, Credit, and the Economy* (Cambridge University Press 2010) 73.

[13] Christine Desan, *Making Money: Coin, Currency, and the Coming of Capitalism* (Oxford University Press 2014) 320.

[14] Desan (n 13) 336.

Adam Smith, paper money 'represented' metal.[15] It was assumed that market forces would ensure a self-regulating circulation insofar as there was one to one convertibility between paper money and gold or silver.

9.3.1 The Bullionist Controversy

The unique status of the Bank of England presented something of an anomaly for theorists in the classical mould. On the one hand, the Bank was a private actor, chartered as a profit-making enterprise; on the other hand, as a monopoly issuer of notes and keeper of the nation's largest bullion reserves, the Bank wielded considerable discretion over monetary affairs.[16] As Knafo observes:

> Critics of this semi private institution complained that private interests were threatening to subvert the 'public' responsibilities of the Bank. They repeatedly accused the Bank of either issuing too many banknotes, thus fuelling speculation, or inversely of failing to act as lender of last resort thus provoking crises.[17]

Controversy over the Bank's role came to a head at the end of the eighteenth century, when, with Britain at war with France and facing a nationwide bank run, the Bank suspended the convertibility of its notes into gold. For over two decades the English money of account in effect conformed to a cartalist theory of money.[18]

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[15] David Laidler, 'Adam Smith As a Monetary Economist' (1981) 14 The Canadian Journal of Economics / Revue canadienne d'Economique 185; Desan (n 13) 385; Arnon (n 12) ch 3.

[16] Arnon (n 12) 73.

[17] Samuel Knafo, 'The Politics of Liberal Financial Governance and the Gold Standard' (2013) 18 New Political Economy 43, 56.

[18] From 1797 to 1821, a period known as the Restriction.

During this period, the issue of convertibility was centre stage in a series of debates in Parliament and in pamphlets between those in favour of a return to full convertibility between Bank notes and gold (known as Bullionists) and those defending inconvertibility and arguing for a distinct public policy role for the Bank of England. When, in 1821, convertibility was finally restored, it marked not a reversion but a sea change in monetary thinking.

The Smithian vision of a money governed by 'real' market forces remained the rhetorical ideal but, in a system in which paper money dominated the circulation, public control over the Bank of England was seen as crucial to monetary stability. Linking the value of Bank notes to that of gold coin would discipline the Bank's note-issuing and restrain its influence over the money supply by effectively installing the cross-border trade in bullion as an 'external touchstone of value', notionally beyond the control of both the State and the banks.[19] The resulting configuration of ideas, practices, and institutional arrangements, known as the gold standard, was widely adopted around the world during the course of the nineteenth century.

9.3.2 The triumph of laissez faire?

Against traditional understandings of the gold standard as a pillar of *laissez faire*,[20] more recently scholars of monetary history such as Samuel Knafo and Christine Desan have

[19] Desan (n 13) 411. Desan notes that in practice the value of gold bullion was a function of its use as coin.

[20] See eg Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Beacon Press 2001).

argued that the gold standard shaped the emergence of a more concerted form of monetary management.[21]

During the middle of the nineteenth century, a series of legislative measures sought to ensure that the Bank of England fulfilled the public role demanded of it under the gold standard regime,[22] while the Bank itself developed new techniques to mitigate the increasing demands placed on it. Among these was the practice of 'manipulating'[23] Bank Rate as a means of acting on the market and defending the Bank's gold reserves, which became increasingly important as the gold standard was adopted more widely internationally, leading to competition between central banks and pressure on supplies of bullion.[24]

By the close of the nineteenth century, the Bank of England had accepted its role as 'pivot and…basis' of 'an immense system of credit'.[25] The outline of the modern central bank was taking shape, at this stage with the main aims of maintaining convertibility and defusing financial crises. Yet, this new interventionism was legitimised by reference to a still dominant *laissez faire* ideology. In effect, Knafo argues,

[21] Samuel Knafo, *The Making of Modern Finance: Liberal Governance and the Gold Standard* (Routledge 2013); Samuel Knafo, 'The Gold Standard' in Gareth Dale, Christopher Holmes and Maria Markantonatou (eds), *Karl Polanyi's Political and Economic Thought* (Agenda Publishing 2019); Desan (n 13).

[22] For example, note issue was eventually centralised in the hands of the Bank of England by law in 1844.

[23] Perry Mehrling, 'Mr. Goodhart and the EMU' in Stephanie Kelton and Edward J Nell (eds), *The State, the Market, and the Euro: Chartalism Versus Metallism in the Theory of Money* (Edward Elgar 2003) 32.

[24] Knafo, 'The Politics of Liberal Financial Governance and the Gold Standard' (n 17) 57.

[25] Walter Bagehot, *Lombard Street: A Description of the Money Market* (Kegan Paul, Trench, Trübner 1892) 68.

modern central banking and the gold standard were co-produced as part of the same discourse of 'market-led governance'.[26]

In this sense, contemporary debates about Libor's 'public' accountability replay a debate that is as old as the Bank of England itself, and which has shaped the institutions and mechanisms of monetary policy with which we are familiar today. At its core is the same 'problem' of how to get what we value in economic life by accounting for the measure used in economic exchanges.

For classical liberals coming to terms with the erosion of the old certainties of metal money by a new system of credit money, the new arrangements had to be accounted for in a way that was consistent with the principles of *laissez faire*. Yet, the new system depended on the State as the ultimate guarantor of the promises that circulated as credit money. As the 'pivot and basis' of this style of economic government, the Bank of England was the embodiment of its contradictions – the 'solution' for which was to reinforce the Bank's role while still evoking the traditional metallic standard in the form of the condition of legal convertibility. For nineteenth century monetary reformers: 'money might be a public practice, but it should be managed as if private incentives alone "made money."'[27]

Understood in this way, the gold standard is a reiteration of the benchmark form. It is a way of acknowledging the 'problem' of realising a common measure of value in economic life and moving past it in a way that is socially and politically acceptable and which stabilises and carries forward the existing template for distributing wealth and

[26] Knafo, *The Making of Modern Finance* (n 21) 7.

[27] Desan (n 13) 403.

power in society. However, the 'solution' it provided was only provisional. As I show below, during the twentieth century both the 'problem' and its 'solution' took a different form as the role of the central bank was reimagined as part of a more 'active'[28] kind of monetary management.

9.4 The Keynesian Economy: Money as Politics

The gold standard regime faltered and then finally collapsed after the crises of the First World War and the Great Depression that followed the Wall Street crash of 1929. But the tensions and contradictions of the Bullionist debates had re-emerged long before that. By the turn of the twentieth century, the reiteration of the classical orthodoxy as part of a new scientific discourse – that of neoclassical economics – led to its refinement and recalibration in ways that tended to undermine key assumptions, and with them the gold standard itself.[29]

9.4.1 A new orthodoxy

An early pioneer of the new thinking was Swedish economist Knut Wicksell who sought to put orthodox ideas about money onto a more scientific basis.[30] Rejecting the received wisdom that the main determinant of prices was the market value of gold, Wicksell postulated the existence of a 'natural' rate of interest, which corresponds to the equilibrium state that is assumed to obtain under 'real' market conditions. In principle,

[28] Arnon (n 12).

[29] David Laidler, *The Golden Age of the Quantity Theory* (Princeton University Press 2014).

[30] Knut Wicksell, *Interest and Prices (Geldzins Und Güterpreise): A Study of the Causes Regulating the Value of Money* (Published on behalf of the Royal Economic Society by Macmillan and Co, Limited 1936).

the natural rate theory restates the real analysis view of money as neutral and inessential to economic activity. However, by decentring gold, it gave 'intellectual respectability'[31] to the idea of an actively managed monetary system.

Arguably the most influential voice in debates about what such a system should look like was that of John Maynard Keynes, a prominent critic of the gold standard. Like Wicksell, Keynes advocated a discretionary monetary policy based on a paper standard determined by government fiat. But he arrived at this prescription by a different analytical route, with a different conception of the rate of interest.[32]

For Keynes, money is never simply incidental to 'real' productive activities. Rather, he argues, money is valued for its own sake – precisely (and only) because it can be converted instantly into other things, a capacity he defines as 'liquidity'.[33] Consequently, both the supply of money through the banking system and people's appetite to hold wealth in the form of money instead of consuming or investing in other things can be acted on by setting the central bank rate of interest. Rather than being a neutral 'veil' for market forces, money animates the 'real' economy, 'reversing the usual direction of causality' in economic thinking.[34]

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[31] Laidler, *The Golden Age of the Quantity Theory* (n 29) 155.

[32] Keynes' writings over the years evince different perspectives on the rate of interest, and the differences between his and Wicksell's views can be overdrawn. In his 1930 *Treatise on Money* Keynes himself paid tribute to Wicksell's theory as [i]n substance and intention… closely akin… to the theory of this treatise…'. John Maynard Keynes, *The Collected Writings of John Maynard Keynes. Volume 5: A Treatise on Money - The Pure Theory of Money*, vol 5 (Elizabeth Johnson and Donald Moggridge eds, Royal Economic Society 1978) 167.

[33] John Maynard Keynes, *The Collected Writings of John Maynard Keynes. Volume 7: The General Theory of Employment, Interest and Money* (Elizabeth Johnson and Donald Moggridge eds, Royal Economic Society 1978) ch 13.

[34] Smithin (n 10) 109.

Keynes' ideas illustrate the rise of monetary analysis as I understand it here. Crucially, they suggest that controlling the value of money via the rate of interest set by the central bank is not only possible but good economic government. Between Wicksell and Keynes the rate of interest moves from being a special kind of price to a core technology for managing the economy.

9.4.2 Conserving liberal values

The conceptual shift described above did not come about in a vacuum. It was accompanied and reinforced by a profound reconfiguration of the subjects and objects of economic government in the wake of the collapse of the gold standard regime. A statistical revolution during the interwar years saw the development of macroeconomic techniques for modelling economic aggregates on a national level.[35] Indeed, for Mitchell, the invention of 'the economy', understood as a quantifiable self-contained totality coextensive with the nation state, can be traced to this period of crisis in monetary representation.[36]

9.4.2.1 Modelling the economy

Citing economic historian, Philip Mirowski,[37] Mitchell suggests that we understand the twentieth century turn to economic model-building as part of economists' longstanding aspiration to make their discipline more like physics. Mirowski argues that, as well as

[35] Patinkin, D. (1976). Keynes and Econometrics: On the Interaction Between the Macroeconomic Revolutions of the Interwar Period. *Econometrica, 44*(6), 1091-1123.

[36] Timothy Mitchell, 'Fixing the Economy' (1998) 12 Cultural Studies 82, 88.

[37] Philip Mirowski, *More Heat than Light: Economics as Social Physics, Physics as Nature's Economics* (University Press 1989).

appropriating terminology (eg equilibrium, inflation) neoclassical economic theorists were engaged in a search for a natural law that conserves economic value in exchange – similar to the law of conservation of energy in physics, which determines that the energy in a closed system cannot be created or destroyed, only change form. Without such a 'conservation principle', causal explanations (eg of motion) are impossible.

The 'problem' of value conservation through time, as Mirowski analyses it, points to the manner in which the benchmark form constantly resurfaces in liberal economic thinking in different guises. The search for a 'substance theory of value', as he puts it, seems to epitomise the ideological tensions that were reproduced in the form of the gold standard:

> the classical quest for the natural invariant substance of value; the insistence that money cannot be that natural substance; then the begrudging resignation in the fact that the actors persist in treating money as if it were the substance of value…; and the belief that an analyst could mathematically construct an artificial invariant value substance.[38]

The twentieth century 'discovery' of the economy as a dynamic, self-contained system becomes intelligible in this light as a way of trying to account all over again for the role of money in economic relations after the disintegration of the gold standard. The contradictions in liberal economic thinking were thereby also exposed once again, since, I argue, what is 'conserved' in the institution of money is not economic value, as such, but the assurance of *measure*.

[38] Mirowski (n 37) 209.

9.4.2.2 The Keynesian subject

These contradictions were immediately manifested in a bifurcation between the research agendas of the new macroeconomics and traditional neoclassical economics. Whereas the latter was focused on the search for a new way of theorising value as an effect of market forces, Keynesian macroeconomics was more concerned with steering the economy as a dynamic whole.

In this respect, the rate of interest had a key role to play. As a 'highly conventional' phenomenon,[39] the rate of interest was the means by which money could be harnessed to public policy goals, compensating for what Keynes saw as the inability of economic actors to prevent their immoderate impulses or 'animal spirits'[40] from affecting valuations.

This meant that determining the right rate of interest in an economy called for a certain kind of politics, and a certain kind of public decision-maker. As sociologist, Ute Tellmann, observes in her genealogy of liberal governmentalities, the Keynesian economic expert is part statesman, part craftsman, able to mix practical knowhow with the thoughtful and bold use of judgement.[41] This figure of the economist-expert is the

[39] Keynes (n 33) 203.

[40] Keynes (n 33) 161–2.

