Narrating imagined crises

How central bank storytelling exerts infrastructural power

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Narrating imagined crises: How central bank storytelling exerts infrastructural power

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Abstract

While a rich literature has examined how central banks mobilize narratives to enrol publics in monetary policymaking, the effects of the narratives deployed in banking supervision remain neglected. Drawing on 21 expert interviews, this paper fills that lacuna through a study of stress testing, a technique that became a fixture of international banking supervision after the 2008 crisis and which the Bank of England is using to align the risk management of the United Kingdom's banks with its sense-making about emerging financial stability risks. I theorize the entanglements of the Bank's financial stability narratives with binding supervisory requirements as giving rise to a new form of 'infrastructural power'. This perspective explains why some financial sector actors see their decision-making autonomy being sapped away by the Bank's stress tests even though they work through banks' own risk sensitive calculative infrastructures. The paper's findings also point to how the infrastructural affordances of central banks' forward-looking narratives are pushing the temporal frontier of the state-economy boundary further into the future than has traditionally been considered an appropriate operational domain.

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Introduction

It is now widely recognized that central banks trade in an 'economy of words' (Holmes, 2009; see also Smart, 2006). The vocal intonations of a central banker on the public stage can move markets and the stories which underpin central banks' inflation reports and research publications aim to persuade the public of the credibility of their policy commitments (Abolafia & Hatmaker, 2013). For these reasons, Douglas Holmes (2014) describes monetary policy as a vast 'communicative experiment' oriented towards crafting 'collaborative relationships' with the public. The ability to tell a good story is critical for enacting a performative dynamic whereby markets respond predictably to central bank communications (Blinder, 2004; Braun, 2015; Velthuis, 2015), thus establishing the economy as a 'communicative field and as an empirical fact' (Holmes, 2014, p. 5).

In the aftermath of 2008 financial crisis, narrative governance techniques have also taken root in international banking supervision. On a yearly basis, banks are asked to simulate severe but plausible hypothetical stress scenarios that describe what would happen to the economy if, for example, there was a global recession or a Chinese housing market crash. The results of the test then determine whether banks are asked to raise more capital or allowed to issue dividend payments and engage in share buybacks. Existing social scientific research has focused on how stress tests fortify central banks' forward-looking, communicative apparatuses. In this vein, stress tests have been credited as yielding an anticipatory 'enactment based knowledge' (Langley, 2013, p. 54); as a Foucaldian 'truth procedure' for establishing the value of banks' assets (Violle, 2017); and as a tool for improving the '*epistemic quality* of fictional expectations' (Beckert & Bronk, 2018, p. 16; original emphasis). Elsewhere I have contributed to this line of research by showing that stress tests are a carefully stage managed Goffmanian performance intended to generate predictable results and shore up confidence in the banking system (Coombs, 2020).

However, there remains a considerable gap separating work on how central banks mobilize narratives to implement their policies with political economy scholarship on how power is distributed between public and private actors, states and markets (an exception is Braun, 2016). In this paper, I bridge these fields of research by showing how the introduction of narrative governance techniques to banking supervision is reconfiguring the power relations between central banks and the commercial banks they govern. Drawing on expert interviews with high-level regulators, financial practitioners and other stakeholders in the Bank of England's stress testing programme, my findings show the Bank's forward-looking stress

scenarios serve to align the risk management and capital allocation of the UK's commercial banks with the Bank's macroprudential 'sensemaking' (Abolafia, 2010) about emerging risks to financial stability. Put differently, the paper's findings show how the Bank's forward-looking 'doomsday' narratives are being instrumentally deployed to steer the management of commercial banks in ways that have hitherto not been appreciated within the social sciences.

The conceptual contribution of the paper is to theorize the effects of the Bank's narrative governance techniques as a case of what historical sociologist Michael Mann (1984) terms 'infrastructural power'. Mann's (2008) concept is usually associated with comparative research on how modern democratic states have built their power to organize civil society through centralized infrastructures such as money, statistics and surveillance technologies. More recently, the concept has been adopted in sociology to grapple with the reciprocal 'two-way street' (Mann, 1993, p. 59) of state power, in which the infrastructural extension of power relations outwards from the state also provides a channel for civil society and capitalist interests to exert power *over* the state (Tarrow, 2018). Addressing the latter dynamic, the social studies of central banking has advanced the idea that central banks' increasing reliance on governing through financial markets has locked them into interdependent relationships with those markets, explaining some central banks' resistance to reforming how the financial system operates after the financial crisis (Braun, 2020; Walter & Wansleben, 2020).

This paper builds upon this work but opens a new line of research by showing how stress testing narratives serve as a 'routinized media' (Mann, 2008, p. 358) for increasing central banks' infrastructural power over the banking sector. As opposed to Holmes's (2014) emphasis on the collaborative 'narrative relationships' communicatively cultivated in monetary policymaking (p. 97), my aim in this paper is to demonstrate that the infrastructural power of stress testing narratives lies with the entanglements they forge between the Bank's macroprudential sensemaking and the legally binding capital regulations which constrain the risk management of private banks. These insights improve our understanding of post-crisis financial governance in several respects. First, they shine a light on why some financial actors see their decision-making autonomy being sapped away by stress tests even though these tests work through banks' own 'risk sensitive' calculative infrastructures. Hence, the paper shows that continued reliance upon banks' own risk management models does not necessarily imply continuity with the pre-crisis *status quo ante* (Admati, 2016; Helleiner, 2014; Lockwood, 2015). Second, the paper's findings point to how the deployment of forward-looking narratives is becoming a key logistical technique deployed by central banks to mobilize private sector actors towards public policy goals. From an infrastructural perspective concerned with the pragmatics of power (Konings, 2010), these entanglements can be understood as folding the state's anticipations of the future into private sector conduct, pushing

the temporal frontier of the state-economy boundary further into the future than has traditionally been considered an appropriate operational domain for central banks (Coombs & Thiemann, 2022).

The rest of the paper is structured as follows. The next part develops the case for understanding central bank narratives as a tool of infrastructural power. The following section presents the study's data sources. In the next section, I explain why the Bank adopted a narrative-driven approach to financial stability governance after the 2008 financial crisis. The subsequent section turns to the power dynamics emerging when the Bank's stress testing narratives were embedded within banking supervision. In the final section, I reflect on how an infrastructural perspective brings into sharper view salient developments in post-crisis financial governance, central banking and state-market relations.

Understanding narratives as a tool of infrastructural power

Over recent decades, the narrative nature of central banks' monetary policy-making has enabled a productive interplay between social theory and studies of financial governance and central banking. As Holmes (2014) observes, the rise of new approaches to monetary governance since the late 1980s, with their emphasis on the communicative cultivation of public expectations, has encouraged central banks to engage in large-scale ethnographic fieldwork where the stories solicited from business leaders feed back into the narratives underpinning central banks' macroeconomic forecasts and their justifications for interest rate decisions (p. 86). Similarly, Smart's (1999) work on how central bankers craft a 'monetary policy story' to overcome contradictory signals in macroeconomic data, resonates with Jens Beckert's (2013, 2016) understanding of how capitalism relies on the forging of 'fictional expectations' to help instil conviction in actors (see also Chong & Tuckett, 2015). To study central bank narratives has become closely associated with attending to the communicative interface between the central bank, public and markets (Braun, 2015, 2016; Riles & Miyazaki, 2022; Velthuis, 2015), with the research problem being to understand how central banks 'orient and align the ecology of discourses' to render persuasive their 'economic allegories' (Holmes, 2014, p. 110).

