Regulator reputation and the successful governance of innovation:

Lessons from financial technology supervision

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Lessons from financial technology supervision

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Chapter 1

Introduction

> "The worst case I really saw was a firm I visited.... where these guys had spent probably six months of development time and they'd spent about half a million pounds trying to work out how their new idea should be regulated. They were thinking about: could they avoid being regulated? If they were going to be regulated, what would they do? ... I think our reputation like all regulators was 'if you come near us, we're going to smother you in red tape'... And yet these were exactly the kind of firms we wanted to see getting into the market and making a difference. So, I put forward the idea ... This concept, Project Innovate, was really 'let's first of all make ourselves more approachable'."
>
> Christopher Woolard, Barefoot Innovation Podcast 10 December 2017

In this quote Christopher Woolard, the former CEO of the UK's Financial Conduct Authority (FCA), reflects on an interaction with a financial technology firm. At the time, around 2015, UK finance — like finance everywhere — was changing. From the ashes of the Global Financial Crisis emerged strange, new types of financial firms. Firms which looked less like banks and more like tech start-ups were being established all over the world, but especially concentrated in London, centred around the Old Street intersection just east of the City; sardonically dubbed 'the Silicon Roundabout'.

2015 was still early days for fintech. Many firms were still at a pre-commercial stage; experimenting with new products. Many had barely begun to seriously consider how they would fit in with financial regulation. The FCA, for its part, was similarly in a development phase. The regulator was analysing how it would intervene in different areas of fintech. Would the regulator involve itself in the supervision of every and all kind of fintech business? What regulation would apply, and how would 'gaps' in regulation be managed? How could business, safely and legally, be facilitated to experiment with innovative financial products?

The FCA ultimately sought to try a different tack to working with the sector on their innovative ideas. The Authority wanted to intervene to manage risks far earlier in the innovation process than regulators typically would. They hoped to have informal, collaborative conversations with firms even before they sought any formal authorizations. They wanted to hear firm ideas, discuss how they interacted with regulation, and to provide unofficial guidance to steer firms away from risky or legally untenable propositions. Further, the FCA wanted to intervene in ways that facilitated innovation. They hoped to give firms the means and confidence to experiment. More than that: to give customers, business partners, and investors the confidence to try something new (Barefoot 2017; Alaassar, Mention, and Aas 2021; Brown and Piroska 2021)

Yet, in trying to implement this approach to fintech, the FCA had to overcome an unexpected barrier: the agency's own reputation. Woolard's quote above suggests that many fintech firms were afraid of the regulator. So afraid they would find themselves six months into development without having asked the agency a single question. To enable the kind of voluntary, informal regulatory conversations the FCA wanted the agency had to adjust its public image (Barefoot 2017; Zetzsche et al. 2017).

Woolard's remarks are illustrative of the challenges facing contemporary regulators seeking to govern emerging innovations in the private sector. It is illustrative, too, of the subtle but critical roles agency reputation can play in governance.

When innovation emerges, regulatory agencies are frequently called upon to intervene. Agencies are expected to impose regulatory governance over innovations (Bygrave 2010; S. Y. Tan and Taeihagh 2021; Li, Taeihagh, and de Jong 2018; Taeihagh and Lim 2019). They must find ways to manage the risks of innovations, facilitate 'good' innovations, and guard against 'bad'. To succeed, agencies must have an adequate legal mandate, and the capacity and expertise to intervene effectively. They must then carefully design rules, instruments, and institutions that will apply (Brownsword, Scotford, and Yeung 2017). Finally, agencies must maintain the support of the various stakeholders involved: the general public, politicians, research institutes, regulated firms, and more.

No matter how much authority agencies might have 'on paper', it is near impossible for them to successfully govern in the face of widespread opposition. Agencies governing emerging innovations typically rely not just on a lack of opposition, but on active stakeholder support in the form of information, consultation, collaboration, and endorsement (Kuzma 2013; Lim and Taeihagh 2018). In practice, regulatory agencies often face stakeholder opposition, mistrust, hostility, or a complete lack of engagement (Mandel 2009). While these issues are widely acknowledged (Brownsword, Scotford, and Yeung 2017, 7), there is very little research on how regulators might overcome potential opposition and secure stakeholder support.

Some of the most promising scholarship on the topic comes from bureaucratic reputation theory (Carpenter 2010; Maor 2010). This research suggests that successful innovation governance does not just depend on concrete actions regulators take. It arises too from how stakeholders perceive, interpret, and evaluate the agency and its actions. Beliefs about regulators and their efforts to govern are crucial drivers of stakeholder opposition or support, resistance or compliance, disengagement or collaboration (Bertelli and Busuioc 2021; Ayres and Braithwaite 1995; May 2005). Therefore, the regulator's reputation, and how skilfully it can manage that reputation throughout the innovation governance process, are important antecedents of success. While highly promising, bureaucratic reputation scholarship on innovation governance is still theoretically nascent and has only been empirically evaluated in the context of US pharmaceuticals regulation. This dissertation aims to build on this scholarship through studies of novel regulatory contexts.