[41] Ute Tellmann, *Life and Money: The Genealogy of the Liberal Economy and the Displacement of Politics* (Columbia University Press 2018) 181–86.

correlative of what Tellmann calls a politics of 'giving measure':[42] As she puts it, quoting Keynes:

> A measure was to be set that "appeals to public opinion as being reasonable and practicable and in the public interest, rooted in strong conviction and promoted by an authority unlikely to be superseded."[43]

The highwater mark of these politics of giving measure came with the agreements reached between the Allied powers towards the end of the Second World War to regularise the post-war international monetary order, of which Keynes was one of the main architects.

9.4.3 Bretton Woods and the politics of measure

The so-called Bretton Woods framework[44] was based on an exchange rate system in which national currencies were convertible in a fixed relation to the US dollar, and the dollar to gold; a new institutional architecture, in which the International Monetary Fund ('IMF') was established as overseer and administrator of a system of reserves; and capital controls to secure the boundaries of the national economy against destabilising inflows and outflows of money.

The new framework established a basis for international monetary cooperation in a post-gold standard, post-conflict era in which the measure of money was no longer required to be justified by a 'substance theory of value' but by political authority alone.

[42] Tellmann (n 41) 182.

[43] Tellmann (n 41) 189, quoting Keynes (n 33) 203.

[44] So named after the 1944 United Nations Monetary and Financial conference held at Bretton Woods, New Hampshire, US.

In an influential framing in international political economy scholarship, John Ruggie analyses the basis of this authority as 'a fusion of power and a legitimate social purpose'.[45]

Yet, as Best argues, the political and monetary arrangements that Bretton Woods established were a 'technical fix'.[46] Rather than reflecting an 'embedded liberalism',[47] the agreement eventually concluded between the powers was a study in ambiguity that owed much to legal technique.[48] Even the form it took was a legal compromise: not a binding intergovernmental treaty but a 'Final Act' nominally constituting a minute of the proceedings of the conference and obviating the need for formal ratification.[49]

In this sense, Bretton Woods constitutes a placeholder in the same way I have proposed we think of Libor and the gold standard – a technical fix whose role is not to resolve the philosophical entanglements of money and value but to provide a measure that allows economic exchanges to take place *as if* it did. In form, the agreements resolved the crisis of monetary representation precipitated by the demise of the gold standard by giving shape to a new liberal consensus based on shared norms of multilateralism and domestic economic autonomy. However, in effect, they reproduced

[45] John Gerard Ruggie, 'International Regimes, Transactions, and Change: Embedded Liberalism in the Postwar Economic Order' (1982) 36 International Organization 379, 382.

[46] Jacqueline Best, 'Hollowing out Keynesian Norms: How the Search for a Technical Fix Undermined the Bretton Woods Regime' (2004) 30 Review of International Studies 383.

[47] Ruggie (n 45).

[48] Jacqueline Best, *The Limits of Transparency: Ambiguity and the History of International Finance* (Cornell University Press 2005).

[49] LS Pressnell, *External Economic Policy Since the War. Vol 1: The Post-War Financial Settlement* (HM Stationery Office 1986) 169.

the main features of the political and economic status quo based on US hegemony and the continuing cachet of gold.

9.4.3.1 Losing the peace

By the end of the Second World War, the US held two thirds of the world's gold reserves and was a net creditor to the rest of the industrialised world.[50] Under the new system the US declared the value of a dollar in terms of gold. Other countries then determined the rates at which their own currencies would exchange at 'par' with the dollar, also expressed in gold. Pressured to declare their starting points, '[m]ost countries adopted their prewar dollar parities'.[51]

Thereafter, debtors (countries with a balance of payments deficit) were held to a strict discipline. They could choose to finance the deficit using their own reserves of gold or foreign currency or else by a loan from the IMF, increasingly with conditions that constrained them to implement tough domestic measures to bring the deficit down (what would be known today as austerity policies).[52] As a last resort, and with consent of other members, they could deviate from the agreement by imposing capital controls or changing the 'par' value of their currencies (ie devaluation).[53] Creditor nations did not come under the same pressure to take adjustment action, however.[54] Epitomising these

[50] Michael D Bordo and Barry J Eichengreen (eds), *A Retrospective on the Bretton Woods System: Lessons for International Monetary Reform* (University of Chicago Press 1993) 38–39.

[51] Bordo and Eichengreen (n 50) 39.

[52] Best (n 48) 102.

[53] Margaret Garritsen De Vries, *Balance of Payments Adjustment, 1945 to 1986: The IMF Experience* (International Monetary Fund 1987).

[54] Best (n 48) 102.

asymmetrical power relations was the position of the US. As the 'center country' on whose currency the system was based, it was effectively able to put its domestic priorities first.[55]

By the 1960s, efforts by the Kennedy and Johnson administrations to avoid unpopular adjustment actions and finance a persistent balance of payments deficit by attracting dollar inflows and encouraging foreign central banks not to convert their dollar claims into gold were strongly objected to by other governments, which saw the US as abusing the dollar's de facto world currency role and exporting economic instability.[56] Hence, the same criticisms once levelled at the newly chartered Bank of England – of exploiting its 'private' privileges at the expense of its 'public' responsibilities – were now being levelled at the US as banker to the world.[57]

In the end, Best concludes, the Keynesian ideas behind Bretton Woods were simply 'hollowed out': 'replaced by a focus on providing functional solutions to technical problems'.[58] But this is to underline the point that, as I have argued, the benchmark form is the counterpart of a discourse of monetary measure defined by its non-epistemological features. It is distinct from, and prior to, the political programmes and rationalities in which it is embedded and to which it gives effect from time to time. The legacy of the Keynesian politics of giving measure was a different one: a style of governing in which

[55] Michael D Bordo, 'The Imbalances of the Bretton Woods System 1965 to 1973: U.S. Inflation, the Elephant in the Room' (2020) 31 Open Economies Review 195, 196.

[56] Eric Helleiner, *States and the Reemergence of Global Finance: From Bretton Woods to the 1990s* (Cornell University Press 1994) 90; Bordo and Eichengreen (n 50) 56–57.

[57] Hal B Lary, *Problems of the United States as World Trader and Banker.* (National Bureau of Economic Research 1963).

[58] Best (n 46) 403.

the rate of interest was ever more central to managing the economy. As I show below, this paved the way for a new and more radical 'solution' to the 'problem' of accounting for money.

9.5 Money and the Neoliberal Economic Critique

In 1971, US President Richard Nixon ordered the suspension of the dollar's convertibility into gold, signalling the abandonment of the liberal consensus on which Bretton Woods was nominally based. The measure of money was no longer determined on political authority but seen to 'float' in a rapidly internationalising financial market domain.

The breakdown of Bretton Woods is commonly seen as an epochal event in monetary history, marking the beginning of the end of what Dodd calls 'the era of state monopoly currency':

> States and central banks [have] struggled ever since to assert control over global flows of money being created by transnational banks and corporations that were operating in an increasingly global economy.[59]

A new set of economic, social and political realities constituted the field of action for monetary management in Western societies: a crisis of confidence in the Keynesian state, manifested in debates about governmental 'overload'[60] and distributional conflicts.[61] These went along with a new way of understanding the nation state on a world scale, delimited by new knowledge forms, such as modern international economics, for which

[59] Nigel Dodd, 'Redeeming Simmel's Money' (2015) 5 HAU : Journal of Ethnographic Theory 435, 437.

[60] Anthony King, 'Overload: Problems of Governing in the 1970s' (1975) 23 Political Studies 284.

[61] Greta R Krippner, *Capitalizing on Crisis: The Political Origins of the Rise of Finance* (Harvard University Press 2011).

the new realities were an effect of the intrinsic dynamics of private international capital,[62] and international political economy, born out of the realisation 'that international exchange was not an autonomous sphere… but was itself a product of the pulling and hauling of politics within and between countries'.[63]

Against this backdrop, the advent of the financialised era we are living through is often understood in the literature in terms of a rupture marked by the loss of monetary measure. 'How is it,' one recent collection of essays asks, 'that, in this overwhelming plethora of money and calculation, the economy seems to have lost its measure?'[64] If money is a commodity like any other, and 'floating' financialised valuations replace fixed evaluations based on gold or political authority then, as Adkins puts it:

> not only has money lost its privileged position as the universal arbiter and measure of value, but as a consequence the value of money as a value is now itself uncertain and unpredictable.[65]

Indeed, for Hardt and Negri, the emergence of the Eurodollar market and the so-called Nixon shock can be seen as twin crises heralding a new phase of capitalist accumulation.[66] As they see it, ours is a world characterised by radical immanence – a condition they refer to as being 'outside measure', which compels reflection on how

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[62] Maurice Obstfeld, 'Mundell-Fleming Lecture: International Macroeconomics: Beyond the Mundell-Fleming Model' (2001) 47, Special issue IMF Annual Research Conference. IMF Staff Papers Volume 2001 Issue 005 <https://www.elibrary.imf.org/view/journals/024/2001/005/article-A001-en.xml> accessed 27 May 2021.

[63] David A Lake, 'International Political Economy: A Maturing Interdiscipline' in Donald A Wittman and Barry R Weingast (eds), *The Oxford Handbook of Political Economy* (Oxford University Press 2008) 760.

[64] Massimo Amato, Luigi Doria and Luca Fantacci (eds), *Money and Calculation: Economic and Sociological Perspectives* (Palgrave Macmillan 2010) 1.

[65] Lisa Adkins, *The Time of Money* (Stanford University Press 2018) 122.

[66] Michael Hardt and Antonio Negri, *Empire* (Harvard University Press 2020) 266. See further the discussion in Nigel Dodd, *The Social Life of Money* (Princeton University Press 2016) 237–51.

critique itself is possible 'in the absolute horizon in which we are immersed, in a world in which values seem to have been negated in a vacuum of meaning and a lack of measure?'[67]

Yet, as I have shown in this thesis, my empirical findings indicate that benchmarks such as Libor constitute the measure of financial transactions in ways that are unproblematic for financial actors. Far from being adrift in a world beyond measure, financial actors see the truth of their relationships in the accessibility and universality of their screens, in the commensurability of disparate financial products linked to the same benchmark, and in the orderliness of calculations made on a common basis.

I argue that the key to this apparent puzzle lies in the re-emergence of a discourse of monetary measure during the Bretton Woods era in a novel form: the rate of interest. I trace this development to the tactics of a neoliberal movement at odds with itself and the Keynesian policy establishment over how to reform Bretton Woods. But before turning to these reform debates, I first situate them by showing how the emergence of the rate of interest as a new benchmark form was accompanied by a new discursive object: the Eurodollar market.

9.5.1 Strange money

During the Bretton Woods era the Eurodollar market emerged as a unique discursive object. As noted in Chapter 3, this was (and is) an offshore market for the banking of dollar-denominated deposits. Academic and policy debates continued throughout the

[67] Hardt and Negri (n 66) 386–87.

1960s and into the 1970s about its origins and role.[68] It was seen alternately as a model market 'where the theoretical assumption of "perfect information" is approximated in reality'[69] and a threat to economic stability. If domestic interest rates were low relative to the Eurodollar rate – ie what would become Libor – money would flow out of the country and into Eurodollars, exacerbating balance of payments deficits and draining reserves. High interest rates would have the opposite effect, but with consequences for domestic growth. As one commentator put it, writing in the mid-1960s: 'The monetary authorities have yet to learn, through experience, how to reassert their full control in the face of the operation of a market in which interest rates are determined by outside influences.'[70]

At the same time use of the 'Eurodollar escape valve' was a convenient foil for domestic policymakers, neutralising opposition to unpopular initiatives.[71] Eurodollar loans became an alternative means of financing payments deficits instead of using reserves or a loan from the IMF that came with onerous conditions attached. Meanwhile,

[68] See eg papers published in Princeton's Essays in International Finance Series: Alexander K Swoboda, 'The Euro-Dollar Market: An Interpretation', *Essays in International Finance, No. 64* (International Finance Section, Dept of Economics, Princeton University 1968) <https://ies.princeton.edu/pdf/E64.pdf> accessed 28 May 2021; Fred Klopstock, 'The Euro-Dollar Market: Some Unresolved Issues', *Essays in International Finance, No. 65* (International Finance Section, Dept of Economics, Princeton University 1968) <https://www.princeton.edu/~ies/IES_Essays/E65.pdf> accessed 18 May 2021; Helmut W Mayer, 'Some Theoretical Problems Relating to the Euro-Dollar Market', *Essays in International Finance, No. 79* (International Finance Section, Dept of Economics, Princeton University 1970) <https://ies.princeton.edu/pdf/E79.pdf> accessed 28 May 2021; Ronald McKinnon, 'The Eurocurrency Market', *Essays in International Finance, No.125* (International Finance Section, Dept of Economics, Princeton University 1977) <https://ies.princeton.edu/pdf/E125.pdf> accessed 18 May 2021.

[69] Eugene Versluysen, *The Political Economy of International Finance* (St Martin's Press 1981) 246.

[70] Paul Einzig, *Monetary Policy: Ends & Means* (Penguin Books 1964) 281.

[71] James P Hawley, *Dollars and Borders: U.S. Government Attempts to Restrict Capital Flows, 1960-1980* (Routledge 2016) 106.