And yet, Holmes (2014) himself notes that his work does not extend as far as banking supervision and financial stability governance (p. 3). This is a significant lacuna in the aftermath of the 2008 financial crisis where financial policy committees, financial stability reports and stress testing of the financial system has emerged, at least in principle, on an equal standing to monetary policy in central banks' communicative apparatuses (Ibrocevic, 2022; Thiemann, 2022). Some scholars have partly filled that gap. Paul Langley (2013), for instance, provides an arresting example of communicative dynamics in financial stability governance when he details how the 2009 US Federal Reserve

Treasury stress test revealed shortcomings in banks' capitalization but did so in a transparent manner which restored confidence in banks' data and delivered a 'positive affective charge' to markets (p. 54).

Nevertheless, while there are certainly interesting communicative tensions negotiated by central banks in their financial stability interventions (see also Coombs, 2020), the purpose of this paper is to show that stress testing narratives now play a more direct role in how central banks govern the management of commercial banks. The observation stems from the fact that the tests themselves are grounded in a complex, 'public-private' supervisory architecture.[1] Take the case of the Bank of England's testing procedure, which combines elements of 'top down' and 'bottom up' testing (a shorthand for who does the lion's share of the calculative work in the testing process, the central bank, or the private banks). After the stress scenario is released by the Bank, the private banks subject to the test are tasked with running the simulation, calculating the risk on their balance sheets, conducting a governance simulation in response to the findings and returning the results of the exercise back to the central bank. Understanding how the narrative form of these stress scenarios gives shape to the supervisory process and affects its *internal* power relations is the black box this paper seeks to shed light into.

To gain analytical leverage on these power dynamics, I enlist Mann's (1993) theorization of infrastructural power to do the heavy lifting. There is a comprehensive menu of different theorizations of power available to social scientists, but Mann's conceptualization has analytical benefits which have only started to be explored by scholars of financial governance in recent years (Braun, 2020; Braun & Gabor, 2020; Schwartz, 2019; Walter & Wansleben, 2020). For the present study, Mann's concept has two principal advantages. First, the notion of infrastructural power complements empirical research on the effects of models, market devices and 'technologies of government' (Callon *et al.*, 2007; MacKenzie, 2006; Miller & Rose, 2008). Mann has been criticized for leaving the 'empirical reference' of infrastructural power frustratingly vague in his work (Gorski, 2006). But as Heiskala (2016) argues, this indeterminacy can be seen as an opportunity to extend Mann's typology of power to scientific power through a rapprochement with Foucauldian governmentality studies and actor-network theory.[2] In dialogue with these traditions, others argue, Mann's notion of infrastructural power provides a useful conceptual tool for understanding the effects of technological change in finance (Bernards & Campbell-Verduyn, 2019). Extending the work of these scholars, it is my contention that Mann's concept of infrastructural power is particularly useful for grappling with the effects of 'regulatory science' (Coombs, 2020; Jasanoff, 2011; Thiemann, 2022) in financial governance when it is oriented not just towards knowledge generation but also redistributes power between public and private actors.

The second reason why Mann's concept helps elucidate this study is that while existing work on the infrastructural power within the social studies of central banking has focused on monetary policy, infrastructural entanglements

are if anything even more pronounced in financial stability governance. The post-crisis macroprudential policy shift is exemplary (Baker, 2013). Although defined by its concern with 'systemic risk' rather than ensuring the sound management of individual institutions (Özgöde, 2021), macroprudential supervision still relies upon closing knowledge gaps and driving governance changes at the level of individual banks (Bank of England, 2009). That, in turn, requires enroling banks in supervisory processes and working through the banks' own calculative infrastructures to deploy macroprudential instruments such as countercyclical capital buffers and the countercyclical risk weighting techniques discussed later in this paper. As Braun (2020) notes: 'Where central banks take on responsibilities beyond monetary policy – such as banking supervision or macroprudential regulation – their infrastructural dependencies should be expected to increase' (p. 401). The aim of this paper is to show that this prediction holds true with respect to central banks' stress testing narratives. Although monetary policy narratives exert infrastructural power by forging 'collaborative relationships' with the public, the entanglement of stress testing narratives with supervisory rules and bank capital requirements creates a multilayered complex of infrastructural dependencies of a different character. This paper shows that the narrative-enabled, infrastructural power dynamic in financial stability governance is governed by rules, binding supervisory requirements and accountability mechanisms rather than the communicative logics of persuasion and expectation management in monetary policymaking.[3]

Methodological note

The empirical research from which this study draws began in 2016 as an exploratory research project into the Bank of England's stress testing programme, which launched publicly only two years previously. I attended three industry conferences on stress testing in London, where participants were grappling with this novel procedure at a time when it had not yet become just a 'boring' routinized supervisory technique (as several of my interviewees would describe it some years later). At the events, Bank representatives impressed upon the audience the insufficiency of taking a mechanical approach to simulating their scenarios. They emphasized that what they were looking for was transparent forms of modelling that could provide a clear relationship between risk calculations and the story underpinning the scenario. As Bank figures cautioned their audience of financial professionals (to paraphrase): 'it's no use just putting the scenario variables into your models and telling us you're doing just fine; the whole point of the test is to see how you handle the stress and to show us that you are taking the exercise seriously'.

Seeking to understand how the narrative dimension of the exercises meet its calculative nuts and bolts, questions I asked in my research included: how are the stress scenarios crafted, why is there such a strong emphasis on the

Table 1 Study's 23 interviewees (2016–2020) listed by professional category

Current and former regulators at Bank of England and European regulatory institutions	9
Current or former risk, stress testing and treasury managers at United Kingdom banks	8
Financial 'quants' and software engineers	3
Other stakeholders (consultant, lobbyist, academic)	3

narrative and what effects do narrative requirements have on bank conduct? To answer these questions, I spoke to a balanced mix of public and private actors involved in the Bank's tests, all with substantial expertise and some of high seniority. In total 21 group and individual expert interviews (with 23 interviewees) were conducted between 2016 and 2020, including with former and current regulators and policymakers at the Bank's financial stability and macroprudential divisions and European regulatory institutions; stress testing managers and treasurers at UK banks; economists and 'quants' at UK financial institutions; and interviews with an industry lobbyist, consultant and publicly-engaged academic (professional breakdown of interviewees are listed in Table 1). All interviews were conducted on the condition of anonymity. These interviews were supplemented by informal interactions with Bank representatives over the years as well as engagement with a large body of official policy documents.

The relatively long duration of this study provided an opportunity to witness the evolution of the Bank's stress testing programme and to contextualize financial stability governance and stress testing as part of the broader history of central banking. Accordingly, the empirical sections begin by establishing historical context to the Bank's macroprudential operations, before examining the power dynamics resulting from narrative governance techniques being embedded into banking supervision.