This dissertation thus explores the question: ***What role does regulatory agency reputation play in the regulatory governance of emerging innovations?***

The remainder of the chapter is structured as follows. The chapter begins with an overview of key concepts and extant theory. First, concepts and theory surrounding innovation and its governance is provided. This dissertation focuses on the recent emergence of fintech and early governance efforts by financial regulators in the Anglosphere. Brief background on this subject matter is thus included in this discussion. Second, the concept of reputation is introduced and its theorized role in innovation governance outlined. Each theoretical section ends with a summary of gaps in extant literature to which this dissertation responds. Third, research aims and sub-questions are presented. Fourth, the methodology for the studies of the dissertation is summarized. Finally, the structure of the dissertation chapters is outlined.

1.1. THE REGULATORY GOVERNANCE OF INNOVATION

What is 'innovation'? What constitutes 'successful' innovation governance? And how can regulatory agencies, in practice, govern innovation successfully? This first section defines key theoretical concepts and summarizes the history of literature on the topic; focusing on theories and debates to which the dissertation most directly contributes.

1.1.1. What is innovation?

Innovation here refers to the widespread replacement of existing types of products, processes, services, business models etc. in a market sector with ones which are novel to that sector (Brownsword, Scotford, and Yeung 2017, 3–5). Innovation is a multi-stage process. New inventions are periodically discovered. These inventions are then brought into practical application through various '**innovations**' like products, services, and business models. Innovations are often first adopted on a small scale by a small number of users and gradually 'diffused' to more and more users over time (Rogers 1962). Both inventions and innovations refer to the creation of something new. Yet, innovation tends to lag behind invention. Many different innovations typically emerge over the years and decades following a single invention. For example, smart phones were not new in 2015.

Yet, when companies started to offer financial advice to consumers on smart phone applications, it represented an innovation in financial services.

Innovation is thus a relative term. What is innovative this year may be a mature, mainstream product the next. What is innovative in one country or sector may be business-as-usual in another (Fagerberg 2009, 4–5). Some innovation is routine. **Incremental innovation** involves the replacement of old products, processes etc. with those which are marginally better but largely the same e.g. new generations of car engines are usually more fuel efficient than old (Freeman and Soete 1997). Some innovation is revolutionary. **Radical innovation**, for instance, involves the spread of new technologies which significantly reduce input costs, transforming a sector. The invention of the steam engine triggered radical innovation as it drastically reduced costs and labour required and utterly revolutionized sectors like mining, transport, and manufacturing (Freeman and Soete 1997). Another example is disruptive innovation. **Disruptive innovation**, simply put, is a process whereby an innovative product, service etc. creates a new market and unexpectedly displaces incumbent firms and products (C. M. Christensen 1997). The innovation of the mass-produced Ford Model T created a mass market for affordable cars to which the then elite-focused car companies did not care to cater; precipitating their relegation to the margins. Recently, the innovation of the platform economy (e.g., Uber, Airbnb) appeals to consumers who would not necessarily otherwise pay for – say – taxis or hotels.

Innovation arises in all corners of society: in everyday life, in civil society, and in both the public and private sectors. Overlaps arise where, for instance, private innovations are adopted by the state or public innovations very create new kinds of marketable, private products. This dissertation focuses on **private innovation**, here defined as the innovation process as conducted principally through for-profit firms in markets rather than by the state, civil society, or individuals. As with any form of innovation, private innovation includes multiple stages from initial product development, early adoption, to gradual diffusion. Important to private innovation, though, is the additional stage of commercialization. Commercialization refers to turning innovations into products sold for profit on the mass market (Mitchell and Singh 1996). **Innovative firms**, in this context, refers to companies which either/both: a) have, as a significant portion of their business, the sale of innovative products and services, or b) offer traditional products and services through innovative business models (Fagerberg 2009, 4). Private innovation can lead to economic growth, greater efficiency, and a higher quality of life. Yet, innovation is not always positive. Private innovation brings with it new kinds of potential harms (Ford 2017). Regulatory agencies are, thus, often called upon to govern this process. How agencies should govern private innovation, however, is a hotly debated question (Kuznets 1968; Beck 1999; Ford 2017; Brownsword, Scotford, and Yeung 2017).

1.1.2. How should innovation be governed? A brief history of the literature

Modern literature on Innovation regulation begins in the 1970s. Initial debates were between advocates of laissez-faire versus precautionary approaches. Laissez-faire advocates argued that the free market ‘chooses’ the most efficient, valuable innovations. Regulatory intervention disrupts this process. Regulation is a barrier to experimentation and market entry for new players (van der Geest and Heuts 2008, 173–75). Some argue this is by design. Regulatory authorities collude with incumbent firms – who stand to lose market share to innovators — in order to quash competition (Kuznets 1968; Mokyr 1990). Regulatory agencies, therefore, should allow innovations to develop and diffuse until or unless they prove to be harmful. Regulation should be kept to the bare minimum required to maintain a fair, competitive market and protect from serious harms. In stark contrast were advocates of the precautionary principle. The principle states that when an innovation poses potential harm, and scientific knowledge of those harms is lacking, responsible authorities should impose legal limits on that innovation until its potential harms are well understood (Brownsword, Scotford, and Yeung 2017, 38).