London's emergence as the centre of Eurodollar banking was cautiously encouraged by UK authorities as mitigating the effects of capital controls on sterling.[72]

Central banks also developed their own mechanisms to alleviate strains in the Bretton Woods system and avert crises.[73] These included placing their excess foreign exchange reserves on deposit with commercial banks in London and elsewhere, thus tacitly sustaining the Eurodollar market. Estimates in the early 1960s suggested conservatively that over two thirds of the foreign currency deposits in the Eurodollar market came from official sources.[74]

The overall effect of these problematising discourses and practices is a portrait of the Eurodollar as a form of 'xenomoney' (strange money):[75] dematerialised and deterritorialised, it is 'effectively nowhere'.[76] As I noted in the last chapter, literature on Libor reflects many of the same themes by treating the creation of the Eurodollar market and Libor's problematisation as related and inevitable consequences of financialisation. In contrast, I understand the same phenomena to be effects of a pre-existing discourse of

[72] Helleiner (n 56) 83–84; Catherine R Schenk, 'The Origins of the Eurodollar Market in London: 1955–1963' (1998) 35 Explorations in Economic History 221.

[73] Margaret Garritsen De Vries, *The International Monetary Fund, 1966-1971: The System under Stress* (International Monetary Fund 1976) 14–15; Aaron Major, *Architects of Austerity: International Finance and the Politics of Growth* (Stanford University Press 2014) 38.

[74] Oscar L Altman, 'Recent Developments in Foreign Markets for Dollars and Other Currencies (Faits Nouveaux Survenus Récemment Sur Les Marchés Étrangers Du Dollar et Des Autres Monnaies) (La Reciente Evolució de Los Mercados Extranjeros Del Dólar y Otras Monedas)' (1963) 10 Staff Papers (International Monetary Fund) 48, 57.

[75] Brian Rotman, *Signifying Nothing: The Semiotics of Zero* (Springer 2016).

[76] Angus Cameron, 'Euromarket' in Barney Warf (ed), *Encyclopedia of Geography* (SAGE Publications, Inc 2010).

monetary measure through which asymmetries and imbalances in economic life are made visible and calculable *as if* by a 'view from nowhere' – ie in benchmark form.

As I show below, it was a central insight of the early neoliberal movement that this discourse of measure could be grasped and put to use as a means of opening up and intensifying the possibilities for governing economic life. As Foucault says of neoliberal economic government:

> The general form of the market becomes an instrument, a tool of discrimination in the debate with the administration. Here *laissez-faire* is turned into a *do-not-laissez-faire* government, in the name of a law of the market which will enable each of its activities to be measured and assessed.[77]

A deterritorialised financial apparatus, of which the Eurodollar market is the epitome, is necessary counterpart of this *do-not-laissez-faire* style of economic government. It permits the measure of money to be ascertained through a process of 'permanent vigilance, activity, and intervention'[78] rather than a priori judgement. Unlike gold, a Eurodollar is not an 'external touchstone of value'; it *is* a dollar, albeit one that operates beyond the State. It is not a 'natural' phenomenon but an effect of the 'pulling and hauling of politics': a market that would not exist but for the institutional structures of state money.[79] Indeed, for some early neoliberal economists, it was not really a market at all but a 'system'.[80] Its effect is to measure the utility of monetary policies against a

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[77] Michel Foucault, *The Birth of Biopolitics: Lectures at the Collège de France, 1978-79* (Palgrave Macmillan 2008) 247.

[78] Foucault (n 77) 132.

[79] Benjamin Braun, Arie Krampf and Steffen Murau, 'Financial Globalization as Positive Integration: Monetary Technocrats and the Eurodollar Market in the 1970s' (2020) 0 Review of International Political Economy 1.

[80] Fritz Machlup, 'Euro-Dollar Creation: A Mystery Story' (1970) 23 PSL Quarterly Review 221 <https://ojs.uniroma1.it/index.php/PSLQuarterlyReview/article/view/11742> accessed 8 May 2021.

standard which is neither that of a pre-political state of nature nor 'conscious' deliberation but a reflexive, positive knowledge of the costs and benefits of intervening.

From this perspective, the conditions for Libor's problematisation were laid, not in the intentional efforts of financial actors to undermine Bretton Woods or 'avoid the jurisdiction of central banks',[81] but in the contradictions of a system of state money that is required to operate *as if* it was stateless. However, as I show below, this new way of thinking and doing money was not mapped out between neoliberal thinkers and policymakers in a Bretton Woods-style summit. It was a tactic rather than a strategy, born out of disagreements that almost split the postwar neoliberal movement.

There is a vast literature treating the historical 'causes' of the Bretton Woods system's dissolution, much of it within the disciplinary fields referred to above.[82] My purpose in considering these events is not to rehearse this literature or substitute an alternative history. Rather, I want to show how certain ways of thinking about monetary measure resurface in debates about the 'problems' with the monetary arrangements presupposed and set in place by Bretton Woods, and what should be done about them. In the course of these debates the neoliberal economic critique is turned on money itself.

[81] Alexis Stenfors and Duncan Lindo, 'Libor 1986–2021: The Making and Unmaking of "the World's Most Important Price"' (2018) 0 Distinktion: Journal of Social Theory 1, 185.

[82] For an indicative overview see eg Bordo and Eichengreen (n 50); Helleiner (n 56); Best (n 48); Filippo Cesarano, *Monetary Theory and Bretton Woods: The Construction of an International Monetary Order* (Cambridge University Press 2006); Barry J Eichengreen, *Global Imbalances and the Lessons of Bretton Woods* (MIT Press 2010).

9.5.2 The 'problem' of choice

As Schmelzer notes, the question of how to reform Bretton Woods 'was the most controversial and divisive among organized neoliberals in the postwar decades'.[83] The key divide was between advocates of a return to the gold standard and those in favour of flexible exchange rates. In 1964, a neoliberal think tank known as the Bellagio group,[84] published a review of the main options for reform. The 'problem' was framed, not as a question of identifying the right monetary arrangement but as a 'problem of choice' between equally contestable alternatives.[85] Its apparently modest ambition was to analyse the sources of disagreement between monetary economists.

The Bellagio group is credited with helping to prepare the ground for the move to a 'floating' exchange rate system, first making it acceptable within neoliberal circles and then influencing policymaking.[86] It is a prime example of the protean mobilising capacities of what Mirowski calls the 'neoliberal thought collective'.[87] But, I suggest, the real insight that this gives us into neoliberal thinking about money is a different one.

The modest ambition of the Bellagio group's report belied a stance that is near Aristotelian in its grasp of the philosophical entanglements of discussions of monetary

[83] Matthias Schmelzer, 'What Comes After Bretton Woods? Neoliberals Debate and Fight for a Future Monetary Order' in Dieter Plehwe, Quinn Slobodian and Philip Mirowski (eds), *Nine lives of neoliberalism* (Verso 2020) 199.

[84] Named for the Italian lakeside retreat where the group sometimes met.

[85] Fritz Machlup, *International Monetary Arrangements: The Problem of Choice: Report on the Deliberations of an International Study Group of 32 Economists* (Princeton University Press 1964).

[86] Carol M Connell, *Reforming the World Monetary System: Fritz Machlup and the Bellagio Group* (Pickering & Chatto 2013); Schmelzer (n 83).

[87] Philip Mirowski, *Never Let a Serious Crisis Go to Waste: How Neoliberalism Survived the Financial Meltdown* (Verso 2013).

measure. As one of the group's convenors, Austrian-American economist Fritz Machlup, observed:

> Even identical choices of all relevant assumptions of fact would not secure agreement on policy recommendations if the advisers held different preferences in the pursuit of objectives. Indeed, with different aims and purposes, but the same factual assumptions, recommendations cannot possibly be concordant, except in freakish instances of semantic confusion or logical fallacy. The hierarchy of values ruling our opinions may be quite different from person to person; and even where a broad, general ranking happens to be the same, the comparative weights are likely to differ.[88]

In effect, the neoliberal 'solution' to the 'problem' of accounting for the role of money in economic life is to recognise that *there is no solution*. Given the self-evident need for money, the best policy option is not that which tries to satisfy everyone but one which obviates any positive, and hence debatable, choice about how it should be managed. In the end, a system of 'floating' rates is a kind of default setting for a neoliberal rationality of rule whose base assumption is one of ignorance.[89] As the Bellagio group's report put it: 'The fact that diagnosis is uncertain also forces us to recognize another question – one faced by all who must make decisions in the face of uncertainty. What is the cost of being wrong?'[90]

[88] Fritz Machlup, 'Why Economists Disagree' (1965) 109 Proceedings of the American Philosophical Society 1, 4.

[89] William Davies and Linsey McGoey, 'Rationalities of Ignorance: On Financial Crisis and the Ambivalence of Neo-Liberal Epistemology' (2012) 41 Economy and Society 64.

[90] Machlup, *International Monetary Arrangements* (n 85) 52, quoted in Carol M Connell, 'Fritz Machlup and the Bellagio Group: Solutions to Liquidity, Adjustment and Confidence Problems and Their Opportunity Costs' (2013) 16 The Quarterly Journal of Austrian Economics 255, 258.

9.5.2.1 Turning to finance

Under the Bretton Woods system, policymakers and central banks had to manage money in a way that maintained in their agreed relation – at 'par' – the values of the currencies governed by the system, ensuring that at any given moment the interests of the domestic economy and those of external balance were pitted against one another, creating new choices all the time. The seductive promise of a world of 'floating' exchange rates favoured by neoliberal thinkers such as Machlup was to make choosing between incommensurable policy aims unnecessary.

Without the constraints of the Bretton Woods system, the choice between, say, boosting economic growth by lowering interest rates, or keeping the rate of interest high to attract inflows of money and finance a trade deficit, no longer arises in the same way, since what makes this choice into a trade-off with known distributional implications is a *known* exchange value for money. Without that knowledge, there is no 'choice' to be made. Instead, economic policies are evaluated based on their effects. Thus, Krippner argues that in seeking to defer and depoliticise distributional questions, the ad hoc responses of successive US administrations laid the ground for a 'turn to finance'; in US economic and monetary policy:

> Would policymakers direct capital to business or housing, large corporations or small business, urban areas or struggling farmers? As these choices became increasingly politicized, the deregulation of financial markets offered a means to substitute the rationing mechanism of the market for the heavy hand of the state.[91]

From this perspective, the turn to finance is not a repudiation of measure in economic life. On the contrary, it is the effect of a pragmatic acknowledgement, not only of the

[91] Krippner (n 61) 142.

need for monetary measure but of the impossibility of deciding on a measure that satisfies everyone. By placing money beyond the realm of political 'choice' the neoliberal approach is to bypass philosophical questions about its value and leave them open.

Furthermore, nuancing Krippner's thesis that what constitutes the turn to finance is a shift in the relations of power between the (presumptively defined) domains of state and markets, we can see that the promise of economic autonomy held out by advocates of 'floating' rates is actually a subtle *temporal* effect. Instead of policymakers and central bankers being judged on their ability to 'consciously' decide on trade-offs and mitigate unpleasant choices (eg by avoiding balance of payments crises), the criterion of government competency is that of the 'unconscious' verdict of financial markets, given in real-time. One is a 'forward-looking' measure, producing outcomes that are planned *ex ante*; the other 'backward-looking', whose standard is uncertain at the time the decision is made. It is the same temporal effect that is implicated in Libor's problematisation as a relic of juridical power, highlighted most visibly in the debate over term rates discussed in Chapter 7.

As my empirical findings in respect of Libor have shown, this temporal effect is not neutral but creates more practical and epistemological problems of its own. Who decides the starting point for the value judgements that financial markets provide? If the effects of economic policies can only be known once the judgement of 'the market' has been passed, how can economic life be managed effectively *in the meantime*? As I show in the next part, the effort to come to terms with these questions means that the turn to finance since Bretton Woods has gone hand in hand with a broader reconfiguration of thinking about the means and ends of monetary management, in which the rate of interest moves to centre stage.

9.6 Monetary Policy Without Money

In this part I consider two key themes of economic discourse since Bretton Woods in which the complexities and challenges associated with the neoliberal style of managing money in the meantime are given shape. I consider, first, the changing role of the central bank in monetary thinking, and secondly, the discourse of rational expectations that revolutionised economic theory and practice in the 1970s.

9.6.1 Chicago School economics

During the 1950s and 60s an influential part of the US neoliberal movement assumed a particular institutional identity in the Chicago School of Economics. The Chicago School was – and is – synonymous with both a brand of economics and a set of political beliefs. As Van Overtveldt defines it, 'the Chicago School is about a belief that the price mechanism is the key element in successfully solving economic problems and a belief in using this concept to understand and explain broad range of societal phenomena.'[92]

The Chicagoan project was to make economics into a 'predictive science'.[93] By treating theory as a problem-solving tool and embracing a rigorously data-driven approach, economics could build and test models of economic reality that would guide 'objective', disinterested decision-making. This 'aggressive empiricism'[94] was part of a

[92] Johan Van Overtveldt, *The Chicago School: How the University of Chicago Assembled the Thinkers Who Revolutionized Economics and Business* (Agate Publishing 2009) 76.