Scripting the financial stability story

To understand why narratives emerged as an important governance technique for the Bank's approach to post-crisis banking supervision and macropruduential regulation requires beginning with the shifting rationalities of the post-financial crisis period. This was a time in which monetary policy, though judged insufficient in light of central banks' failure to see the 2008 financial crisis coming (Fligstein *et al.*, 2017), retained its stature as the most formally impressive area of central banking. When financial stability returned to being a core function of central banking there was therefore an attempt to extend the best aspects of the monetary policy script to financial stability policymaking, including the emphasis on transparency, clear communication and scientific justification for policy decisions (Marcussen, 2009). The Bank's institutional

innovations are exemplary: after taking back control of banking supervision from the former Financial Services Authority in 2013, the Bank became the home for a new Financial Policy Committee (FPC) modelled on its Monetary Policy Committee (MPC), in principle granting financial and monetary stability equal importance within the organization. Still, to achieve the legitimacy and credibility that monetary policy had established over previous decades, the FPC would need a suitably ambitious rationale for its activities. This was provided by the macroprudential policy shift announced by the London meeting of G20 in 2009, which issued a directive to central banks to rise to the challenge of monitoring risks emerging in the financial system that might imperil national macroeconomies.

Although publicized by central bankers as a paradigm shifting 'new ideology' (Haldane, 2009), the term macroprudential dated back to the late 1970s (Clement, 2010; Maes, 2010), and was proposed against a backdrop of developments that were even then challenging central banks' control over financial stability: the collapse of the Bretton Woods system, the removal of quantitative controls on bank lending, growing instability in the money markets, and increasing cross-border capital flows (Özgöde, 2021; Walter & Wansleben, 2020). Initially conceived as an approach intended to simply bring macroeconomic stability considerations to bear in the supervision of banks, in the 2000s the notion of macroprudential supervision was supplemented by thinkers such as Avinash Persaud (2000) and Claudio Borio (2003) by the idea that destabilizing cycles of leveraging and deleveraging are hardwired into the behaviour of financial markets. The idea was that pro-cyclical, 'risk sensitive' capital regulations amplified a problem already diagnosed by Hyman Minsky's (2016) financial instability hypothesis in the 1970s: namely, that 'stability … is destabilising' (p. 103) when it encourages financial firms to become over-reliant on unstable money market funding of their liabilities. When instrumentalized after the financial crisis, the macroprudential perspective took the form of two related but distinct regulatory programmes. On the one hand, the macroprudential approach was interpreted as an imperative to increase the resilience of the financial system and minimize the damaging spill over effects of financial crises on the economy. On the other hand, macroprudential supervision was seen by others as more ambitiously calling for countercyclical policies to smooth out the credit cycle and prevent crises from happening in the first place (Thiemann, 2019).

The Bank's post-crisis financial stability mandate granted to it by Parliament was expansive enough to accommodate both approaches. However, the mandate posed problems for the accountability of the Bank's interventions. That is because the Bank's macroprudential toolkit afforded it potentially sweeping powers to control the distribution of credit within the economy. Indeed, the Bank's new macroprudential toolkit granted it far reaching supervisory powers that were mostly left behind since the deregulatory Competition and Credit Control framework introduced in 1971 abolished quantitative controls on bank lending (Kynaston, 2017, p. 495). There was, however, one

critical difference between the Bank's macroprudential instruments and mid-twentieth century credit controls: their temporal variability. The counter-cyclical capital buffer enabled the FPC to notch up and down system-wide capital requirements for all UK banks in response to emerging threats; sectoral capital requirements allowed the Bank to make targeted interventions to increase the risk weighting on lines of bank lending that appeared to be over-heating; and loan-to-value and loan-to-income caps on residential mortgage lending by banks provided a potentially strong lever to dampen down a house price bubble (Bank of England, 2011).

How could the Bank justify the use of macroprudential tools at a specific point in time? The goal of financial 'resilience' was not quantified, meaning there was no accountability device for its macroprudential interventions equivalent to the inflation target in monetary policy. More problematically, the macroprudential analyses that had been developed over the preceding decade were primarily conceptual, without achieving full academic recognition or offering reliable early warning indicators of financial instability (Borio *et al.*, 2014; Thiemann, 2019; Thiemann *et al.*, 2021). The Bank's macroprudential division thus faced the difficulty of analysing a potentially limitless series of risk indicators with no clear way of weighting their significance or understanding their interaction.[4] In the technical rubric of the field, macroprudential analysts lacked reliable tools for 'risk aggregation' (quantifying the overall risk posed by indicators of financial over-heating). Without being able to explain why credit growth has risks for the economy at a particular point in time, justifying the use of macroprudential tools would be difficult. A senior macroprudential analyst in the Bank explains the problem: 'It's a hard thing to tell banks, across the board, we're going to tighten your requirements. So, I think the biggest challenge is having sufficiently strong evidence that risks are growing in the economy' (Interview, 15 March 2019). Underpinning this dilemma was the immaturity of macroprudential supervision. A former senior figure in the Bank argues: 'I think if you say, 'manage the credit cycle' [with] the current state of knowledge – it may be different in 25- or 50-years' time – I don't think there's any way of judging whether or not they've succeeded' (Interview, 15 May 2019).

That is one reason why narratives came to play a large role in the Bank's post-crisis financial stability operations. Conscious of the limitations of its economic analysis, providing a narrative of the financial risks facing the UK economy within the Bank's biannual Financial Stability Report helped to secure the accountability of the FPC's decisions when making potentially controversial decisions about the use of its macroprudential instruments. Unlike central banks, such as the European Central Bank, which an interviewee in the Bank told me rely on using mechanical risk aggregation models: 'Our [Financial Policy] Committee – I think because they have to tell a story about why they're taking decisions, there's a narrative that comes with explaining your actions – they've put less weight on that sort of analysis' (Interview, 15 March 2019). Or as a senior policymaker at the Bank explains:

> All of it I think is about us being forced to explain ourselves so that we can held to account. That's why there's a narrative for the stress test scenario, that's why the financial stability report, having figured out all the detail, then faces the challenge of how do we explain this … even if we did have some numerical mechanism that we could put everything into and it would crunch away and come up with the answer, I still think from a public policy perspective we would need to be able to explain why that answer, why not a different answer.[5] (Interview, 8 January 2020)

One such narrative is the 2021 Bank stress test scenario. Drawing on the Bank's financial stability analysis of the risks posed by the COVID-19 global pandemic, the scenario imagines an 'intensification of the structural changes' wrought by pandemic on the UK economy and narrates their effects as follows:

> Changing patterns of behaviour will lead to a reallocation of resources and a rise in the medium-term rate of unemployment, in part because some workers need to retrain or move between sectors. The 2021 stress scenario assumes these developments are even more pronounced, with sectors such as hospitality, leisure, construction and transport particularly affected … Globally, the scenario implies weak world trade, with ongoing weaknesses in output particularly apparent in those countries more exposed to vulnerable sectors and more reliant on tourism, high oil prices and/or have greater dependency on external finance. (Bank of England, 2021b, p. 6)

In addition to justifying the nature and severity of the stress scenario, my interviewees involved in designing the Bank's stress scenarios emphasized cognitive and organizational benefits to their narratives. One told me, 'having a narrative is always really important … it actually really helped us design the framework, because I think the most important thing when you're designing stress tests is thinking about [… what] could cause this kind of scenario to occur' (Interview, 23 August 2016). These considerations are necessary because the hypothetical nature of the scenarios makes it tempting to tinker arbitrarily with their macroeconomic variables. The discipline imposed by having to craft a narrative constrains the potential for excessive discretion since 'one of the weaknesses … . is the arbitrariness of the scenarios, really. I sat on a scenario committee and had people saying: let's move that rate a point. [It] probably needs a bit more analysis than that' (Interview, 22 November 2016). Moreover, with there being a potentially limitless number of hypothetical scenarios that could be tested, the narrative allows the committee to ask if it is 'something we actually think is likely? Is it the right thing to be looking at?' (Interview, 14 December 2016). The narrative helps to explain the scenario as 'you can't communicate the scenario if it's just a bunch of tables' (Interview, 5 December 2016).