By the 1990s, debates had become more complex and nuanced. This was partially in response to the changing ways in which regulation was practiced. Contemporary governments had expanded regulation as one of the primary tools of governance (Majone 1994; Haines 2017). Indicative of the regulatory turn was that semi-autonomous regulatory agencies were increasingly established by governments all over the world. Regulatory agencies came to have a distinct role in innovation governance (Baldwin, Cave, and Lodge 2011, 4–5). Elected politicians set the policy direction for emerging innovations, and make final decisions on changes to laws, public institutions etc. Ministries/departments (theoretically) work to fulfil the direction defined by elected politicians by drafting law and implementing policies and programs. Semi-autonomous **regulatory agencies** are also public organisations, defined in public law, pursuing public goals in the form of mandates from elected leaders (Pollitt et al. 2005, 32). Agencies, though, are intended to be more specialized than ministries. Their mandates usually concern the implementation of highly specific pieces of regulation for specific sectors. More uniquely, agencies are intentionally, structurally distinct from the main ministerial hierarchy. Agencies have greater autonomy than ministries by design. These agencies were created to administer regulation in a largely technocratic fashion, insulated from politicians and ministries and thus political and ideological concerns (Krapohl 2003). Typically, agencies are allowed to determine how best to fulfil their mandates. They have some autonomy in determining their own detailed principles, rules, and procedures (Baldwin, Scott, and Hood 1998).

Regulatory agencies are thus not the only public organizations involved in innovation governance. Yet, they came to play an important, independent role. As front-line supervisors of sectors, regulators are often some of the first people in government to have to reckon with emerging innovation. As sector experts, they are expected to help to advise on how innovations should be governed (Heimer 2013). As semi-autonomous organisations, they have some freedom to choose how they will govern (Ford 2017, 6; Asquer and Krachkovskaya 2021; Brownsword and Yeung 2008). Thus, in practice, regulatory agencies are not simply implementing innovation regulation as set by politicians and ministries. Rather, they are making decisions which are independently significant for the success or failure of innovation governance as a whole.

In the 1990s and into the early 2000s, agencies experimented with new forms of regulatory governance which were both inspired by, and inspired, academic literature. Certainly in academic works, both the laissez-faire and the strict, precautionary 'command and control' approaches came to be seen as overly extreme ends of the regulatory spectrum (Ayres and Braithwaite 1995). Underlying this shift was a changing understanding of what 'regulation' was.

It was in this period that regulatory governance scholarship, as it is now known, truly emerged. This dissertation derives its conceptual understanding of regulation from that scholarship. Thus **regulation** is "the intentional use of authority to affect behaviour of a different party according to set standards, involving instruments of information-gathering and behaviour modification" (Black 2002a, 20). Black's definition reflects a shift in regulatory theory toward the understanding that regulation is a form of *governance*. The term **regulatory governance** implies regulators cannot 'take control of' private sector activity, and this includes innovation (Levi-Faur 2011, 9–10). Regulatory agencies lack the power and capacity to coercively control the course of private innovation. Further, non-state actors also regulate innovation because they can intentionally influence the behaviour of others. For example, industries may impose their own codes of conduct beyond the requirements of formal regulation. Regulatory agencies, then, do not entirely control innovation but seek to 'steer' its course. 'Steering' goes beyond writing rules, monitoring compliance, and punishing non-compliance, to subtle, informal techniques (Levi-Faur 2011, 185).

Indeed, academic literature in the 1990s was pre-occupied with the informal mechanisms of regulation; norms, ideas, emotions, discourse, psychology, culture etc. Regulatory scholars sought to understand the regulatee experience of regulatory authority and, by extension, what motivates them to behave in ways which better conform to the goals of the regime (for e.g., Gunningham and Sinclair 2002; May and Winter 1999). Based on such insights, various novel regulatory governance models were developed: responsive regulation (Ayres and Braithwaite 1995), risk-based regulation (Black 2005), principles-based regulation (Black, Hopper, and Band 2007), and many more. These kinds of models are mainstream for regulatory agencies today. Such approaches have at times been intentionally applied to the governance of private innovation (for e.g., Devaney 2014). Compared to simplistic laissez-faire or precaution, these models represent a far more nuanced, considered approach to innovation governance. Centrally, these models provided greater flexibility to manage the extremely uncertain risks of emerging technologies (S. Y. Tan and Taeihagh 2021). Yet, in the 1990s and early 2000s mainstream debates were still relatively uncritical of private innovation; largely buying into the argument that innovation is generally positive and its regulation is a necessary evil (a tendency critiqued by, for e.g., Beck 1999, 72; Ford 2017, 133).

Contemporary scholarship is defined by a greater critical awareness the ways in which innovation undermines successful regulatory governance (Hutton 2015). Over time, as new technologies replace old, regulatory regimes can become more disconnected from the contemporary risk reality (Marchant 2011). When regulators cease to supervise certain risks effectively, this increases the likelihood of economic and societal harms (Haines 2017). Regulators often intervene too late in the innovation process to govern effectively. By the time risks of an innovation are clear, it may be so widely diffused and deeply institutionalized that the damage is done and hard to reverse (Mandel 2017; Kasdorp and van Erp 2019). More than this, some innovations are so disruptive that they challenge the underlying 'deep values' of regulatory regimes (Brownsword, Scotford, and Yeung 2017, 6). Innovation can de-legitimise regimes in the eyes of stakeholders, as well as threaten their efficacy. In these ways, innovation periodically creates 'seismic' disruptions to regimes and the public values they protect (Ford 2017). Problematically, innovation is very often a direct reaction to regulatory rules. New products and services are sometimes designed specifically to skirt regulatory definitions and thus elude regulatory authority. Simply creating new rules does not solve this problem. Rather, new rules spark a new cycle of regulation-avoiding innovation (Mandel 2017; Ford 2017; Yandle 2011).