[93] Thomas A Stapleford, 'Positive Economics for Democratic Policy: Milton Friedman, Institutionalism, and the Science of History' in Robert Van Horn, Philip Mirowski and Thomas A Stapleford (eds), *Building Chicago Economics: New Perspectives on the History of America's Most Powerful Economics Program* (Cambridge University Press 2011) 4.

[94] Davies and McGoey (n 89) 70.

set of strategies aimed at creating a public consensus for Chicagoan ideas from on the outside of what they saw as a hostile Keynesian political and intellectual establishment.[95]

For Chicagoans such as Milton Friedman, the role of money in the economy was a path-breaking issue: the missing piece in existing price theory.[96] An early focus of critique was the central bank. In a 1963 book, Friedman and his co-author, economist Anna Jacobson Schwartz, applied Chicagoan precepts to an empirical analysis of nearly a century of US monetary history.[97] Against prevailing Keynesian wisdom, they argued that their data showed the Federal Reserve was culpable in the Great Depression, concluding:

> The blind, undesigned, and quasi- automatic working of the gold standard turned out to produce a greater measure of predictability and regularity – perhaps because its discipline was impersonal and inescapable – than did deliberate and conscious control exercised within institutional arrangements intended to promote monetary stability.[98]

Here, the themes of the Bullionist debates of nineteenth century Britain are updated and reframed as an opposition between 'conscious' and 'unconscious' decision-making. Friedman and Schwarz's conclusions implied that the economy 'is, after all, inherently stable if not subjected to ill-conceived policies'.[99] They also implicitly condemn the Keynesian politics of giving measure as not only unscientific but counterproductive and

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[95] Yves Dezalay and Bryant G Garth, *The Internationalization of Palace Wars: Lawyers, Economists, and the Contest to Transform Latin American States* (University of Chicago Press 2002) ch 5.

[96] Philip Mirowski and D Wade Hands, 'A Paradox of Budgets: The Postwar Stabilization of American Neoclassical Demand Theory' [1998] History of Political Economy 260.

[97] Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States, 1867-1960* (Princeton University Press 2008).

[98] Friedman and Schwartz (n 97) 10.

[99] David Laidler, 'Two Crises, Two Ideas and One Question' (EPRI Working Paper 2012) Working Paper 2012–4 17 <https://www.econstor.eu/handle/10419/70285> accessed 28 May 2021.

undemocratic. The job of the economist is to allow the facts to speak for themselves, supporting policies that accentuate the 'real' forces governing the economy. This pointed to a system of monetary management in which the discretion of central banks was constrained by strict policy rules.

9.6.1.1 Rules versus discretion

Friedman and Schwarz's insights formed the basis of a fully-fledged policy programme in the form of monetarism. The monetarist prescription insists that the central bank 'follows a rule that creates a stable nominal anchor and that allows market forces to determine real variables'.[100] In other words, it is a model of monetary management in which the measure of money is established by the market, but based on a rule-governed starting point that is set in advance by the central bank.

How to determine this rule has fuelled intellectual and policy debates about the central banking model over the past half century. However, crucially, over this period the core debate between economists of different ideological persuasions has moved from how the measure of money should be defined to the weight to be given to the rate of interest in their models.

Monetarists such as Friedman reaffirm the theoretical value of the natural rate of interest but deny its usefulness as a guide to policy.[101] Instead they advocate determining a rule based on targeting the amount of money in circulation. The general acceptance of

[100] Robert Hetzel, 'What Remains of Milton Friedman's Monetarism?' (2017) 17 Federal Reserve Bank of Richmond Working Papers 1, 1.

[101] Milton Friedman, 'The Role of Monetary Policy: Presidential Address Delivered at the Eightieth Annual Meeting of the American Economic Association, Washington, D.C., December 29, 1967' (1968) 58 The American Economic Review 1.

these ideas in the 1970s by central banks around the world led to 'the era of monetary targetry', which reached its peak during the Reagan and Thatcher years, before monetary targets were eventually abandoned.[102]

Under the 'new consensus' monetary policy that emerged in the 1990s,[103] the rate of interest is explicitly restored as the centrepiece of monetary policy but placed in a new setting as part of a 'holy trinity' of 'price stability as the primary *goal* of the central bank; central bank independence as the *institutional arrangement*; and the short-term interest rate as the *operational target*'.[104]

Rather than representing the product of ideological convergence between monetarists and Keynesians, the new consensus monetary policy epitomises the pragmatic neoliberal grasp of the unaccountability of money. In this 'monetary policy without money',[105] a new, technical discourse of the rate of interest constitutes the de facto monetary measure. It is a benchmark form for an era in which money is valued for its instrumental capacities alone – as pure 'means'.[106]

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[102] Forest Capie, Charles Goodhart and Norbert Schnadt, 'The Development of Central Banking' in Forest Capie and others (eds), *The Future of Central Banking: The Tercentenary Symposium of the Bank of England* (Cambridge University Press 1995) 29–31.

[103] Philip Arestis, JSL McCombie and Michelle Baddeley, *The New Monetary Policy: Implications and Relevance* (Edward Elgar Publishing 2006).

[104] Benjamin Braun and Leah Downey, 'Against Amnesia: Re-Imagining Central Banking' (2020) Discussion Note 2020/1 Council on Economic Policies (CEP) 1 <http://hdl.handle.net/21.11116/0000-0005-A686-8> accessed 28 May 2021, original emphasis.

[105] David Laidler, 'Monetary Policy without Money: Hamlet without the Ghost' (2003) Research Report 2003-7 Department of Economics Research Report Series, University of Western Ontario <http://hdl handle net/10419/70376> accessed 28 May 2021; quoted in Timo Walter and Leon Wansleben, 'How Central Bankers Learned to Love Financialization: The Fed, the Bank, and the Enlisting of Unfettered Markets in the Conduct of Monetary Policy' (2020) 18 Socio-Economic Review 625, 636.

[106] Annelise Riles, 'Property as Legal Knowledge: Means and Ends' (2004) 10 The Journal of the Royal Anthropological Institute 775.

The mandate of the central bank is set by reference to a policy rule defined for it by an economic model of how the rate of interest influences the economy via the monetary transmission mechanism. Meanwhile, the political choices it makes in implementing the rule are forgotten thanks to 'the convenient legal fiction' of central bank independence.[107] In this way, irresolvable debates about the measure of money can be passed over. In their place are a set of technical questions to do with setting the rate of interest in a way that allows market forces to operate – ie in a way that is '*market-led'*.

We can see, therefore, that this new benchmark form is the consummation of the Chicagoan ambition to make economics into a predictive science. The model on which the policy rule is based provides the starting point for financial valuations. In doing so, however, it constitutes a new set of problems. The market's judgements are always made in view of the starting point that the model provides. But financial actors, including economists and policymakers, do not have the luxury of waiting for those judgements. Decisions have to be made in the meantime. The effort to govern economic life under these conditions has given rise to an array of new techniques and knowledge forms, in which benchmarks such as Libor emerge as core technologies for governing in the meantime.

[107] Costas Lapavitsas, *Financialisation in Crisis* (BRILL 2012) 133.

9.6.2 Governing in the meantime

The 1960s saw an awakening of academic and policy interest in the term structure of interest rates – meaning the levels of short-term and long-term rates and the relationship between them. At stake was the question of how to understand the role of 'expectations' in economic action – ie in essence, how the kinds of knowledge that Keynes characterised as 'conventional' enter into the calculations of economic actors.

This apparently arcane, technical set of discourses set the stage for a revolution in economic thinking in the form of the 'rational expectations hypothesis'.[108] Emerging in the 1970s, the elaboration of this hypothesis in different fields of economics has created a string of Nobel Laureates and had far-reaching implications for both the state of the art in economic modelling and the use of those models in practice.[109]

9.6.2.1 The rational expectations revolution

Where Keynes had emphasised the role of unpredictable psychological factors in expectations, the rational expectations hypothesis endows economic actors with the same 'rationality' as the economist. Over time, it is assumed, people base their predictions on the best available information, learning from their past forecasts and correcting obvious mistakes – thus ultimately coinciding with the economist's own model.

[108] Thomas Delcey and Francesco Sergi, 'The Efficient Market Hypothesis and Rational Expectations. How Did They Meet and Live (Happily?) Ever After' [2019] Archive ouverte HAL <https://hal.archives-ouvertes.fr/hal-02187362> accessed 28 May 2021.

[109] George W Evans and Seppo Honkapohja, *Learning and Expectations in Macroeconomics* (Princeton University Press 2001).

Crucially, under this assumption, the expectations of economic actors are neither fixed nor unstable but probabilisable. Economic action could now be modelled dynamically over time. Moreover, since all economic actors converge on the same model (through what Sargent has called a 'communism of models'),[110] the predictions of the common model coincide with the one 'true' model (ie with reality), which recursively shapes the expectations of those using it.

The subtle power of rational expectations lies in its assumption that, once a rule has been set in place, any decision made according to the rule will already have been accounted for by financial actors in their transactions. Today's prices already contain information about what 'the market' expects will happen tomorrow. By using expectations as a guide, a policymaker is not bound to make decisions in ignorance of their effects, nor to fall back on judgement, but instead can govern in the meantime by observing what is happening in the market today.

The impact of this hypothesis revolutionised thinking about the role of a central bank and paved the way for the 'new consensus' in monetary policy. According to the Lucas critique, named for Chicago School economist Robert Lucas, attempts at economic fine-tuning are doomed to failure, not because they are ill-conceived but because by the time action is taken it is too late to be effective.[111] A better outcome can be achieved by establishing a credible *ex ante* commitment to a policy rule specified clearly in advance.

[110] Thomas J Sargent, 'Rational Expectations' in Steven N Durlauf and Lawrence E Blume (eds), *Macroeconometrics and Time Series Analysis* (Palgrave Macmillan UK 2010).

[111] Finn E Kydland and Edward C Prescott, 'Rules Rather than Discretion: The Inconsistency of Optimal Plans' (1977) 85 Journal of Political Economy 473.

Rational expectations has its analogue in finance theory in the efficient markets hypothesis touched on in Chapter 3.[112] This assumes that market prices 'always "fully reflect" available information', including as to expected returns.[113] Hence, rational expectations made it possible 'to tie together finance and the entire economy in one elegant theory'.[114]

Today the elegance of the theory is widely disputed. Yet, the *methodological* salience of these ideas is undiminished. They continue to inform contemporary models of the monetary transmission mechanism.[115] Moreover, the realisation that 'central banks depend on market responses and markets depend on central bank actions'[116] has engendered a historic change in the communicative practices of central banks.[117] Formerly a secretive practice, central banking is today a 'performative project',[118] 'using

[112] Jens Beckert, *Imagined Futures: Fictional Expectations and Capitalist Dynamics* (Harvard University Press 2016) 39–40.

[113] Eugene F Fama, 'Efficient Capital Markets: A Review of Theory and Empirical Work' (1970) 25 The Journal of Finance 383, 383. Delcey and Sergi note that Fama reformulated the efficient market hypothesis during the 1970s in conversation with the emerging discourse of rational expectations. Delcey and Sergi (n 108).

[114] Robert J Shiller, 'From Efficient Markets Theory to Behavioral Finance' (2003) 17 Journal of Economic Perspectives 83, 83.

[115] See eg Michael Woodford, *Interest and Prices: Foundations of a Theory of Monetary Policy* (Princeton University Press 2011) 10–11.

[116] Allan H Meltzer, *A History of the Federal Reserve, Volume 2, Book 1, 1951-1969* (University of Chicago Press 2010) 9.

[117] Douglas R Holmes, *Economy of Words: Communicative Imperatives in Central Banks* (University of Chicago Press 2013).

[118] Benjamin Braun, 'Governing the Future: The European Central Bank's Expectation Management during the Great Moderation' (2015) 44 Economy and Society 367, 371.

communication – mere words – as its primary monetary policy tool'.[119] As Arestis observes: 'In this sense the practice of modern central banking can be described as the management of private expectations'.[120]

9.6.2.2 Performing financial governance

Benchmarks such as Libor are at the heart of the 'performative project' of contemporary financial governance. Not only do they act as placeholders in financial transactions in the manner I have described in this thesis, they also constitute a placeholder for monetary policy purposes. For example, the Bank of England models UK interest rates daily in the form of a set of yield curves, each based on a different benchmark, including sterling Libor and SONIA. These are models of what the Bank thinks the market expects the rate of interest to be. They are observed and instrumentalised, in turn, by financial actors as models for, and not only models of, economic realities.[121]

A growing literature in economic sociology today reconsiders the concept of expectations from a constructivist perspective, preferring to think of them as eg 'fictional'[122] or 'governable'[123] rather than 'rational'. For example, Braun suggests that

[119] Janet L Yellen, 'Communication in Monetary Policy - Remarks by Janet L. Yellen, Vice Chair, Board of Governors of the Federal Reserve System, at Society of American Business Editors and Writers 50th Anniversary Conference, Washington D.C., April 4, 2013' (2013) <https://www.federalreserve.gov/newsevents/speech/yellen20130404a.pdf> accessed 28 May 2021; quoted in Holmes (n 117) ix.