To summarize, the compulsion to provide a narrative for the Bank's stress scenarios draws on a well-established script in monetary policy making for

making sense of economic data and justifying policy decisions (Abolafia, 2010; Smart, 1999). However, with there being a potentially limitless number of 'severe but plausible' stress scenarios that could be simulated, narratives serve an additional role in financial stability governance in constraining excessive discretion. Because a numerical spreadsheet of variables does not 'speak for itself', the narrative seeks to render accountable the design of a stress scenario through its 'narrativization' into a coherent and authoritative story linking together past, present and future (Fisher, 1985; White, 1980). As the next section shows, when embedded within the supervisory process forward-looking narratives allow the Bank to exert infrastructural power over commercial banks through their entanglement with supervisory reporting requirements and capital regulations. The combined effect is to force banks to align their macroeconomic modelling and capital allocation with the Bank's macroprudential sense-making.

How stress testing narratives exert infrastructural power

Since beginning as an annual process in 2014, the Bank's stress tests have served multiple purposes. These have included nudging commercial banks to bring their capitalization up to the Basel III standards ahead of the implementation deadline; exploring the international and domestic exposures of different banks to decide which need to raise more capital; and deciding whether macroprudential instruments like the countercyclical buffer need to be raised or lowered (Interview, 8 January 2020). The countercyclical goals of the tests were formalized by the Bank in 2016 when it launched its Annual Cyclical Scenario (ACS). The goal of the ACS is to formally align the Bank's annual stress test scenario with the macroprudential judgement of the FPC about the United Kingdom's current position in the financial cycle. However, other than using stress tests to 'inform' the calibration of the countercyclical buffer (Coombs, 2020), the Bank's public documents are vague about how the design of the stress scenarios serve countercyclical objectives more broadly. The following sections shed light into that supervisory black box.

The narrative imperative as a driver of calculative change

One effect of the Bank's stress testing narratives is to force commercial banks to justify their modelling assumptions in terms of that narrative when they return the results of the exercise to their supervisors.[6] The effects of this requirement are most apparent at the stage of the test when banks need to expand the stress scenario into a more detailed macroeconomic forecast. The expansion is necessary because while the Bank provides macroeconomic variables projected four years into the future (UK GDP, unemployment rate, etc.) as well as yield

curves for major sovereign bonds, banks need an even greater number of variables to simulate the effect of the stress scenario on the specific assets and liabilities that populate their balance sheets. An economist in charge of this process at one of the UK's largest commercial banks described how in building out the scenario:

> The regulators don't necessarily want some start of the art modelling, but they want a clear, transparent process … So the idea is to have a clear link between the narrative and the forecast through the model … You know, it was much looser five to seven years ago. Right now the connection is more straightforward and we got better at it; we are forced to by the regulator. (Interview, 14 June 2016)

The importance of this supervisory requirement is evident in the increasing prominence of the qualitative assessment component of the Bank's stress testing programme. The qualitative assessment requires that alongside their modelling data banks need to return to their supervisors, they also need to return a written, narrative document explaining how they simulated the scenario and how they responded to the results of the stress test in their hypothetical governance actions. The head of stress testing at a major UK bank recalls that the report they returned to the European Banking Authority in response to the early 2011 eurozone stress test included a 'spreadsheet … and where there were narrative Word documents, nothing fancy'. By the time of the first 2014 Bank stress test, in contrast, '[the regulator] got 50 megabytes of Word documents'. This was 'just literally a narrative. So something that says, these are the results; main drivers are XYZ' (Interview, 22 November 2016). A head of stress testing at another UK bank emphasizes how important the narrativization of their economic modelling is, seeing converting the stress test simulation into an intelligible story for their supervisors as the main point of the exercise:

> Part of, in all of this, is that stress testing is … part science, part art, part voodoo … as well as using all the science and economic theory at our disposal to help do it, we're also telling a story. So at some level we're storytellers. You know, we talk specifically about the narrative around the stress test. What is the story about? What does it mean? … We're also partly narrating a fiction, but I hope a powerful and meaningful fiction. (Interview, 23 August 2016)

To the extent that these findings represent a wider shift in the risk management of UK banks, they suggest that the Bank has been successful in exporting its narrative-based approach to financial stability analysis to how commercial banks conduct their own economic modelling. Just as the Bank provides commercial banks with a macroeconomic narrative about potential threats to financial stability, so too do the banks subject to the stress test need to provide their supervisors with a narrative about how they responded to the scenario in a way that fleshes out the specific risks facing their organizations. In so doing, the narrative imperative in the stress test forges a public-private storytelling circuit

that not only records but actively affects how banks conduct their modelling. Put in Mann's (1984) terms, the narrative form of the Bank's stress scenarios functions as a 'logistical technique' (p. 192) for exercising a form of power that works *through* rather than against the private sector's own economic modelling and governance infrastructures.

How stress scenarios influence banks' capital allocation

A potentially more consequential effect of stress testing narratives is how they are used to align banks' capital allocation with the Banks' macroprudential judgements about emerging financial stability risks. Capital allocation is at the core of bank strategy and refers to how banks distribute their capital across their business lines (e.g. mortgage lending, small business loans, financial trading, etc.) and attempt to gain competitive advantage by maximizing 'return on equity' within the constraints of regulatory capital requirements (Admati & Hellwig, 2013). For example, one bank might concentrate its lending in mortgages, whereas another might put more emphasis on unsecured consumer lending. The freedom banks enjoy determining their own investment strategies has been a source of contention ever since the first capital ratio requirements and asset risk weights introduced by the Basel Accords in 1988. These centrally-determined risk 'buckets' led financial actors to worry that banks' investment strategies were being shaped by regulations (Goodhart, 2011); concerns that eventually resulted in amendments to the Accords allowing banks to make use of their own models to determine the riskiness of their assets.[7] The idea that stress testing narratives might be returning the risk weighting of assets to regulatory authorities is therefore a potentially controversial extension of the Bank's infrastructural power in banking supervision.