In response to these issues, there is growing consensus of the need for regulatory agencies to develop a proactive, intentional strategy for governing emerging innovations (Taeihagh, Ramesh, and Howlett 2021). Innovation should be recognized as a holistic phenomenon. Rather than chasing after individual innovations, regulators should have policies in place for any potential innovation which may emerge. Regulators should aim to impose governance proactively; early in the innovation process (Stirling 2017; Howlett, Capano, and Ramesh 2018). Yet, this governance should not necessarily take the form of binding, formal rules (Kuhlmann, Stegmaier, and Konrad 2019). Rather, regulators can govern through experimental, adaptable, and informal techniques. Here, we see a new generation of legal and regulatory approaches being promoted such as soft law (Brownsword and Somsen 2009), experimental (Ranchordás 2018; Zeitlin 2021), adaptive (Brass and Sowell 2021), proactive/anticipatory (Armstrong and Rae 2017), and relational (Huising and Silbey 2011) regulation, living laboratories (Galič and Gellert 2021), strategic niche management (W. Boon, Moors, and Meijer 2014), and regulatory sandboxes (Allen 2019).

What does successful innovation governance look like?

Thus far the discussion has referenced the concept of 'successful' regulatory governance of innovation without explicitly defining the term. This dissertation has an ambition to contribute to the scholarly tradition of success-focused public policy (McConnell 2010; Compton and 't Hart 2019), organizational (Selznick 1957; Boin, 't Hart, and Fahy 2020), and positive public administration (Moore 1995; Douglas, 't Hart, and van Erp 2022; Douglas et al. 2021) scholarship. Successful regulatory governance, though, is a complex and multifaceted concept. It is beyond the scope of this dissertation to delve into all its possible aspects.[1] Several dimensions of successful regulatory governance in an innovation context, however, can be derived from the literature.

Successful regulatory governance over innovation is typically seen as a question of performance i.e. the extent to which intended outcomes are achieved (European Union 2022). Conventionally, the hallmark of performative success is that regulators manage risks without unduly stifling innovation. In terms of managing risks, regulators perform well when they issue authorizations only to firms who comply with the law and have a reasonable risks profile; monitor compliance with authorization conditions and systemic risks; and intervene to manage risks as required (Brownsword, Scotford, and Yeung 2017, 57; Steele 2006). Where risks are generally detected in a timely fashion, and managed to minimize harm, regulatory governance could be said to be successful. In terms of enabling innovation, regulators perform well when regulation, and its administration, allows valuable innovations to emerge. Regulation should provide business with a predictable, but flexible, set of compliance standards. Regulation should be administered in a streamlined, efficient way, which minimises administrative costs (Trebilcock and Iacobucci 2002, 367). Regulators might also provide more active innovation facilitation, for example by providing specialised advice and assistance for innovative firms. Regulatory success in regard to innovation, then, is often defined as how effectively and efficiently agencies manage risks while facilitating innovation. Beyond this, as the previous discussion demonstrates, there is substantial debate about what constitutes performative success. There are obvious trade-offs between the goals of risk management and innovation facilitation. Opinions differ on when it is appropriate for regulators to prioritize one over the other (Trebilcock and Iacobucci 2002, 368; Waring, Bali, and Vas 2020).

Successful innovation governance, though, goes beyond performance. Important too is that regulatory governance is lawful and ethical. As will be seen, innovation governance raises a number of normative concerns including the democratic legitimacy of regulatory decisions, transparency and accountability to the public, and equity and justice for firms and consumers (Philipsen, Stamhuis, and de Jong 2021; Omarova 2020). Further, to be considered successful, regulatory governance must be somewhat durable (Douglas, 't Hart, and van Erp 2022; Brownsword and Somsen 2009). There is little value to – for example – regulatory regimes which are effective when first implemented but rapidly stop performing. One aspect of durability is that whatever governance is imposed must be cost-effective enough for the agency to continue to provide for some time. Regimes need not be permanent, but they need to justify the cost and effort required to establish them.

Thus, for the purposes of this dissertation, **successful regulatory governance** over innovation involves agencies effectively managing the risks, and facilitating the benefits, of innovation; in a manner which is consistent with the law and societal ethical standards; and reasonably durable. This dissertation does not seek to answer definitively how successful innovation governance can be achieved on all these dimensions. Indeed, it is unlikely that 'success' on all four dimensions simultaneously is even theoretically possible, given the trade-offs between them. Rather, these dimensions provide the standards by which one can reflect on real-world attempts to govern. In this dissertation, these dimensions of success are most often used to structure discussions about the practical and normative implications of the empirical studies. This dissertation focuses analysis on the successful regulatory governance of emerging innovations in the financial sector.

How should innovation be governed in the financial sector?

Finance refers to an area of economic activity principally concerning the provision and controlling of credit. Finance is thus distinct from other kinds of economic activity; it does not involve production nor consumption but rather is a facilitator thereof, via credit provision. **Financial regulation** is here defined as the supervision of financial services firms, designed to sustain fair, efficient, transparent markets for their services. This includes managing risks to consumers, firms, investors, and the financial system at large, in order to maintain investor and consumer confidence (Mwenda 2006, 2–3). Financial services regulation includes several functions: creating principles and/or rules about who can run a financial services firms and authorizing (i.e. licensing) those firms; creating conduct rules, supervising compliance including investigating suspected non-compliance, and enforcing compliance through sanctions; and coordinating with other regulatory authorities (Mwenda 2006, 7).