[120] Philip Arestis, 'Keynesian Economics and the New Consensus in Macroeconomics' in Eckhard Hein and Engelbert Stockhammer (eds), *A Modern Guide to Keynesian Macroeconomics and Economic Policies* (Edward Elgar Publishing 2011) 92.

[121] Brett Christophers, 'The Performativity of the Yield Curve' (2017) 10 Journal of Cultural Economy 63.

[122] Beckert (n 112).

[123] Braun (n 118).

the theory of rational expectations was never fully embraced by central bankers, 'who have always been aware of the uncertainties surrounding forecasts of the future, the measurement of present data, and even the interpretation of past events', adding:

> In the real world, a communication strategy is needed precisely because uncertainty renders the probabilistic calculation of future outcomes, and thus rational expectations, impossible.[124]

However, this seems to miss the point in light of my empirical findings in respect of Libor. Financial benchmarks, theories of expectations, and the communicative practices of central banks are all features of a social world in which the rate of interest is *already* taken for granted as a benchmark form with certain affordances, such as a term structure that makes it possible to 'read the future'.[125]

From this point of view, governing in the meantime relies, not on elegant theory but on benchmarks: 'a constellation of material and aesthetic features, and forms of expertise that go with them'.[126] If central bankers' words and actions are today constituted with the power of prediction it is by virtue of their conformity to a measure that is 'remembered' as being true and whose ongoing reproduction is disciplined by the requirements of its form.

In this light, the conditions for Libor's emergence as a 'problem' in the wake of the financial crisis of 2007-8 become clear. A benchmark such as Libor constitutes financial actors, including central bankers and monetary policymakers, with a set of

[124] Braun (n 118) 370.

[125] Caitlin Zaloom, 'How to Read the Future: The Yield Curve, Affect, and Financial Prediction' (2009) 21 Public Culture 245.

[126] Annelise Riles, *Collateral Knowledge: Legal Reasoning in the Global Financial Markets* (University of Chicago Press 2011) 65.

shared expectations about the near future that can be acted on *as if* they were realities. The maintenance of this effect is the *sine qua non* for a style of neoliberal economic government in which questions of value are required to be constantly displaced and deferred for the meantime. Hence, the real problem for reformers is not about *resolving* the myriad questions of 'public' accountability raised by the events of the financial crisis and the 'manipulation' scandal, but rather of ensuring that they can be forgotten in order to stabilise the technical discourse of the rate of interest and the measure of 'private' accountability that it underpins. Put simply, for governing in this way to work, as one columnist has put it: 'Interest rates shouldn't be interesting'.[127]

9.7 Conclusion

In this chapter I set out to answer the following question, corresponding to the third question in the WPR sequence: How has Libor's problematisation come about? I have approached this question by presenting a genealogical inquiry into the benchmark form, understood as a means of establishing measure in economic life, of which the archetype is money.

By tracing the modern history of monetary management, I have shown how money has presented a perennial 'problem' for liberal governmentalities, as manifested in serial crises of monetary representation – typically the concomitant of political and socioeconomic crises, such as war, financial collapse and economic depression. The gold standard, the Bretton Woods system, and the advent of the Eurodollar market are all effects of these moments of crisis, when a new relationship between money and its

[127] Matt Levine, 'Interest Rates Shouldn't Be Interesting' *Bloomberg* (18 September 2019) <https://www.bloomberg.com/opinion/articles/2019-09-18/interest-rates-shouldn-t-be-interesting> accessed 26 May 2021.

representations is forged, and with it new ways of thinking about and organising economic activities. But what remains unproblematic in these problem representations is the 'need' for measure in economic life. In each case, despite – or because of – the political struggles over money and what it 'represents', the distribution of wealth and political power that the measure of money sets in place is not undone but recast in a different form.

I have argued that the advent of neoliberal forms of economic government in the middle of the last century has seen a new style of monetary management emerge. The neoliberal project is to govern the economy 'without money' – obviating debate about money's value by literalising its capacity to create measure in economic life in the form of a technical discourse of the rate of interest.

My analysis in this chapter helps to situate Libor's problematisation in the wake of the financial crisis of 2007-8 as merely the latest episode in this history. Amid a wave of financial losses and devaluations, and extraordinary interventions by monetary authorities and central banks around the world, the crisis reopened the debate that the discourse of the rate of interest is designed to obviate: how we get what we value in economic life. Libor was a focal point for this debate. The 'problem' it represents for neoliberal economic government is that it reveals the technicality of the rate of interest as *technique*.

10. Conclusions

On 29 January 2021, a former derivatives trader, Tom Hayes, walked out of HM Prison Ford in the UK after serving five and a half years – half his sentence – for having routinely sought to influence Libor higher or lower to suit himself. Hayes' 2015 trial and conviction on eight counts of conspiracy to defraud had made him a cause célèbre as the first person to be successfully prosecuted in connection with the Libor 'manipulation' scandal.[1] In a statement to the waiting reporters he said: 'Today I have been released from prison after being sentenced to 11 years for following bank practice and doing my job the way I was asked to'.[2]

In this thesis, I have explored the post-2007/8 financial crisis benchmark reform discourse, of which Hayes' case forms part, as a way to understand the role of benchmarks such as Libor in economic life today. My main research questions asked: How is Libor constituted as a 'problem' in benchmark reform discourse? What does this problematisation reveal about how financial transactions are governed? In particular, what does an analysis of the reform discourse say about the particular configuration of power relations presupposed and reinforced by the centrality of benchmarks in contemporary economic life?

[1] David Enrich, *The Spider Network: The Wild Story of a Maths Genius, a Gang of Backstabbing Bankers, and One of the Greatest Scams in Financial History* (WH Allen 2017).

[2] Laura McNulty, 'Libor Trader Tom Hayes Hits out at "Traumatic" Sentence as He Leaves Prison after Nearly Six Years' *Financial News* (29 January 2021) <https://www fnlondon.com/articles/libor-trader-tom-hayes-hits-out-at-traumatic-sentence-as-he-leaves-prison-after-nearly-six-years-20210129> accessed 30 May 2021.

I have addressed these questions by considering the Libor reform debate in the UK as a critical and paradigmatic case study of how this discourse constitutes and legitimises a way of thinking and talking about benchmarks as a 'problem' in need of reform. Adopting an empirically-informed, Foucauldian-inspired analytical approach, I have analysed the key features of this problem representation, its effects and institutional and ideological underpinnings, and how it has come about. I used this analysis as a means to illuminate the configuration of power relations entailed in contemporary financial governance.

I have presented my analysis of my empirical data in broadly three parts. I first gave an account of Libor's characteristic features as a benchmark as they are depicted in the reform discourse, ie as a kind of economic 'fact' (Chapter 3). In the middle part of the thesis, I examined how this characterisation has taken shape through a problematics of *accountability*, starting with an in-depth examination of the first key policy intervention in the aftermath of the Libor scandal, the 2012 Wheatley Review (Chapter 4). I then considered how this policy 'problem' was refined and reproduced through 'market-led' reform initiatives under the auspices of the FSB from 2013-2017, culminating in a policy to bring about Libor's urgent replacement by alternative benchmarks (Chapter 5).

I next explored the work of the Sterling RFR Working Group from 2017 to date as it has grappled with the politics of the 'transition' to a post-Libor world. Studying these politics revealed the real-world effects of Libor's problematisation on how financial actors write their contracts, account for their transactions, and organise their affairs (Chapter 6) as well as the sticking points and lines of resistance that have complicated the reform agenda (Chapter 7).

Finally, following the logic of the WPR analytical approach which 'works backwards'[3] from policies to the 'problems' they contain, in the third part of the thesis I have examined the ideas and assumptions underpinning the core features of Libor's problematisation in the reform discourse as I have analysed them (Chapter 8) and traced out their historical antecedents (Chapter 9).

My main finding has been that Libor's problematisation in the reform discourse is a by-product of a special kind of problem for economic government: how to get what we value. Over time, this question has been asked and answered in different ways according to the way money has been managed under different liberal rationalities of rule. In contemporary neoliberal societies, benchmarks are a crucial technology of government that obviates questions of monetary measure by giving financial actors a starting point for their negotiations, a scale for their valuations, and a basic unit of risk, knowledge of which can be instrumentalised in models and calculations. In this way, financial actors govern themselves through a technical discourse of the rate of interest which is underpinned and extended by its interactions with legal knowledge, eg through techniques of legal standardisation.

This main finding is informed and reinforced by a number of other key findings. First, my analysis of collated documentary material and semi-structured interviews with forty financial actors has enabled me to build up a nuanced picture of how the reform discourse constitutes Libor as a policy 'problem' with two distinct dimensions. Behind the calls for those setting benchmarks to be made 'publicly' accountable, and for those using them to be more responsible, is a more urgent and pragmatic concern with

[3] Carol Bacchi and Susan Goodwin, *Poststructural Policy Analysis: A Guide to Practice* (Palgrave Macmillan 2016) 17.

preserving the discourse of measure that a benchmark such as Libor constitutes and sustains. This appears from my data as a repertoire of taken-for-granted techniques and practices that makes it possible for financial actors to know 'what to do and how to behave' without the need to calculate or make a choice – from the way they manage their cashflow requirements and recognise financial gains and losses, to their interactions with and through screens.

The second key finding develops this insight into the nature of the 'problem' facing benchmark reformers. I have found that, for financial actors, a benchmark such as Libor is constituted by the effects of legal technique – in particular the documentary practices entailed with standard form contract regimes such as ISDA's. Through the 'as if' authority of its legal form,[4] the communication of the benchmark in the right way at the right time has powerful performative effects, constantly making and remaking a shared economic reality. As a result, while reformers have made substantial investments in promulgating a scientific theory of what a benchmark 'means' and how it should be used, my empirical findings show that those who govern themselves in this way value the mundane pragmatics of Libor's legal form, such as its accessibility and universality, and its capacities to set limits on calculation and to enable financial actors to know in advance what their payments will be.

Thirdly, I have considered what these findings reveal about how financial transactions are governed in contemporary neoliberal societies and the relations of power that benchmarks presuppose and reinforce. By situating Libor's problematisation in genealogical perspective, I have shown that what I refer to as the benchmark form has its

[4] Annelise Riles, *Collateral Knowledge: Legal Reasoning in the Global Financial Markets* (University of Chicago Press 2011).

own history that is intertwined with the history of money as a placeholder for questions of value. What is distinctive about neoliberal societies is the way the agency of this form has been extended and instrumentalised as a means of governing economic life *as if* 'without money'. The neoliberal 'solution' to the problem of how to get what we value is to bypass the need to evaluate money by means of a technical discourse of the rate of interest, which constantly refers valuations to the verdict of 'the market'. This calls for an array of techniques and practices for realising that verdict and for governing decision-making in the meantime. The paradigmatic form of these nested techniques and practices is that of a benchmark such as Libor. Hence, I argue, benchmarks are the *sine qua non* for a neoliberal style of governing economic life that has been largely taken for granted for fifty years.

I consider each of these key findings in more detail below. I also reflect on the contribution they make to the existing literature and identify possible avenues for future research.

10.1 A Debatable Number

Underlying Libor's informal designation as 'the world's most important number' is a set of ideas about what a benchmark is for and how it should be produced and used – that is, as an indicator of 'real' market forces, knowledge of which enables financial actors to govern themselves by 'rationally' managing their risk, 'correctly' pricing their transactions, etc. As I showed in Chapter 4, the events of the 2007-8 financial crisis and the 'manipulation' scandal that followed it threatened to undermine this model of financial governance, giving rise to a damaging set of constructivist critiques in which Libor was understood to be an effect of politics and power.

The scholarly literature on Libor, in particular, and benchmarks generally, is similarly divided along realist/ constructivist lines. In economics-based perspectives, 'Libor is supposed to reflect reality'.[5] By contrast, more critical approaches, including perspectives from political economy and the social studies of finance, understand Libor as socially constructed.

Ultimately, both realist and critical/ constructivist perspectives assume that what a benchmark does is defined by its capacity for representation. In different ways, both 'look through' the benchmark in order to account for its effects on the distribution of wealth and political power in society. In one view, a benchmark unproblematically reflects an 'underlying' market reality. Hence, no-one is accountable for the benchmark's effects, which are ascribable to 'unconscious' market forces. In the other view, the aim of critique is to account for the role of status, informal practices, 'cultural' norms, etc, on the way the benchmark is produced and used, and to open these up to scrutiny. In this way, contemporary debates about Libor exhibit the same 'ruinous polarisation'[6] of views that has historically characterised liberal discourses about money's proper role in economic and social affairs.

A key methodological contribution of this thesis lies in its empirically-led, Foucauldian-inspired research design that has enabled me to go beyond realist/ constructivist arguments. I have combined an empirical, inductive approach led by my data – including documentary material and data from qualitative, semi-structured interviews with forty financial actors, such as bankers, corporate treasurers, and lawyers,

[5] John Kiff, 'Back to Basics: What Is LIBOR?' (2012) 49 *Finance & Development* <http://www.imf.org/external/pubs/ft/fandd/2012/12/basics htm#author> accessed 7 November 2016.