The mechanism through which stress test scenarios shape banks' capital allocation is complicated and indirect but functions broadly like this: if the Bank's stress scenario implies heavy losses in particular lines of lending, then that increases the *implicit* risk weighting of those lines and the relative cost of capital for a bank to lend to those sectors. A bank could continue to lend to those sectors, but with the results of a stress test serving as a binding capital requirement a bank would likely have to reallocate capital from another line of lending to do so. A senior staff member in the Bank's macroprudential division explained to me that emphasizing certain risk factors in the scenario narrative serves to 'implicitly determine the capital charges banks face on different lending types' and 'to the extent that banks internalize that the scenarios will become tougher in areas that are becoming hotter, they should understand that the capital charges (aka risk weights) on those exposures will go up' (Personal communication, 22 March 2019). One example of the Bank using the design of the stress scenario to adjust these implicit risk weights was in 2018. The Bank felt there was a potentially dangerous build-up of consumer credit, and so the Bank adjusted the losses on consumer credit in the stress test scenario

to be consistent with the projected increase in unemployment. A senior policy-maker at the Bank explains that the aim was to encourage banks to 'factor into their capital planning the scenario to some degree' (Interview, 8 January 2020).

My interviews with decision makers at UK banks suggest that the intended 'internalization' of the risk weights implicit to the Bank's stress scenarios may be having the desired effect of influencing banks' capital allocation. A former treasurer of a large UK bank observed: 'you go through the stress process and you figure out, okay here's in some sense a plan for the structure of our balance sheet' (Interview, 15 May 2019). The same interviewee also describes how central bank stress tests:

> will definitely influence a plan for your [loan] origination … there's a feedback loop. So, if you had the stress scenarios, you'll apply those to your current plan and if you don't quite come up with the right capital shape at the end of the plans, you'll revise your allocation. (Interview, 15 May 2019)

Reflecting on how the Bank's stress scenarios allow the Bank to adjust the risk weighting of different types of assets, the interviewee commented that the Bank are 'making at some level judgments about business plans, aren't they, about what's good and what's bad. Which is slightly tricky I think for the regulator to be determining that' (Interview, 15 May 2019).

More trenchant criticism of the use of stress testing to drive changes in how banks allocate their capital surfaced in an article in the leading trade journal, *Risk*, subtitled 'Regulators shouldn't run a bank – but Basel III and stress tests have put them in the cockpit' (Alexander, 2019).[8] The piece argues that stress tests 'have begun to warp business decisions at banks', leading to banks abandoning their strengths in traditional areas of lending. A banking sector consultant echoed that sentiment, complaining that stress tests have taken away so much freedom from banks to determine their own investment strategies that:

> banks have become utilities. It's almost a case for saying that there's no point having a private sector banking sector … why don't you nationalize them all, just have one bank: the Bank of England? (Interview, 15 March 2019)

The consultant further claimed that stress tests are starting to 'really undermine the whole concept of a capitalistic type independent market sector for banking'. The result is that these changes are paving a 'slippery slope' towards the central bank having the *de facto* power to take over the management of commercial banks (Interview, 15 March 2019).[9]

With central bank directed capital allocation having become taboo for most central banks since the abandonment of 'credit policy' in the early 1980s (Bezemer *et al.*, 2021; Monnet, 2018), the stress scenario narrative performs a double-sided function. As a routinized medium of control, the narrative allows the Bank to *indirectly* influence banks' capital allocation processes by adjusting the implicit risk weights on types of lending. All things being

equal, a scenario that projects severe losses in particular sectors of the economy will raise the costs of capital for a bank to lend to those sectors and drive their investment elsewhere. At the same time, the stress scenario's narrative legitimates what might otherwise seem unjustifiable supervisory interventions into banks' business strategies. A senior policymaker at the Bank emphasized that 'the private sector shouldn't be forced to factor in the side of the bed that regulator got out of when it's thinking about its capital planning'. For that reason, 'the stress test is a good way to explain regulatory requirements on bank capital because you say, well, this is the scenario I want banks to be able to withstand' (Interview, 8 January 2020). By providing a story explaining the Bank's decisions, the stress test narrative licenses a more interventionary approach than would otherwise be deemed consistent with a liberal economic governance model respecting the freedom of banks to determine their own investment decisions. In this sense, the narrative enables and fortifies the use of stress scenarios as infrastructural instruments for intervening countercyclically into markets.[10]

The discussion in the next section continues the line of argument, suggesting that conceptualizing these new narrative-based supervisory affordances as a form of infrastructural power can bring into sharper relief the changing power dynamics between regulators and financial firms in the post-financial crisis era. I propose that an infrastructural perspective helps to make sense of why some industry actors see their decision-making autonomy being sapped away by stress tests as well as highlighting how the power of central banks' forward-looking narratives is extending the temporal frontier of the state-economy boundary further into the future.

The new temporal frontier of the state-economy boundary

From the mid-2010s onwards, scholars of financial governance have converged on their own narrative about the fate of post-financial crisis regulatory governance. As well as failing to live up to the promise of a new Bretton Woods moment once mooted by world leaders (Helleiner, 2014), regulatory reforms are judged insufficient due to a combination of industry lobbying, the structural power of the United States, and the persistent influence of neoliberal ideas (Konings, 2016, 2018). Even the innovation deemed initially promising – macroprudential regulation – is now widely considered a disappointing failure to enact a paradigm shift in how markets are governed.[11] Mann's concept of infrastructural power was itself introduced to the social studies of central banking to make sense of why the European Central Bank chose to perpetuate rather than challenge risky forms of shadow banking, despite these markets playing a large role in the 2008 financial crisis (Braun, 2020).

Narratives seem an unlikely place to identify a countervailing current where the central bank has decisively increased its power over the banking sector. As the literature tells us, narratives assist central banks in forming relationships

with market actors, aligning public discourses, and attempting to enact the economic futures central banks envisage (Holmes, 2014). Narratives are a tool of persuasion, not of force. Yet as the previous sections have shown, the entanglement of stress test scenarios with supervisory rules and legally binding capital regulations offers infrastructural affordances which can be exploited by central banks to exert power over core aspects of bank management. Why have scholars struggled to recognize these changes? One reason is the assumption is that even after the crisis regulators remained wedded to the philosophy that markets know best and have been reluctant to impose their own views on how risky banks' assets are (Admati, 2016; Helleiner, 2014; Lockwood, 2015). In this vein, the persistence of pre-crisis capital regulations which allow banks to make use of their own risk sensitive models is interpreted as a prime example of regulators' deferential attitude to private finance (Smolenska & van't Klooster, 2022).[12] Another reason is that the changes themselves have been enacted in something of a covert fashion: the infrastructural mechanisms the Bank has mobilized for the macroprudential governance of individual banks are not transparently communicated in the same way as their system-wide instruments like the countercyclical capital buffer (for which see Coombs, 2020).