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[1] The author has written on this topic more extensively in other works (Boin, 't Hart, and Fahy 2020; Compton et al. 2022)

Finance has seen several historical waves of radical innovation (Arner, Barberis, and Buckley 2015). In each wave, inventions of the period were integrated with financial services to create new kinds of innovations. In the late 19th century, railroads, steamships, and the telegraph allowed financial services to become faster and more international. Computers and improved telecommunications in the post-war years saw the rise of, for example, credit cards and automatic teller machines. Desktop computers and the internet in the 1990s put financial services online and in our homes. These financial innovations have facilitated economic growth, global integration, faster and cheaper services, and – generally speaking — greater access to credit. Waves of radical innovation have, however, also sometimes precipitated crises (Revest and Sapio 2011). The 1974 collapse of Herstatt Bank led to a domino effect of closures around the world, in part because those banks had been connected through a novel worldwide payments system (Mourlon-Druol 2015). The invention of high-speed internet and algorithmic trading software led to the 2010 Wall Street 'flash crash' (Kirilenko et al. 2017).

In this context, the recent emergence of financial technology or 'fintech' has been met with both enthusiasm and concern. **Fintech** is an umbrella term for innovations which came to prominence in the immediate period following the Global Financial Crisis (2007-8) applying 21st century inventions to financial services (Arner, Barberis, and Buckley 2015). Notable inventions underlying fintech include smart phone applications, online platforms, blockchain, artificial intelligence, robotic process automation, cloud-based software, and big data. The most common financial services to which those technologies are applied are personal finance, payments and billing, lending and mortgages, wealth management, insurance, and capital markets. From such combinations arise innovations like crowdfunding, robo-advisory services, and cryptocurrencies (Deloitte 2020). Advocates praise fintech for offering affordable and accessible financial services to consumers, and competition for large institutional incumbents (EY 2017). Sceptics raise concerns about the risks of these innovations, and the motivations of firms behind them. Cristie Ford, for example, has argued it is no coincidence fintech products tend to fall outside or between regulatory definitions. Rather, fintech is a reaction to the re-regulation of the sector imposed after the Global Financial Crisis (2017).

Financial regulators have been called upon to impose regulatory governance over emerging fintech innovations. Governing innovation in finance is particularly challenging. The sector is large and varied. Financial products and services are relatively intangible, technically complex, shrouded in commercial secrecy, and often develop and mutate rapidly (Ford 2017, 143). Finance is an important sector of most national economies. Governments can be reluctant to regulate in ways which might limit growth or credit availability (Kane 2012). On the other hand, the post-Crisis period was one of heightened scrutiny of financial regulators. In the years following the Crisis, many agencies were replaced or reformed due to their perceived failings (Pesendorfer 2012). Fintech represented the first wave of major innovation with which these often young agencies had to contend, and they had to do so under the long shadow of the Crisis.

In responding to fintech, financial regulators in different jurisdictions have taken different approaches; some supportive and some hostile, some heavily interventionist, and some more liberal. Among the Anglosphere regulators this dissertation studies, authorities have been largely supportive of fintech but also cognizant of risks (EY 2019). Proactive, experimental, and adaptable regulatory approaches are fairly common among these regulators. Institutionally speaking, regulators have often created new units within the agency dedicated to fintech policy and advice. Popular too have been regulatory sandboxes for fintech (Fáykiss et al. 2018). These are an instrument which allows firms to test innovative products through temporary dispensations to regulatory rules, under regulator supervision. (Sandboxes are one of the core cases examined in this dissertation and are introduced in detail in Chapter 3).

Regulatory governance efforts in some jurisdictions have been popularly praised as more successful than others (Buckley et al. 2020; EY 2017; ECOMP 2020). Academic accounts explaining success and failure, however, are still burgeoning (Alaassar, Mention, and Aas 2021; Whitford and Anderson 2021). This is likely because developments in fintech and its regulatory governance are recent and ongoing. In this regard, fintech is part of a much broader trend.

1.1.3. The cutting edge of research: Evaluating successful innovation governance in practical implementation

Radical and/or disruptive innovation over the last decade in various economic sectors has profoundly challenged conventional regulation. Innovation has led to the evolution we have seen in governance toward proactive, adaptable, experimental, and informal approaches (Firlej and Taeihagh 2021; Brass and Sowell 2021; Lim and Taeihagh 2018; Asquer and Krachkovskaya 2021). Scholars initially worked to describe and conceptualize these contemporary approaches (for e.g., Allen 2019; Philipsen, Stamhuis, and de

Jong 2021). In regard to success, this early scholarship advances our understanding of the role of law and of policy and regulatory regime *design*. The next phase of scholarship, however, seeks to examine regulatory governance in *implementation*. Rather than evaluating innovation governance in a normative fashion, researchers have increasingly turned to empirical analysis of specific cases (for e.g., Ranchordas 2021b, 4; Brown and Piroska 2021, 4; Brass and Sowell 2021; Kuzma 2021). This has only recently become possible as enough time has passed to allow for an ex-post analysis of very recent governance trends.