[6] Keith Hart, 'Heads or Tails? Two Sides of the Coin' (1986) 21 Man 637, 638.

as well as public officials and policymakers – with a commitment to critique in the Foucauldian, genealogical sense. This has enabled me to pay attention to the 'big questions' concerning eg the nature of financial power and the agency of legal knowledge, while remaining grounded in a rich, empirical picture of how financial actors think about benchmarks and benchmark reform in their professional lives, affecting how they see their work, organise their affairs, and conduct their interactions.

As a result, in addition to the existing literature on Libor my approach also brings this research into conversation with a body of critical scholarship concerned with the study of law and governance in financial markets, especially since the 2007-8 financial crisis. An adjacent but distinct body of literature with which I engage analyses the spread of financialised discourses and practices in Western societies as effects of neoliberal rationalities of rule. I discuss my thematic contributions to these literatures below.

10.2 Unpacking The 'Problem'

Based on my analysis of my empirical data I have found that the 'problem' that Libor represents in the reform discourse has two distinct dimensions. First, the crisis-era critiques of Libor's credibility provoked a realisation that the legitimacy of using benchmarks to govern financial valuations was at stake unless the valuations that they produce could be accounted for rationally. Much of the existing post-crisis literature on benchmarks forms part of this diagnostic, policy-oriented discourse of 'public' accountability.

However, my analysis has revealed that there is also a second, more implicit dimension to this problem representation. This manifests itself in what is left unspoken in the reform discourse: that more important than ensuring strict 'public' accountability

for how a benchmark is set and used is the stability of the social world that it constitutes and sustains for financial actors by ensuring a common starting point for their calculations, a standard by which they can calibrate their pricing models and realise their transactions in their accounts, and a shared reference point by which they can organise their affairs and make plans.

Indeed, my empirical findings have shown that 'public' accountability talk deliberately marks its own limits in particular ways. Libor's problematisation calls for a certain kind of 'solution' in the form of a new generation of transaction-based benchmarks created in the image of finance theory, for which the chain of accountabilities linking production to use are machine-like and transparent. Yet, at the same time, reformers understand that this vision of financial governance is a pipedream. Not only does it fail in a financial crisis when there are few transactions around, it fails to guarantee for financial actors what they say they need in order to govern themselves: a value that they can accept on its face, which is true to life and maintains the balance of power between them, and which lets them plan ahead without forcing them to commit themselves.

The effort to account for Libor's role in financial transactions thus reveals a different 'problem': how to reform benchmarks in view of the failure of the reformist critique. How can benchmarks be rationalised in a way that legitimises the valuations they produce when not only is it not possible to account for those valuations economistically, it is also *not necessary?*

The attempt to square this circle has seen the emergence of a distinctive 'market-led' approach to Libor reform in which decision-making is dispersed and decentralised.

Private actors are equipped, axiomatically, with the capacity to make their own decisions, but they are constrained by the regulatory expectation that they make the 'right' ones, ie those that are consistent with finance theory. They are guided in this by public authorities as convenors and observers, whose powers to direct a specific outcome – ie to insist on 'publicly' accounting for Libor – are implicitly unexercisable.

Epitomising the 'odd delicacy' of this dynamic was the FCA's indication in mid-2017 that it could 'no longer guarantee support' for Libor after the end of 2021.[7] As noted in Chapter 6, this not-quite-deadline has already been honoured in the breach, with the most widely used US Dollar Libor rates – underpinning some two hundred trillion dollars' worth of financial contracts – to be published until at least June 2023.[8] Moreover, as I have shown in Chapters 6 and 7, the politics of the 'transition' to a world without Libor have played out in ways that have generated resistance and added complexity. It is already assured that Libor's legacy will outlive its discontinuation (if/ when that occurs) through the creation of a constellation of contract protocols, fallback methodologies, term and synthetic rates, and calculation tools designed to enable financial actors to conserve and reproduce Libor's governance effects in their transactions. In a post-Libor world, economic life will be governed by Libor's memory.

The instinct of reformers is to put this extraordinary state of affairs down to a combination of misaligned incentives and 'psychological' factors that do not fit neatly into economic models. However, I have found that there is more to Libor's hold on the

[7] Andrew Bailey, 'The Future of LIBOR - Speech by Andrew Bailey, Chief Executive of the FCA, at Bloomberg London' (26 July 2017) <https://www.fca.org.uk/news/speeches/the-future-of-libor> accessed 22 May 2021.

[8] Philip Stafford, Joe Rennison and Colby Smith, 'US Banks Welcome Delay to Libor Switch Affecting $200tn in Assets' *Financial Times* (4 December 2020) <https://www.ft.com/content/c07a808e-bfb6-4a7c-8d41-f619e067d540> accessed 30 May 2021.

imagination and activities of financial actors than complacency or inertia. By taking seriously perspectives and concerns of financial actors that are under-privileged in the mainstream economics-based reform discourse (such as the desire to know one's payments in advance) I have offered an empirically rich, analytically nuanced account of Libor's governance effects. These are revealed especially clearly in the mundane, technical aspects of reform work, in which legal knowledge plays a central role.

10.3 Breaking Down the Agency of Legal Form

A core finding of this thesis is that the essence of a benchmark for its users is its legal form. In developing this argument, I make an original contribution to socio-legal scholarship on legal 'technicality', engaging in particular with Annelise Riles' work.[9]

As I showed in Chapter 7, in benchmark reform discourse, legal knowledge is always 'collateral' to the aims of reform, yet financial actors seemed to have a sophisticated grasp of the capacity of legal expertise to solve problems and facilitate financial action in ways that also shape and redirect it. This was evident in a pragmatic orientation towards the legal technicalities of reform, such as contract mechanics and document management.

As the lawyers and documentation experts I spoke to knew well, contracts have to mobilise certain kinds of performance, such as the settlement of a payment obligation, in a way that guarantees its effectiveness. Hence the entextualisation of the goals of reform is not just a process of transcription (eg swapping references to Libor for SONIA);

[9] David Cowan and Daniel Wincott (eds), *Exploring the 'legal' in Socio-Legal Studies* (Palgrave Macmillan 2016); Riles, *Collateral Knowledge* (n 4).

it involves the production of an entirely new 'text', including a set of pragmatic and metapragmatic markers (such as definitions and calculative conventions) that determine how the new 'text' is to be performed. These 'poetic', performance elements of the lawyer's craft are what defines the concept of legal form I take from Riles' work.

The financial actors I spoke to understood clearly that, in economic-scientific terms, a benchmark such as Libor *should* reflect an 'underlying' market reality, but they also knew that, in the end, what mattered was the performance of the benchmark in a way that was aesthetically sound.

Based on my analysis of my empirical data I have identified three main aspects of Libor's legal form. The first concerns the dispositive character of the benchmark, having effects that are binding and irreversible. Secondly, the 'forward-looking' property of Libor's term structure which allows financial actors to know in advance what their obligations will be. Thirdly, a benchmark has to be communicated in the right way, at the right time.

I found that these different features vary in their importance for different financial actors. For example, derivatives practitioners were generally dismissive of the insistence of cash market actors, such as corporate treasurers, that a term rate was essential for their needs. However, the point is that each of these elements is a different way of emphasising the same performative agency. By transacting using Libor, financial actors participate in the performance of a set of economic realities that are materialised incontestably in the same way for everybody at the same time. This constitutes the parties to the transaction with a shared 'memory' of their obligations –'how much to pay, what to do and how to behave' – which underwrites their promises and regularises their dealings. It binds them

together as members of a social world, in which the measure of their promises is also the norm: the number everybody uses.

What defines this social world, above all, is its temporality. The economic relationships that Libor constitutes and sustains take place, as it were, in the time of the contract, in which legal obligations accrue, crystallise, and are performed. Reconfigured as artefacts of legal knowledge, the evaluations that Libor produces are 'forward looking', provisionally valid until the next time the benchmark is recalculated. Equipped with this knowledge, financial actors can make plans and commitments that treat the near future *as if* it was already past. Like Riles, therefore, I understand the agency of legal form to reside in its facility for working with the 'meantime' – as a *placeholder* in Riles' terminology.[10]

These insights extend and nuance the Rilesian conception of legal form in two main ways. First, I argue not only that, as Riles puts it, 'legal knowledge is effective because of the particular form that it takes'.[11] My empirical findings suggest that the agency of legal form in this context can extend to encoding and displacing other genres of expertise, such as economic theory. For example, with a 'backwards looking' benchmark such as SONIA, the temporal effect of Libor's term structure is generated within the contract itself. That is, the benchmark is calculated based on historic data, but its rendering in contracts involves a 'lag' to ensure payments are known sufficiently in advance of their becoming due. As I showed in Chapter 7, the reluctance of many financial actors to adapt their contracts in this way (resulting in the need to produce

[10] Riles, *Collateral Knowledge* (n 4).

[11] Riles, *Collateral Knowledge* (n 4) 215.

specially-designed term rates) points to the extent to which the agency of legal form can 'travel', colonising the ostensibly calculative logic of benchmark methodologies.

Secondly, the analysis I have presented in this thesis suggests that an appreciation of the agency of legal form is not something that is confined to lawyers. For example, among the financial actors I spoke to, their pragmatic reception of the idea of a synthetic Libor pointed to a sophisticated grasp of the possibilities entailed in the legal form.

Taken together, I argue, these insights suggest that the elements of Libor's legal form as I have analysed them add up to something more than a way of 'exploring the "legal"' in a given (socio-legal) context.[12] In a benchmark we find the technicalities of legal knowledge and the technicalities of financial valuation fused together to the point of being indistinguishable. The overall effect is the 'seamless regeneration'[13] of economic realities for its users in a way that is not captured easily by the Rilesian conception of a placeholder as a legal fiction – ie a proposition that is openly understood to be false, 'and hence is irrefutable'.[14] As I have argued in this thesis, the irrefutability of a benchmark such as Libor is linked, instead, to its capacity for producing truths.

This suggests that the truths produced by the benchmark are not merely reifications of its usefulness in particular situations – an example of the tool 'overtaking' its user –[15] but part of a distinct mode of governing financial transactions by turning expectations into realities, worthy of investigation in its own right. In this thesis I have

[12] Cowan and Wincott (n 9).

[13] Judith Butler, 'Performative Agency' (2010) 3 Journal of Cultural Economy 147, 149.

[14] Riles, *Collateral Knowledge* (n 4) 173.

[15] Riles, *Collateral Knowledge* (n 4) 229.

undertaken some initial steps in such an investigation by exploring what it means to govern, and to be governed, in this way.

10.4 The Value of Values

The debates surrounding ISDA's contractual fallbacks offered a striking example of just how much more complicated it becomes to govern financial transactions once the agency of a benchmark such as Libor can no longer be taken for granted. Although my thesis is not directly concerned with the question of whether financial markets (especially derivatives markets) are a domain of private law-making, the picture that emerges from my analysis suggests an important perspective on existing scholarship in this area.

Confronted with the prospect of Libor's cessation, the threat to contracts written on ISDA's standard terms was an existential one – 'contractual armageddon' – precisely because there was no obvious and straightforward way of dealing with such an event internally to ISDA's documentation regime. The creation and dissemination of new contractual fallbacks was a notably tentative, incremental process.

On one level, this empirical finding seems to resonate with the work of Riles and other empirically-minded scholars of financial market governance who question the way that certain assumptions have tended to be reified in the transnational law literature, such as the idea that ISDA's documentation regime embodies a collection of private norms.[16] I have analysed a benchmark reform discourse whose principal sites are public-private working groups characterised by an exclusive membership and a highly organised corpus

[16] Riles, *Collateral Knowledge* (n 4); Joanne P Braithwaite, 'Standard Form Contracts as Transnational Law: Evidence from the Derivatives Markets' (2012) 75 The Modern Law Review 779.

of regulatory and economic-scientific expertise. The key players in this discourse – central banks, ISDA, major financial institutions – may be considered the definition of financial market insiders. Yet, in reality it has taken enormous investments, bringing together a whole range of public and private governance techniques, from pedagogy to contractual 'self-help' and legislative intervention, to try to enrol financial actors into rethinking and retooling their activities.

But my findings suggest that there is more that can be said about Libor's role as a contractual placeholder. What made the creation of ISDA's fallbacks such a tortuous process was its resurfacing of a set of considerations that Libor had hitherto obviated concerning the rate that best preserved the relations of power between financial actors, mitigating 'wealth transfers' and ensuring that there were no 'winners' and 'losers'. Yet, certain questions still remained outside the terms of the debate: what makes an interest rate a better benchmark than the price of sugar, for example? Understood as a placeholder, a benchmark may be normatively 'thin', as Riles puts it – ie it does not simply codify the value judgements of particular groups, such as ISDA and its members – but this is also because the valuations it produces via the mediation of these groups already conform to certain (normative) expectations.

This seems to invite a classically sociological response: where do these expectations come from?[17] Who *really* sets the benchmark? However, this is the key point: the subtle power of a benchmark lies in its capacity to obviate these kinds of questions. For my interviewees, how the benchmark they used in their transactions was produced, and who decided it, were secondary concerns. This was not only because it

[17] Jens Beckert, *Imagined Futures: Fictional Expectations and Capitalist Dynamics* (Harvard University Press 2016) 13.

afforded them a useful, normatively 'thin' coordination device – ie a 'box' in which to transact, as one of my informants put it. In doing so, it also obviated the need to enquire into *the value of the valuations* it produces, ie what made *this* 'box' the right box and not *that* one?