Whatever the reasons for the oversight, without recognizing the new narrative-enabled forms of infrastructural power exercised by central banks the fine texture of contemporary financial governance remains imperceptible. Not only will the post-crisis innovations of central banks seem like trivial technicalities, but the complaints of industry actors that their decision-making autonomy is being sapped away by stress tests will appear nothing more than hyperbole. Indeed, it will be hard to credit central banks as having introduced any significant changes after the financial crisis. Mann's concept of infrastructural power is so useful here because it loosens up assumptions that any change worthy of note is brought about in a top-down, politically programmatic fashion. With a logistical orientation towards the pragmatics of power, Mann's concept instead draws attention to how states seek to achieve their goals not by replacing but by taking advantage of the private sector's own infrastructures. For the case at hand, I have shown that because the stories central banks tell in their stress tests are embedded into mechanisms for calculating banks' capital adequacy and affect the risk weighting of assets, stress scenario narratives *de facto* constitute a shadow regulatory regime operating on the supervisory backstage. The Bank's new infrastructural levers of influence have not been broadcast loudly and rely upon the coordination of private sector economists, risk managers, treasurers and regulatory supervisors to produce their intended governance effects. Nevertheless, these developments cannot be seen as anything other than an increase in state power over the banking sector.

Thinking more broadly with Mann's concept, another significant change introduced by central banks' forward-looking stress narratives is they have established a new temporal frontier to the state-economy boundary. As the introduction to this

special issue reminds us, Mann's idea of infrastructural power should not be invoked simply to direct attention to the thicket of entanglements between central banks' policy instruments and financial markets (Coombs & Thiemann, 2022). Deriving from the ambitious historical architectonic of his *The sources of social power* (2013) quadrilogy, Mann's concept is better seen as seeking to make sense of how the boundaries between state and civil society are transformed with every infrastructural extension of the power of the state (Coombs & Thiemann, 2022). Because central banks play a privileged role in the construction of the state 'effect' (Mitchell, 1991), they are acutely aware of the potency of their infrastructural power. With every new entanglement of states and markets central banks accomplish they attempt to draw new boundaries between state and economy so that they do not become all-powerful economic planners crowding out the private sector.

Throughout the history of modern central banking, a key boundary central banks have sought to sustain lies with the temporality of their operations. For example, when introducing Open Market Operations to the Federal Reserve's monetary toolbox governor William McChesney Martin chose to restrict the Fed's purchases to Treasury securities maturing in a year or less to not overextend the influence of their asset purchases on macroeconomic dynamics (Conti-Brown, 2016, p. 43). Even the Banque de France, which took a lead role in the state's post-war *dirigiste* regime, continued to uphold a 'fundamental distinction between short-term and long-term credit' (Monnet, 2018, p. 42) when in the 1940s it extended its discounting of commercial paper to paper with maturities up to five years from the previous cap of three months. The same pattern is consistently repeated throughout the modern era: central banks have treated to short-term as the appropriate temporal domain of their operations, in keeping with their fundamental role of supplying liquidity to the financial system. The long-term has been ring fenced as the domain of the market where competitive forces and free enterprise should be left to hold sway.

With these historical precedents in mind, macroprudential regulation and stress testing can be recognized as crucially renegotiating the temporal contract between public authorities and the private sector. The Bank's forward-looking narratives might credibly be seen in the epistemic terms Langley (2013) proposes as a reorientation in financial governance away from probabilistic reasoning towards 'governing through uncertainty'. But from the macropolitical perspective offered by this special issue, the shift might more insightfully be construed as pushing back the temporal limits of the state's domain of operations. The shift received it clearest articulation in a speech on climate policy by former Bank Governor Mark Carney on 'Breaking the tragedy of the horizon' (2015). There Carney suggests the need for an extension of the temporal horizon of monetary and financial stability policy to the timescale of decades (beyond which Carney still considers it the responsibility of the private sector to plan for themselves). Drawing an analogy with the tragedy of the commons, Carney (2015) asserts a new

responsibility for central banks in scoping for emerging risks on the horizon and ensuring that market participants are prepared for these eventualities. The role of the state, he suggests, is not to simply provide a safety net of liquidity and checks and balances on the conduct of financial firms, but to actively guide their activities in line with the scenarios and narratives envisaged by governing authorities.

This paper has shown that underpinning Carney's (2015) novel boundary work are infrastructural entanglements forged between the Bank's forward-looking stress scenario narratives, supervisory rules and capital requirements, which have extended central banks' domains of operations into the future. This is not the place to discuss the emerging practice of climate risk stress testing where Carney's ambitions are today being put into practice by central banks (e.g. Bank of England, 2021a). However, future work on climate stress tests might want to follow the insights offered by this paper and investigate the entanglements between the narratives that structure their scenarios and the infrastructural affordances granted to regulatory supervisors to exert power over the conduct of financial firms. Researchers might further consider the evolving shape of the temporal state-economy boundary constructed at the intersection between the technical and narrative practices of central banks.

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Notes

1 Dorn (2012) uses the term 'public-private' to signify the hybridity of financial governance, with both public authorities and private sector actors playing a role in shaping the authoring of rules and their enforcement. In the aftermath of the financial crisis, Dorn discerns a relative shift back towards public actors taking a leading role, hence placing 'public' before 'private' in the hyphenated term. I provide a detailed study of a hybrid financial governance project in Coombs (2016).

2 Heiskala (2016) proposes scientific power in addition to the four networks of power Mann sets out in *The sources of social power*: ideological, economic, military and political – the 'IEMP model' (Mann, 1986, p. 2)

3 Beckert and Bronk (2018) miss this different power dynamic when they argue that stress tests are conducted 'primarily to *convince* company boards and politicians of the need to raise new capital' (p. 29, emphasis added).

4 The Bank anticipated this problem, writing that 'there is unlikely to be a single, quantitative indicator which captures accurately exuberance in credit markets' meaning that it would be necessary to 'define an eclectic set of indicator variables' which would require 'technical judgement' about how they translate into 'aggregate risk' (Bank of England, 2009, p. 18).

5 Former Bank Governor, Mervyn King, has a long-standing scepticism of economic models to reveal the world 'how it really is'. As King tells us in his two mass-market books: mathematics, models and statistics, albeit useful tools for specifying problems, need to be attached to narratives, stories and qualitative judgement for good decision-making (King, 2016; Kay & King, 2020). It is reasonable to assume that King's philosophy has left a lasting mark on Bank operations.

6 This represents a significant change compared to the pre-crisis arrangement, where banks' models were mostly waved through by supervisors given the asymmetrical expertise in cutting edge risk management techniques.

7 In the terms proposed by this special issue's introduction, the amendments to the Basel Accords in 1997 could be interpreted as an attempt to draw a new line between state and economy in response to regulatory rules that had entangled them and blurred the distinction (Coombs & Thiemann, 2022).

8 In 2017 the industry lobbying group The Clearing House (2017) released a report claiming to prove that the Federal Reserve's annual CCAR stress test scenario has an inherent 'capital allocation power' (p. 3), allowing the Fed to direct the investments of banks into certain sectors. The charge is an explosive one in the United States where the Federal Reserve has not been granted a macroprudential mandate and transparency forms the basis for legal challenge of administrative agencies' decision-making processes (Jasanoff, 1990).

9 The Bank shares these concerns. A compelling example is the fate of sectoral capital requirements, which are a macroprudential instrument that the Bank only gained the permission to use after lobbying hard for a carve out from the level-playing field requirements of the Capital Requirements Directive IV (the directive which enshrined Basel III into law within the European Union). In the end, the Bank ended up never exercising this instrument that they fought so hard for, worrying that there is 'a sense in which it smacks a little bit of industrial policy … even if that wouldn't be the reason you initially

pursue it, it could be that once people figure out you can do that, it becomes part of the stated policy or something like that (Interview, 15 March 2019). Instead, they learned that they could achieve the same results by manipulating the stress test scenario. This is a good example of the double movement proposed by this special issue's introductory paper, whereby central bankers seek to maintain a liberal model of limited government by drawing new lines between states and markets in response to the destabilizing entanglements they themselves provoke (Coombs & Thiemann, 2022).