Research evaluating implementation has shown, predictably, that the existence of well-designed laws, policies, and regulatory tools is necessary but insufficient for successful governance. Prominently, a lack of cooperation, or even active opposition, from stakeholders to new laws, policies, and tools has often undermined regulatory success in practice. Contemporary governance approaches rely on a degree of tacit or active stakeholder support to succeed. Such approaches require stakeholders to accept the imposition of governance in the absence of a complete legal mandate (Huising and Silbey 2011), to cooperate in the continuous design and refinement of regulatory rules (Sabel and Zeitlin 2010), and (for regulatees) to comply with informal regulatory policies or 'soft law' (Brownsword and Somsen 2009). Instead, when seeking to impose governance over an emerging innovation, regulatory agencies often face stakeholder opposition, mistrust, hostility, conflicting demands, or a complete lack of engagement (Whitford and Anderson 2021). While these stakeholder challenges are widely acknowledged in innovation scholarship (Brownsword, Scotford, and Yeung 2017, 7), there is very little theory or research about how agencies might seek to manage stakeholders through the innovation governance process in order to minimise opposition and cultivate cooperation (Mandel 2009).

This dissertation builds on this burgeoning scholarship about antecedents of successful contemporary innovation governance in implementation. It argues a regulator's reputation is a critical antecedent because of its influence on stakeholder support for governance efforts. The next section will define reputation, provide some brief theoretical background, and then explain why it a likely important but understudied antecedent of successful innovation governance.

1.2. THE ROLE OF REGULATOR REPUTATION

The topic of public organisational reputation only came to theoretical prominence in the early 2000s with the work of Daniel Carpenter (2001). The reputation of private organizations, its functions, and how businesses cultivate their 'brands' had been widely explored in the business and management literature (Frandsen, Johansen, and Salomonsen 2017). Traditionally, though, public organizations were thought to lack the autonomy and incentive to likewise cultivate reputation. Public organizations were usually conceptualized as agents of political principals. By extension, there was little interest in analysing the reputation those organizations might have independent of the principal, nor its possible effects (with notable exceptions, for e.g., Wilson 1989; Kaufman 1981; Fombrun and Van Riel 1997). Carpenter's research revealed that public organizations can and often do cultivate their own reputation. Even the regulatory agencies designed to be purely technocratic and above the political fray. Further, that reputation is critical to a public organization's success. Bureaucratic power and influence, Carpenter argues, is not just the product of an organization's tangible assets of legal authority, funding, information, and capacity, but its more intangible reputation with stakeholder audiences (Maor 2015). Carpenter's foundational works have been translated into Bureaucratic Reputation theory, which will here be summarized as it applies to this dissertation.

1.2.1. What is reputation?

Reputation in bureaucratic reputation theory refers to "a set of symbolic beliefs about the unique or separable capacities, roles, and obligations of an organization where those beliefs are embedded in audience networks..." (Carpenter 2010, 45). An agency's reputation is the simulacrum of the organization in popular imagination of its stakeholders. As reputation is subjective and symbolic it is related, but not identical, to *actual* agency capacities, roles, obligations etc. Generally, reputation will reflect the true nature of an agency and its performance (Lodge 2014, 65; Carpenter 2001, 5), but reputation can regularly be undeserved, inaccurate, inflated, or unfair (Carpenter 2010, 68).

A regulator will have somewhat different reputations with different individuals and stakeholder groups. Those individuals and groups will have somewhat different experiences, expectations, and agendas (Carpenter 2001, 31). Thus, a regulator's reputation with parliament might be somewhat different to its reputation with the courts and different again to its reputation with the public. Yet, by definition, for a regulator to have a reputation there must be some inter-subjective agreement about what the agency is like. Reputation, thus, has two manifestations. Agencies have a particular reputation with an individual or group, but they also have a popular reputation (D. Lee and Ryzin 2019). For example, a regulator may have a bad reputation with its minister because she is ideologically opposed to its goals. Yet, that minister may recognize the popular reputation of the regulator (with the public, business, unions etc.) is good.

1.2.2. What roles does reputation play in successful regulatory governance?

A regulator's reputation is critical to the agency's authority (Carpenter 2001, 30), autonomy (Bertelli and Busuioc 2021), power, and influence (Carpenter 2010, 61). Regulators have multiple stakeholder audiences who can potentially influence the regulator's ability to govern; by offering opposition or support either politically or practically. Agencies thus have to keep their audiences broadly satisfied. Only by building and maintaining a strong reputation across these audiences can agencies maintain a coalition which accepts and/or supports their efforts to govern (Gilad, Alon-Barkat, and Braverman 2016). **Support** here is used as an umbrella term to describe various, helpful stakeholder behaviours in response to agency efforts to govern; either the absence of opposition, or more active behaviours assisting the agency (these will be explained further below, and in subsequent chapters) (Carpenter 2010, 33). A **strong** reputation means that most stakeholder audiences like, or at least accept the legitimate existence of, a public organization (Carpenter 2010, 45). Reputable organisations are harder for outside forces to control or attack than anonymous or irreputable organisations. Reputable organisations have greater influence. Ideas and preferences they espouse are more likely to gain traction. Other actors are more willing to ally and cooperate with them (Carpenter 2001) and less likely to challenge them (Busuioc 2016). For regulatory authorities, like law enforcement and regulatory agencies, reputation is especially important. How subjects view an authority influences their willingness to comply, or actively cooperate with, its demands (Carpenter 2010).