Hence, if the agency of legal form inheres in 'those aspects of legal practice that cannot be reduced to norms, trust and other sociological concepts',[18] we need to ask what values remain to be evaluated when social norms, trust and 'culture' are obviated? What kinds of relations of power are presupposed and reproduced by the distracting, disorienting move of the placeholder?

In addressing these questions, a further core finding of this thesis is that Libor shares the agency of its form with money. I have developed this argument in the third main part of the thesis (Chapters 8 and 9) by illuminating the tensions and continuities between contemporary debates about Libor and older debates about how to account for money in economic and social affairs. In doing so, I have suggested we understand the agency of Libor's legal form as not 'just' a technical adjunct to financial transactions but as part of a longstanding discourse of measure in Western societies, whose exploitation as a technology of neoliberal economic government is a defining feature of contemporary economic life.

[18] Annelise Riles, 'Afterword: A Method More Than a Subject' in David Cowan and Daniel Wincott (eds), *Exploring the 'legal' in socio-legal studies* (Palgrave Macmillan 2016) 259.

10.5 Money and Measure: A 'Problem' Both New and Old

The insights generated from my empirical data point to the need to situate Libor's problematisation in wider genealogical perspective by considering the conditions under which financial valuations have come to be valued in contemporary neoliberal societies. The genealogical analysis and findings I present in this thesis therefore represent the product of a method of 'working backwards' from the analysis of Libor's problematisation as a benchmark form, as it appears from my empirical data, to the conditions of its emergence.

A core argument of this thesis is that Libor, like money, is a means of realising a common measure of value in economic life. Rather than solving the metaphysical equations that arise when we try to work out how to get what we value, it is a certain way of acknowledging and getting past them for the time being. It is a technical device whose role is not to reveal what things are 'really' worth but to provide a measure that allows transactions to take place *as if* it did. I have referred to this as the benchmark form.

These insights help to reframe the field currently occupied by realist/economics-based and critical/ constructivist perspectives in the literature on Libor as a scene of old anxieties about how money should be managed. Far from being unique to financialised economies, the 'problem' that Libor represents in the reform discourse is 'both new and

old' –[19] embedded in the liberal aspiration to account for money's role in economic life. As Greniér and Orleans remark:

> money is neither a secondary element nor a neutral instrument. It is the specific form that sovereignty takes on in economics. For this reason, the liberal unease in regard to it is entirely understandable.[20]

From this perspective, benchmark reform restages the internal contractions of liberal economic government, torn between the 'need' to institute a common measure of value and the desire to account for it as an effect of the market alone. In Chapter 9 I traced out the ways in which these contradictions have played out in different ways over more than two centuries of liberal rule.

The general arc of the history of the benchmark form that I have presented suggests an oscillatory trajectory, reflecting the position of money in prevailing liberal governmentalities. The gold standard reflected the dominance of the view that money is ultimately neutral and inessential to value determination; merely a pass through for 'real' wealth. The Keynesian politics of giving measure, on the other hand, was the defining feature of a governmentality in which managing money was the centrepiece of good economic government.

What this genealogical sketch reveals is how debates surrounding the role of money in the liberal economy are never resolved, only held in check for the time being through political power, ideological dominance, or economic necessity. At moments of

[19] Robert Castel, '"Problematization" as a Mode of Reading History' in Jan Goldstein (ed), *Foucault and the writing of history* (Blackwell 1994) 249.

[20] Jean-Yves Grenier and André Orléan, 'Michel Foucault: The Political Economy and Liberalism' (2007) 62nd Year Annales. Histoire, Sciences Sociales 1155, para 48.

crisis the same tensions re-emerge and the value of monetary valuations is put into question once again. Yet, in these same moments, the 'need' for monetary measure is felt more acutely than ever, producing a new iteration of the benchmark form which calibrates the new value system by the 'memory' of the measure that went before. Hence the old 'market-led' governance model of the gold standard era, based on state authority behind the rhetoric of legal convertibility into gold, was replaced at Bretton Woods by a fiction of liberal consensus, in which US hegemony and its convertible relation to gold remained the cornerstone.

The breakdown of the Bretton Woods accords by the 1970s was accompanied initially by the eruption of the same polarised discourses on money and its management. However, drawing on the empirical insights into Libor's problematisation that I have presented in this thesis, I have argued that the rise of neoliberal rationalities of economic government since the 1960s has marked a new chapter in the history of the benchmark form. The pragmatic achievement of the early neoliberal movement was to recognise that any attempt to organise economic life in a way that gives all people what they value all of the time is doomed to fail. Since there is no ideal way of accounting for money, the least worst outcome is to suspend the debate entirely and let 'the market' decide. Hence, the neoliberal 'solution' to the question of where value comes from is to leave the question open. In the implementation of this vision for a new kind of 'market-led' economic government the benchmark form has undergone another, more radical transformation.

10.6 The Technicality of the Rate of Interest

As I showed in Chapter 5, in the neoliberal rationality the art of being 'market-led' means that decision-making is decentralised, dispersed, and deferred. It is a way of producing unaccountability by referring value judgements to the sociotechnical apparatus of 'the market', whose ideal economic form is that of 'digits, prices and machines' communicating with one another in real time via economic models and on screens.

Financial power is the power to mediate the judgements produced by this apparatus and to profit by it – hence Libor is a benchmark designed with the activities of the biggest banks in mind, rather than those of a cooperative of sugar producers. Yet, at the same time, I have argued, financialised valuations are constrained by a pattern of economic outcomes which is already 'in the making'.[21] As I have shown in this thesis, a financialised world is not an immeasurable world. The empirical reality is that financial actors can and do measure their interactions everyday, without fuss or difficulty. The object and counterpart of this new discourse of measure is neither a 'real' external standard such as gold, nor a purely conventional rule of judgement, but one among the various digits and prices making up the economic form of 'the market' – the rate of interest.

As I have argued in Chapter 9, since the 1970s a technical discourse of the rate of interest has gradually supplanted debates about monetary measure. The elements of this discourse – an already existing central banking model reinforced rhetorically by central bank independence; a set of economic theories and models constituting the rate of interest as a privileged tool of government, financialisation – together constitute an apparatus for

[21] Butler (n 13) 147.

governing 'without money'. In theory, the measure of value is only known when 'the market' passes judgement. However, in practice, the effect of 'looking backwards' in order to pass judgements is a precarious one, made possible only by an array of practices and techniques enabling financial actors – public and private – to plan and make commitments *for the meantime*.

It is in this light, I have argued, that we should understand the role in economic life of benchmarks such as Libor, as a paradigmatic technology for governing in the meantime. The agency of Libor's legal form is also that of the wider technical discourse of measure of which it forms part. By obviating *ex ante* debates about value, the rate of interest acts as a placeholder for money itself. At the same time, it legitimises and reproduces a set of power relations in economic and monetary affairs that has remained largely unchanged for a century, based on central bank authority and the hegemony of the US dollar.[22]

10.7 Implications and Directions for Future Research

In this part I discuss the implications of the analysis presented in this thesis and its contribution to current debates in the literature. I also consider some possible avenues for future research.

[22] Adam Tooze, 'The Rise and Fall and Rise (and Fall) of the U.S. Financial Empire' (*Foreign Policy*) <https://foreignpolicy.com/2021/01/15/rise-fall-united-states-financial-empire-dollar-global-currency/> accessed 14 May 2021.

10.7.1 Re-situating the placeholder

Riles argues persuasively that the distinction between 'public' and 'private' expertise is overdrawn. As she notes, 'there is nothing inherently private or public about the placeholder, as a device for governing the near future'.[23] My research suggests that, as a technology of neoliberal economic government, the placeholder is even more ubiquitous and influential than Riles supposes.

This in turn suggests that future research could fruitfully explore the affinities between the themes and concerns of scholarship on 'private' legal technicality, in the form of eg the techniques and practices entailed with standardising contracts on which this thesis has mainly focused, and those of a growing body of literature in the social and critical studies of finance which focuses on the technicalities of 'public' financial governance, such as central bank communicative practices and prudential regulation.[24] This literature often sees state and markets as heterogeneous domains with their own rationalities and ways of doing things, which are brought into alignment more or less successfully through processes of 'entanglement',[25] 'formalisation',[26]

[23] Riles, *Collateral Knowledge* (n 4) 180.

[24] Mitchel Y Abolafia, 'Central Banking And The Triumph Of Technical Rationality' in Karin Knorr Cetina and Alex Preda (eds), *The Oxford Handbook of the Sociology of Finance* (Oxford University Press 2012); Timo Walter, 'Formalizing the Future: How Central Banks Set Out to Govern Expectations but Ended Up (En-)Trapped in Indicators' (2019) 44 Historical Social Research / Historische Sozialforschung 103; Timo Walter and Leon Wansleben, 'How Central Bankers Learned to Love Financialization: The Fed, the Bank, and the Enlisting of Unfettered Markets in the Conduct of Monetary Policy' (2020) 18 Socio-Economic Review 625; Céline Baud and Eve Chiapello, 'Understanding the Disciplinary Aspects of Neoliberal Regulations: The Case of Credit-Risk Regulation under the Basel Accords' (2017) 46 Critical Perspectives on Accounting 3.

[25] Walter and Wansleben (n 24).

[26] Walter (n 24).

'disciplinarization',[27] etc. In contrast, I have argued that 'public' and 'private' financial governance techniques can be understood as having co-emerged as different aspects of the same apparatus for governing in the meantime.

Nor is this merely an abstract, philosophical argument. In this thesis, I have given an account of Libor's role in governing economic life that takes fine-grained, empirical insights into how financial actors conduct themselves and shows how they connect up to a historically-specific configuration of discourses and rationalities of rule. In this respect, my findings also make a valuable contribution to a 'post-disciplinary' critical research agenda in the study of money and finance,[28] the key aspects of which I outline below.

10.7.2 Monetary pragmatics

The crisis of expertise concerning financial markets that was precipitated by the 2007-8 financial crisis also extended to social science expertise,[29] with calls for scholarship on finance and society to re-evaluate 'core economic categories' such as money, measure

[27] Baud and Chiapello (n 24).

[28] Amin Samman, Nathan Coombs and Angus Cameron, 'For a Post-Disciplinary Study of Finance and Society' (2015) 1 Finance and Society 1, 3; Christian Borch and Robert Wosnitzer (eds), *The Routledge Handbook of Critical Finance Studies* (Routledge 2020).

[29] Annelise Riles, 'Market Collaboration: Finance, Culture, and Ethnography after Neoliberalism' (2013) 115 American Anthropologist 555.

and value.[30] In particular, Cooper and Konings argue, scholars should pay renewed attention to the 'pragmatics of money and finance':[31]

> That money lacks fundamental value is something that market participants and central banks already know all too well, and the innovations and adjustments they undertake should be seen as responding to the absence of such foundations.[32]

This emerging post-disciplinary scholarship is also reflexive about the critical possibilities of existing conceptual frameworks. For example some scholars see the galvanising effect of the concept of 'financialisation' on studies of financial markets from a range of disciplinary perspectives as having come at a cost to its analytical purchase and ability to yield original empirical insights.[33] As Westermaier puts it: 'many studies of financialization have little to say about finance itself'.[34]

My research speaks to this reflexive, pragmatic turn by bringing an empirically-informed, Foucauldian-inspired analytical perspective to bear on key themes of scholarship on money and finance in a way that does not take for granted inherited concepts and categories. In doing so, it suggests a new way of looking at a central question: 'What – and where – is *money* in today's banking and financial system?'[35] By

[30] Melinda Cooper and Martijn Konings, 'Contingency and Foundation: Rethinking Money, Debt, and Finance after the Crisis' (2015) 114 South Atlantic Quarterly 239, 248.

[31] Melinda Cooper and Martijn Konings, 'Pragmatics of Money and Finance: Beyond Performativity and Fundamental Value' (2016) 9 Journal of Cultural Economy 1; see also Jane I Guyer, *Legacies, Logics, Logistics: Essays in the Anthropology of the Platform Economy* (University Of Chicago Press 2016).

[32] Cooper and Konings (n 31) 3.

[33] Brett Christophers, 'The Limits to Financialization' (2015) 5 Dialogues in Human Geography 183.

[34] Carola Westermeier, 'Political Security and Finance – A Post-Crisis and Post-Disciplinary Perspective' (2019) 29 Zeitschrift für Politikwissenschaft 105, 109.