10 Mann did not explore the problem of the legitimacy and accountability of state action in his work on infrastructural power, focusing instead on the affordances of infrastructural devices and governance networks for mobilizing civil society towards the state's goals. But as noted by Heiskala (2016), it is a credible extension of Mann's work to put it into dialogue with studies of governance and governmentality concerned with how the consent of the governed is secured.

11 Mann (2013) agrees with this assessment near the conclusion of the fourth volume of *The sources of social power* which laments the timidity of post-crisis regulatory reforms (pp. 352–353).

12 Smolenska and van't Klooster (2022) term 'deferential' an approach to climate policy in bank supervision relying upon banks' internal risk management procedures. What they call a 'guided transition', by contrast, involves regulators providing banks with fine-grained guidance on the futures they should anticipate. They see the latter approach as returning to the spirit of an older era of credit policy where authorities stipulate the risk weights assigned to assets (Smolenska & van't Klooster, 2022). Despite these authors' description of a guided transition coming close to some of the Bank's supervisory practices, they miss how the infrastructural power exerted by stress testing lies with working not against but *through* banks' own risk sensitive management practices.

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References

Abolafia, M. Y. (2010). Narrative construction as sensemaking: How a central bank thinks. *Organization Studies*, *31*(3), 349–367.

Abolafia, M. Y. & Hatmaker, D. M. (2013). Fine tuning the signal: Image and identity at the Federal Reserve. *International Public Management Journal*, *16*(4), 532–556.

Admati, A. R. (2016). The missed opportunity and challenge of capital regulation. *National Institute Economic Review*, *235*(1), R4–R14.

Admati, A. & Hellwig, M. (2013). *The bankers' new clothes*. Princeton University Press.

Alexander, P. (2019, June 10). Pilot fatigue: How capital rules overwhelmed bank strategy. *Risk.net*.

Baker, A. (2013). The new political economy of the macroprudential ideational shift. *New Political Economy*, *18*(1), 112–139.

Bank of England. (2009). *The role of macroprudential policy*. Discussion paper. Retrieved from https://www.bankofengland.co.uk/publications/

Documents/other/financialstability/roleofmacroprudentialpolicy091121.pdf
Bank of England. (2011). *Instruments of macroprudential policy*. Discussion paper. Retrieved from https://www.bankofengland.co.uk/publications/Documents/other/financialstability/discussionpaper111220.pdf
Bank of England. (2021a). *Key elements of the 2021 Biennial Exploratory Scenario: Financial risks from climate change*. Bank of England.
Bank of England. (2021b). *Stress testing the United Kingdom banking system: Key elements of the 2021 stress test*. Bank of England.
Beckert, J. (2013). Imagined futures: Fictional expectations in the economy. *Theory and Society*, *42*(3), 219–240.
Beckert, J. (2016). *Imagined futures: Fictional expectations and capitalist dynamics*. Harvard University Press.
Beckert, J. & Bronk, R. (2018). An introduction to uncertain futures. In J. Beckert & R. Bronk (Eds.), *Uncertain futures: Imaginaries, narratives, and calculation in the economy* (pp. 1–36). Oxford University Press.
Bernards, N. & Campbell-Verduyn, M. (2019). Understanding technological change in global finance through infrastructures. *Review of International Political Economy*, *26*(5), 773–789.
Bezemer, D., Ryan-Collins, J., van Lerven, F. & Zhang, L. (2021). Credit policy and the 'debt shift' in advanced economies. *Socio-Economic Review*. Retrieved from https://doi.org/10.1093/ser/mwab041.
Blinder, A. (2004). *The quiet revolution: Central banking goes modern*. Yale University Press.
Borio, C. (2003). Towards a macroprudential framework for financial supervision and regulation? *CESifo Economics Studies*, *49*(2), 181–215.
Borio, C., Drehmann, M. & Tsatsaronis, K. (2014). Stress-testing macro stress testing: Does it live up to expectations? *Journal of Financial Stability*, *12*, 3–15.
Braun, B. (2015). Governing the future: The European Central Bank's expectation management during the Great Moderation. *Economy and Society*, *44*(3), 367–391.
Braun, B. (2016). Speaking to the people? Money, trust, and central bank legitimacy in the age of quantitative easing. *Review of International Political Economy*, *23*(6), 1064–1092.
Braun, B. (2020). Central banking and the infrastructural power of finance: The case of ECB support for repo and securitization markets. *Socio-Economic Review*, *18*(2), 395–418.
Braun, B. & Gabor, D. (2020). Central banking, shadow banking, and infrastructural power. In N. van der Zwan, P. Mader & D. Mertens (Eds.), *The Routledge international handbook of financialization* (pp. 241–252). Routledge.
Callon, M., Millo, Y. & Muniesa, F. (2007). *Market devices*. Blackwell Publishing.
Carney, M. (2015). *Breaking the tragedy of the horizon: Climate change and financial stability*. Speech at Lloyd's of London. Bank of England. Retrieved from https://www.bankofengland.co.uk/-/media/boe/files/speech/2015/breaking-the-tragedy-of-the-horizon-climate-change-and-financial-stability.pdf?la=en&hash=7C67E785651862457D99511147C7424FF5EA0C1A
Chong, K. & Tuckett, D. (2015). Constructing conviction through action and narrative: How money managers manage uncertainty and the consequence for financial market functioning. *Socio-Economic Review*, *13*(2), 309–330.
Clement, P. (2010, March). The term 'macroprudential': Origins and evolution. *BIS Quarterly Review*, 59–67.
Conti-Brown, P. (2016). *The power and independence of the Federal Reserve*. Princeton University Press.
Coombs, N. (2016). What is an algorithm? Financial regulation in the era of high-frequency trading. *Economy and Society*, *45*(2), 278–302.
Coombs, N. (2020). What do stress tests test? Experimentation, demonstration, and the sociotechnical performance of regulatory science.