Bureaucratic reputation theorists have increasingly recognised agency reputation is not monolithic. It is not the case that agencies have simply a 'good' or 'bad', 'weak' or 'strong' reputation. Agency reputation is made up of a collection of different kinds of beliefs or 'dimensions' of reputation (J. Boon, Salomonsen, and Verhoest 2021; Overman, Busuioc, and Wood 2020). While bureaucratic reputation research on the topic is limited, early studies suggest different dimensions of reputation can play different roles in influencing how stakeholders react to the agency and its demands. Capelos et al. (2016) examine how different dimensions of regulator reputation influence credibility and legitimacy among subjects of the Cypriot Water Authority. They find that the perception that the regulator is performatively competent increases stakeholder support for expensive regulatory measures. The perception the regulator is morally good increases stakeholder willingness to be patient and make sacrifices toward the agency's goals (e.g., reducing water use).

Given it is such a critical asset, regulatory agencies are generally highly motivated to build and maintain their reputation (Weaver 1986; Hood 2011; van Erp 2017; Busuioc and Lodge 2016). Agencies do not make decisions on a purely technical basis. Rather, they seek to make decisions which broadly meet stakeholder expectations (Gilad and Yogev 2012; Schillemans et al. 2021). When issues arise, agencies weigh the relative reputational costs and benefits of various courses of actions alongside more purely technical considerations like the risk profile of the issue and their legal obligations/right to intervene (Krause and Corder 2007; Maor and Sulitzeanu-Kenan 2013). Canny regulatory agencies, further, use **'symbolic' reputation management** to "bridg[e] the gap between a desired an actual image of an organisation"(Wæraas and Byrkjeflot, 2012, , p. 190). Agencies can use strategic communications to avoid or claim responsibility for outcomes of previous actions, or emerging issues (Hood 2011; Weaver 1986). Symbolic strategies can potentially 'make up' for, or obscure, 'poor' agency performance (Alon-Barkat and Gilad 2017; Alon-Barkat 2020). Symbolic reputation management is especially important in setting stakeholder expectations when issues first emerge. Agencies use discourse to try to imbue societal developments, and agency (non)response with specific interpretations (e.g., problem definition). In so doing, they try to shape stakeholder perceptions of events in order to maintain their support for the agency and its response (Conlan, Posner, and Beam 2014; Maor 2017; Maor and Gross 2015; Puppis et al. 2014).

On the basis of the arguments thus far, bureaucratic reputation theory provides a theoretical framework to examine the general roles of reputation in successful governance (see Figure 1.1). These general roles, however, do not provide much detail on how reputation will function in a given regulatory situation; what kind of regulator reputation with what audiences will lead to what outcomes. Even among regulators, reputation can function differently depending on jurisdiction, sector, task (e.g. enforcement versus education), and in regard to different stakeholder audience configurations (J. Boon, Salomonsen, and Verhoest 2021). Bureaucratic reputation theory does not aim to provide a comprehensive, universal account of the links between reputation and success. There are no "singular laws" (Carpenter 2010, 754) of reputation. Rather, this theory aims to provide frameworks and concepts which can be applied to study the roles reputation plays in particular regulatory contexts. Thus, we must look to reputational theory about innovation governance specifically.

1.2.3. What roles does reputation play in successful *innovation* governance?

There are only two studies, as far as the author is aware, which have overtly sought to explore the roles of agency reputation in the regulatory governance of innovation (Maor 2010; Carpenter 2010). Both studies analyse the United States' Food and Drug Administration and its governance of emerging pharmaceuticals and other biomedical technologies. Maor (2010) studies the role reputational considerations play in the FDA's decisions about whether to try to supervise specific emerging biotechnologies. In

Reputation and Power, Carpenter (2010) undertakes an expansive, historical case study which additionally studies the role of regulator reputation in driving stakeholder support for, and compliance with, the FDA's supervisory efforts. The most relevant conclusions from this research for the present study will now be summarized.

Reputation influences regulatory decision-making about how to respond to emerging innovations

Maor finds that reputational risks typically make regulatory agencies delay or avoid trying to govern emerging radical innovations. Radical innovations are uncertain, hard to regulate effectively, and politically controversial (see also: Asquer and Krachkovskaya 2021). Regulators are risk averse. They prefer to pursue the low hanging fruit of easy regulatory wins over tackling unwieldy problems (2010, 138). Regulators will thus try to avoid governing emerging innovations or, at minimum, will try to delay in order to consider their options, prepare, and build a coalition of supporters for their intervention (2010, 137). Inaction, though, can become untenable. Sometime, delaying supervision can do more reputational damage: either because of negative publicity about regulatory negligence, or because another agency is threatening to take charge if they do not. Where such counter-reputational threats become overpowering, agencies will have no choice but to attempt to govern (2010, 139–40). From this perspective, reputational considerations seem likely to undermine successful governance. Delaying regulatory involvement will likely undermine the capacity for regulators to manage the material, societal risks of emerging innovations. Further, this could be said to belie their ethical and legal responsibilities to manage said risks.