[35] Nigel Dodd, '"Strange Money": Risk, Finance and Socialized Debt' (2011) 62 The British Journal of Sociology 175, 175, original emphasis.

using Foucault's early insights into the forms and mechanisms of truth-making in the West as a way of recovering a history of the benchmark form, I give a novel account of contemporary financial power as a legacy of the historical entanglements between law and money. Further, by showing how these insights can be joined up to the analysis of economic government in the 'later Foucault', I offer one possible answer to critics who argue that Foucault 'fails to problematize the most important "institution" of capitalism' – money.[36]

My findings suggest that future research could further explore the interrelationship between money and law, in conversation with recent scholarship in this direction. For example, Christine Desan highlights the constitutive role of legal practices, categories, and technologies in monetary regimes. As she puts it: 'a working money is a piece of legal engineering all the way down'.[37]

There are also interesting resonances between my findings in this thesis and emerging sub-fields in the anthropology and social studies of money and calculation which are concerned with 'how money's quantities are entangled with its qualities and physical forms'.[38] This scholarship builds on work by anthropologists such as Jane Guyer and Bill Maurer which emphasises the mundane, situated, material practices by which

[36] Maurizio Lazzarato, *Governing by Debt* (Semiotext(e) 2015) 115.

[37] Christine Desan, 'Money as a Legal Institution' in David Fox and Ernst Wolfgang (eds), *Money in the Western Legal Tradition: Middle Ages to Bretton Woods* (Oxford University Press 2016) 30.

[38] Mario Schmidt and Sandy Ross, *Money Counts: Revisiting Economic Calculation* (Berghahn Books 2020) 3.

money is handled, exchanged, used in payments, and converted into other things, without the need for a theory of where value comes from.[39]

10.7.3 After performativity

In addition, my findings in respect of the temporality of Libor's legal form contribute to a growing body of scholarship rethinking how financial practices work with and through time. I have already cited Riles' extremely rich analytical insights into the temporality of the placeholder as a key point of reference in my own work. My research also suggests productive affinities with other socio-legal treatments of the temporality of legal form, such as Grabham's exploration of how the techniques involved in proceduralising decisions and drafting legislation create the temporalities in which they unfold (also inspired by Riles' work).[40]

Temporality is a longstanding theme in the social studies of finance, notably in the form of the concept of performativity, discussed in Chapter 7, which assumes that economic models and calculative devices tend to create the realities they purport to report on, as 'facts' about the world. I have found that the performative power of a benchmark such as Libor is a non-epistemological effect. The affordances that Libor provides to financial actors by virtue of its legal form are the counterpart of a discourse of measure in financial transactions that precedes and obviates the need to calculate. In this regard, my findings speak to an emerging post-performative literature. For example, Tellmann

[39] Jane I Guyer, *Marginal Gains : Monetary Transactions in Atlantic Africa* (University of Chicago Press 2004); Guyer (n 31); Bill Maurer, 'Does Money Matter? Abstraction and Substitution in Alternative Financial Forms', *Materiality* (Duke University Press 2005); Bill Maurer, *Mutual Life, Limited: Islamic Banking, Alternative Currencies, Lateral Reason* (Princeton University Press 2005).

[40] Emily Grabham, *Brewing Legal Times: Things, Form, and the Enactment of Law* (University of Toronto Press 2016).

argues for a concept of 'material temporality' that seems to overlap with the conception of measure that emerges from my empirical data, as a mode of commensuration through time:

> Rather than criticizing financial valuation from the vantage point of a more 'real' economy and its more 'fundamental values' (which it fails to faithfully represent), this focus on material temporality understands finance as just as real as other matters – not because it requires cables, screens, bodies, calculative devices, buildings and computational powers, but because it entails specific organizational, legal and material types of creating hierarchized and unequal durations into the future.[41]

Tellmann's work points to the value of an approach that seeks to consider the temporal effects of money and the rate of interest in generating financial futures, and for situating these effects in genealogical perspective.[42]

10.7.4 Studies of neoliberal and post-neoliberal governance

More generally, future research could look to explore the suggestion in this thesis that the benchmark form is instrumentalised in neoliberal societies as a general technology of government. If, as I have suggested, we think of a benchmark as a supremely powerful device for realising the economic form of the market anywhere and everywhere, broadening the scope of inquiry brings other practices into view, including other types of financial benchmarks but also rankings and indicators,[43] and performance management

[41] Ute Tellmann, 'Beyond Performativity: Material Futures of Finance' (2020) 49 Economy and Society 345, 347, reference omitted.

[42] Ute Tellmann, *Life and Money: The Genealogy of the Liberal Economy and the Displacement of Politics* (Columbia University Press 2018).

[43] Wendy Nelson Espeland and Michael Sauder, 'Rankings and Reactivity: How Public Measures Recreate Social Worlds' (2007) 113 American Journal of Sociology 1; Cris Shore and Susan Wright, 'Governing by Numbers: Audit Culture, Rankings and the New World Order' (2015) 23 Social Anthropology 22; Richard Rottenburg and others (eds), *The World of Indicators : The Making of Governmental Knowledge through Quantification* (Cambridge University Press 2015).

techniques, in which 'benchmarking' is generally understood as a 'process of evaluating by comparison with a standard, a point of reference that is considered as "best practice"'.[44]

There is a considerable literature in this area which notices these practices as strategic and instrumental, forming part of a generalised mode of governance by numbers.[45] The main target of critique is the constructedness of numerical measures as a means of 'representing' an external world, in order thereby to expose their failure to live up to the claims made for them (such as objectivity, transparency etc).[46]

However, I have argued that a benchmark such as Libor is the corollary of a style of governing that is *already* reflexive about the gap between the real and the ideal, and which deploys a set of – primarily legal – knowledge practices as a means of acknowledging its limits, and of working instead within the affordances and constraints of the legal form. In that respect, the findings of this thesis resonate with what Desai and Lang call 'global ungovernance' – a logic of institution-building encompassing such diverse artefacts as market benchmarks used in trade law to measure the presumed distortive effects of 'conscious' decision-making, and ethical trading standards and their associated regimes of meta-standardisation – the target of which is not to *close* the gap

[44] Laura Silva-Castañeda, 'In the Shadow of Benchmarks. Normative and Ontological Issues in the Governance of Land' (2016) 48 Environment and Planning A 681, 682; Isabelle Bruno and Emmanuel Didier, *Benchmarking: L'État sous pression statistique* (La Découverte 2015).

[45] Alain Supiot, *Governance by Numbers: The Making of a Legal Model of Allegiance* (Hart Publishing 2017).

[46] Andrew Lang, 'International Lawyers and the Study of Expertise: Representationalism and Performativity' in Moshe Hirsch and Andrew Lang (eds), *Research Handbook on the Sociology of International Law* (Edward Elgar Publishing 2018).

between the real and the ideal but to 'embrace' it 'as a way of building and holding together spaces for collective action…'[47]

10.7.5 A political economy of the benchmark form?

One limitation of the analysis in this thesis is that it does not address itself to a more in-depth critique of the configuration of power relations it outlines, for example, in terms of how the reproduction of the benchmark form animates the distribution of wealth and political power in society.

As I explained in Chapter 2, the scope of my research is partly a natural consequence of my methodological choices, in view of the way my case study is bounded by reference to the reform discourse and the extent of my access. What I have tried to show in the presentation of my empirical material is the subtle power of the benchmark form as it came across in my data, including my interviews. Despite the best efforts of reformers, financial actors do not think about benchmarks very much – in instrumental terms or at all. But that is the point. It is in these silences that the agency of the benchmark form is expressed.

In writing the thesis I have written, therefore, I have tried to draw conclusions that do justice to my material and are analytically sound and empirically grounded. A different thesis might have spent more time investigating the implications of my findings

[47] Deval Desai and Andrew Lang, 'Introduction: Global Un-Governance' (2020) 11 Transnational Legal Theory 219, 228.

from the point of view of the political economy of the benchmark form but that was not mine to write. It is, however, possible to make a few preliminary observations.

I have argued that a defining feature of the discourse of measure that constitutes the agency of the benchmark form is a kind of radical conservatism. Its distributional effects are difficult to pinpoint because they are disguised, incremental, and path-dependent, becoming most visible at moments of crisis, as exemplified by the discourse of 'transition' in benchmark reform work, whose ultimate aim is to minimise 'value transfers' and maintain the political and economic status quo.

The 2007-8 financial crisis set the stage for various forms of 'anti-economic' politics in the West.[48] The performative display of bank bailouts and quantitative easing, Davies argues, has resulted in a weakening of the neoliberal economic critique and the revival of juridical power in unpredictable guises in neoliberal societies – notably (his examples suggest) in discourses about money. This has seen central banks become targets for populists aiming to reclaim the power of final decision for 'the people',[49] and the proliferation of non-state forms of monetary and economic sovereignty, such as cryptocurrencies and algorithmic decision-making in markets, which operates 'neither within nor without the law'.[50]

Yet, amid these centrifrugal pressures (of which Libor's envisaged abolition can also be considered an effect), the reproduction of a discourse of measure in the form of

[48] William Davies, 'The Revenge of Sovereignty on Government? The Release of Neoliberal Politics from Economics Post-2008' [2021] Theory, Culture & Society <https://doi.org/10.1177/0263276421999455> accessed 5 June 2021.

[49] Davies (n 48) 19.

[50] Davies (n 48) 20.

the rate of interest remains virtually seamless, inducing 'a severe case of collective institutional amnesia' about the way money is managed.[51] In his 2020 book, *Another Now*, former Greek finance minister and economist Yanis Varoufakis describes an 'alternative present' post-2007/8 financial crisis – a radical vision of a world without banks, in which corporate power and property rights are democratised. But it is also a world in which the technical discourse of the rate of interest is preserved more or less intact. A more powerful central bank governs the monetary system as if responding to outside influences; only now 'the market' is no longer mediated by a financial apparatus, but by an algorithm.[52]

This says as much about the power of neoliberal thinking as it does about the benchmark form which it has instrumentalised so effectively. If ever we stop to think about how value is evaluated, and how it might be done better, we are faced with the same question that the early neoliberals posed: given that no-one can know, what is the cost of being wrong?

All of this seems to paint a fatalistic image – a world stuck in a holding pattern of ingrained inequalities. But I want to suggest, by way of conclusion, that there is something hopeful about the benchmark form.

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[51] Benjamin Braun and Leah Downey, 'Against Amnesia: Re-Imagining Central Banking' (2020) Discussion Note 2020/1 Council on Economic Policies (CEP) 1–2 <http://hdl.handle.net/21.11116/0000-0005-A686-8> accessed 28 May 2021.

[52] Yanis Varoufakis, *Another Now: Dispatches from an Alternative Present* (Random House 2020) 124.

10.8 Conclusion

One commentator, observing the struggles of US reformers to encourage financial actors to take up SOFR in their transactions, imagined a post-Libor world in this way:

> Maybe the senior banker will say "ah yeah their term loan is at Libor plus 50" and the analyst will be confused and go back to her desk and ask the associate "hey what does Libor plus 50 mean" and the associate will be like "it means SOFR plus 76, that's just how people talk sometimes.[53]

These somewhat tongue in cheek remarks say something important about the agency – and hopefulness – of the benchmark form. As I have shown, those of my interviewees classed among 'the tail', who did not think of themselves as having a stake in benchmark reform, may have felt disenfranchised but they were not nihilistic. Their passivity in the face of reformers' urgings to change their practices was a form of resistance which presupposed and reappropriated the shared 'memory' of measure in creditor-debtor relations that the benchmark constitutes in provisional form. In doing so, they demonstrated that the instrumentality of the benchmark form can work both ways – as a tool of government and also of 'not being governed like that and at that cost'.[54] They did not care whether the benchmark was called Libor or something else because the measure they knew was the same.[55]

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[53] Matt Levine, 'Libor Is Going Away for Real' *Bloomberg* (8 March 2021) <https://www.bloomberg.com/opinion/articles/2021-03-08/libor-is-going-away-for-real> accessed 15 May 2021.

[54] Michel Foucault, 'What Is Critique?' in Sylvère Lotringer (ed), *The politics of truth* (Semiotexte 2007) 45.

[55] In a similar way, Riles argues, we can think of legal knowledge as constituting the 'hopeful' agency of those who instrumentalise it 'as it passes from one set of legal hands to another'. Annelise Riles, 'Is the Law Hopeful?' in Hirokazu Miyazaki and Richard Swedberg (eds), *The Economy of Hope* (University of Pennsylvania Press 2017) 141.

The French that Foucault uses when describing the measure of money in Ancient Greece conveys more precisely this effect of an equality of arms between benchmark users: *la mesure*, meaning moderation and the absence of excess.[56] The commitment that the benchmark form makes is not to any particular group or political agenda but to the social bond – that by ensuring that valuations are neither *too* high nor *too* low the community as a whole is preserved into the future.

Hopeful or not, it was this effect of solidarity that was threatened by the financial crisis of 2007-8 and its fallout, most egregiously by the actions of individuals such as Tom Hayes, apparently able to exploit the system for themselves. The 'manipulation' scandal had all the drama of a Hollywood blockbuster: 'The wild story of a maths genius, a gang of backstabbing bankers, and one of the greatest scams in financial history'.[57] But the pathos of Hayes' situation is that what he did exposed the conceit of a 'market-led' benchmark without ever transgressing the boundaries of its form. The discovery of his actions and the making of a 'problem' out of them was enough to reveal the technique behind the technicality, resurfacing a debate about the value of values that is having to be forgotten all over again.

[56] Michel Foucault, *Lectures on the Will to Know: Lectures at the Collège de France, 1970-1971, and Oedipal Knowledge* (Picador 2014) 143–44.

[57] Enrich (n 1).

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