The British Journal of Sociology, *71*(3), 520–536.
Coombs, N. & Thiemann, M. (2022). Recentering central banks: Theorizing state-economy boundaries as central bank effects. *Economy and Society*, *51*(4). doi:10.1080/03085147.2022.2118450
Dorn, N. (2012). Render unto Caesar: EU financial market regulation meets political accountability. *Journal of European Integration*, *34*(3), 205–221.
Fisher, W. R. (1985). The narrative paradigm: In the beginning. *Journal of Communication*, *35*(4), 74–89.
Fligstein, N., Stuart Brundage, J. & Schultz, M. (2017). Seeing like the Fed: Culture, cognition, and framing in the failure to anticipate the financial crisis of 2008. *American Sociological Review*, *82*(5), 879–909.
Goodhart, C. (2011). *The Basel Committee on Banking Supervision: A history of the early years 1974–1997*. Cambridge University Press.
Gorski, P. (2006). Mann's theory of ideological power: Sources, applications and elaborations. In J. Hall & R. Schroeder (Eds.), *An anatomy of power: The social theory of Michael Mann* (pp. 101–134). Cambridge University Press.
Haldane, A. G. (2009). *Small lessons from a big crisis*. Speech given at the Federal Reserve Bank of Chicago 45th Annual Conference. Retrieved from https://www.bis.org/review/r090710e.pdf
Heiskala, R. (2016). The evolution of the sources of social power, and some extensions. In R. Schroeder (Ed.), *Global powers: Michael Mann's anatomy of the twentieth century and beyond* (pp. 11–37). Cambridge University Press.
Helleiner, E. (2014). *The status quo crisis global financial governance after the 2008 meltdown*. Oxford University Press.
Holmes, D. R. (2009). Economy of words. *Cultural Anthropology*, *24*(3), 381–419.
Holmes, D. R. (2014). *Economy of words: Communicative imperatives in central banks*. University of California Press.
Ibrocevic, E. (2022). Independence without purpose? Macroprudential regulation at the Bundesbank. *Economy and Society*, *51*(4). doi:10.1080/03085147.2022.2117339
Jasanoff, S. (1990). *The fifth branch: Science advisors as policymakers*. Harvard University Press.
Jasanoff, S. (2011). The practices of objectivity in regulatory science. In C. Camic, N. Gross & M. Lamont (Eds.), *Social knowledge in the making* (pp. 307–338). University of Chicago Press.
Kay, J. & King, M. (2020). *Radical uncertainty*. The Bridge Street Press.
King, M. (2016). *The end of alchemy: Money, banking and the future of the global economy*. Little, Brown.
Konings, M. (2010). The pragmatic sources of modern power. *European Journal of Sociology*, *51*(1), 55–91.
Konings, M. (2016). Governing the system: Risk, finance, and neoliberal reason. *European Journal of International Relations*, *22*(2), 268–288.
Konings, M. (2018). *Capital and time: For a new critique of neoliberal reason*. Stanford University Press.
Kynaston, D. (2017). *Till time's last sand: A history of the Bank of England 1694–2013*. Bloomsbury.
Langley, P. (2013). Anticipating uncertainty, reviving risk? On the stress testing of finance in crisis. *Economy and Society*, *42*(1), 51–73.
Lockwood, E. (2015). Predicting the unpredictable: Value-at-risk, performativity, and the politics of financial uncertainty. *Review of International Political Economy*, *22*(4), 719–756.
MacKenzie, D. (2006). *An engine, not a camera: How financial models shape markets*. MIT Press.
Maes, I. (2010). Alexandre Lamfalussy and the origins of the BIS macro-prudential approach to financial stability. *PSL Quarterly Review*, *63*(243), 265–292.
Mann, M. (1984). The autonomous power of the state: Its origins, mechanisms and results. *European Journal of Sociology*, *25*(2), 185–213.
Mann, M. (1986). *The sources of social power: Volume 1, The history of power from the beginning to A.D. 1760* (1st Ed.) Cambridge University Press.

Mann, M. (1993). *The sources of social power: Volume 2, The rise of classes and nation-states, 1760–1914* (1st ed.). Cambridge University Press.
Mann, M. (2008). Infrastructural power revisited. *Studies in Comparative International Development*, *43*(3–4), 355–365.
Mann, M. (2013). *The sources of social power: Volume IV, Globalizations, 1945–2011* (1st Ed.) Cambridge University Press.
Marcussen, M. (2009). Scientization of central banking: The politics of A-politicization. In K. Dyson & M. Marcussen (Eds.), *Central banks in the age of the euro* (pp. 373–401). Oxford University Press.
Miller, P. & Rose, N. (2008). *Governing the present: Administering economic, social, and personal life*. Polity.
Minsky, H. (2016). *Can 'it' happen again? Essays on instability and finance*. Routledge.
Mitchell, T. (1991). The limits of the state: Beyond statist approaches and their critics. *The American Political Science Review*, *85*(1), 77–96.
Miyazaki, H. & Riles, A. (2022). Exchanging expectations: Abenomics and the politics of finance in post-Fukushima Japan. *Economy and Society*, *51*(4). doi:10.1080/03085147.2022.2108621
Monnet, E. (2018). *Controlling credit: Central banking and the planned economy in postwar France, 1948–1973*. Cambridge University Press.
Özgöde, O. (2021). The emergence of systemic risk: The Federal Reserve, bail-outs, and monetary government at the limits. *Socio-Economic Review*. Retrieved from https://doi.org/10.1093/ser/mwaa053
Persaud, A. (2000). Sending the herd off the cliff edge: The disturbing interaction between herding and market-sensitive risk management practices. *The Journal of Risk Finance*, *2*(1), 59–65.
Schwartz, H. M. (2019). American hegemony: Intellectual property rights, dollar centrality, and infrastructural power. *Review of International Political Economy*, *26*(3), 490–519.
Smart, G. (1999). Storytelling in a central bank: The role of narrative in the creation and use of specialized economic knowledge. *Journal of Business and Technical Communication*, *13*(3), 249–273.
Smart, G. (2006). *Writing the economy: Activity, genre and technology in the world of banking*. Equinox Publishing Ltd.
Smolenska, A. & van't Klooster, J. (2022). A risky bet: Climate change and the EU's microprudential framework for banks. *Journal of Financial Regulation*, *8*(1), 51–74.
Tarrow, S. (2018). Mann, war, and cyberspace: Dualities of infrastructural power in America. *Theory and Society*, *47*(1), 61–85.
The Clearing House. (2017). *The capital allocation inherent in the Federal Reserve's capital stress test*. Retrieved from https://bpi.com/wp-content/uploads/2018/07/20d957fe6fdc4607b5c24eb8506a5de5.pdf
Thiemann, M. (2019). Is resilience enough? The macro-prudential reform agenda and the lacking smoothing of the cycle. *Public Administration*, *97*(3), 561–575.
Thiemann, M. (2022). Growth at risk: Boundary walkers, stylized facts and the legitimacy of countercyclical interventions. *Economy and Society*, *51*(4). doi:10.1080/03085147.2022.2117341
Thiemann, M., Melches, C. R. & Ibrocevic, E. (2021). Measuring and mitigating systemic risks: How the forging of new alliances between central bank and academic economists legitimize the transnational macroprudential agenda. *Review of International Political Economy*, *28*(6), 1433–1458.
Velthuis, O. (2015). Making monetary markets transparent: The European Central Bank's communication policy and its interactions with the media. *Economy and Society*, *44*(2), 316–340.
Violle, A. (2017). Banking supervision and the politics of verification: The 2014 stress test in the European Banking Union. *Economy and Society*, *46*(3–4), 432–451.
Walter, T. & Wansleben, L. (2020). How central bankers learned to love

financialization: The Fed, the Bank, and the enlisting of unfettered markets in the conduct of monetary policy. *Socio-Economic Review*, *18*(3), 625–653.

White, H. (1980). The value of narrativity in the representation of reality. In W. J. T. Mitchell (Ed.), *On narrative* (pp. 1–23). University of Chicago Press.

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