Carpenter's study reaffirms that the regulatory governance of innovation is particularly reputationally hazardous. These hazards can disincentivize regulator involvement, for e.g., regulators are often reluctant to make decisions likely to be perceived as inappropriate 'overregulation' of new technologies (2010, 679). Carpenter's analysis, however, shows that the risks of any technology are not entirely intrinsic and set in stone. Risks are somewhat socially constructed. To some extent, risks are only as serious as collectively perceived by the regulator and its stakeholders. Adding to this fluidity, innovation provides an opportunity for regulators to reshape the stakeholder audiences to whom it caters. Innovation can disrupt established power structures, bringing new stakeholders into regimes and decreasing the influence of others, for example where new firms replace incumbents (see also: Asquer and Krachkovskaya 2021). Regulatory agencies can therefore reduce the reputational risks of governance by pre-emptively shaping how various stakeholders perceive a given technology, its risks and benefits, and the appropriate solutions. Regulators do so, prominently, through symbolic reputation management. They can present evidence, rhetorical arguments, emotive discourse, and so on (2010, 767–68). Indeed, this "ability to define what sorts of problems, debates, and agendas structure human activity" (2010, 37) is an essential manifestation of a regulator's informal authority in the realm of innovation governance. Carpenter reminds us that public organizations are not always driven by risk avoidance. They also want to cultivate a **unique reputation.** Organizations want to be known for having responsibilities and capacities no other agency in their jurisdiction holds (2010, 74). A unique reputation makes the agency more highly valued and harder to replace or attack. The drive for unique reputation can make agencies expansive and entrepreneurial. The unclaimed, virgin turf of emerging innovations thus presents a reputational opportunity for greater uniqueness (see also: Busuioc 2016; Wilson 1989).

What this suggests is that reputational considerations influence regulatory decision-making about innovation, but that emerging innovations pose a complex balance of reputational threats and opportunities. Further, that regulators can themselves shape the scale of threats and opportunities through reputation management. From this, more nuanced, stance reputational considerations could be seen as a possibly essential ingredient in successful governance. Regulators who understand and pre-emptively respond to manage stakeholder critique should face less opposition to their efforts to govern innovations. Whether this happens in practice, and through what mechanisms, is a further topic of Carpenter's analysis.

Reputation influences general stakeholder support for efforts to govern emerging innovations

Carpenter's analysis shows that the regulator in his study carefully manages its reputation with stakeholders involved in the innovation process to build and maintain their support. As discussed above, the regulator made decisions it hoped would keep these stakeholders broadly happy with the agency's performance. Further, it used symbolic reputation management to shape stakeholder perceptions of the agency and its actions in a positive light. The end goal was to cultivate a reputation which sustained stakeholder support for its governance efforts (or at least minimized opposition). Reputation translates to support through two, central mechanisms: intrinsic psychology and extrinsic strategy. Where the regulator has a good reputation with an individual, this can lead them to decide to support its governance efforts for moral reasons (e.g., the regulator does valuable work, I will support them because it is the right thing to do). Such support is sometimes not a conscious decision, but an unconscious tendency to go along with an agency one esteems. Carpenter considers this a vital aspect of regulatory power: the informal, even invisible, "ability to shape the content and structure of human cognition" (2010, 37) in regard to societal problems and regulatory solutions. In other cases, due to the regulator's popular reputation, stakeholders choose to support the regulator for strategic, economic or political, reasons (e.g., the regulator is widely respected, so it is not worth damaging my own reputation by challenging them in court).

Carpenter finds stakeholder support is vital to successful regulatory governance of innovation. First, regulators often have limited formal authority over emerging innovations. New technologies can easily fall through legal loopholes. Regulators cannot rely on their formal power to act, but often rely on stakeholders supporting efforts to govern, even beyond their legal mandate. Second, even with a mandate, stakeholder opposition can make it very difficult for regulators to successfully govern innovations. Whether and how innovation will be regulated is a highly political question. One which has economic and ideological implications (see also: Taeihagh 2017). Stakeholders often have conflicting demands as to how the regulator should govern (or not govern) an innovation. Where these conflicts are not managed, there are many ways dissatisfied stakeholders can scupper regulatory plans. For example, politicians can vote to cut enforcement funding or courts can overturn regulator decisions about innovations. Finally, successful governance often relies not just on a passive absence of opposition, but on active stakeholder support in the form of information sharing, co-creation, and public endorsement.

Carpenter's study implies active stakeholder support helps provide regulators information, capacity, a coalition, and agenda-setting power in innovation governance. To govern successfully, regulators need good information about the nature of innovations. Existing regulator expertise about a sector is no longer necessarily reliable when innovations emerge, as they may create entirely new kinds of risks and harms (Taeihagh, Ramesh, and Howlett 2021). Information about the innovation and its implications is often held by other organisations who may not be inclined to share it (Kuzma 2013; Becker and Brownson 1964). Active stakeholder support is valuable in addressing such **information asymmetries.** Further, regulators have limited capacity (staff time, expertise, funding etc.) to govern. Active stakeholder support helps to extend that capacity through facilitating the co-creation of governance instruments. In his study, for example, Carpenter describes how standards for drug trials applied to new pharmaceuticals were the product of co-creation between the FDA and other organizations, such as research institutes (2010, 296). Finally, active stakeholder support can provide a coalition to publicly endorse the regulator, and fight back against efforts to undermine it (2010, 303). Carpenter describes, for example, high-profile contests in the court of public opinion. Pharmaceutical companies would, at times, buy a full-page advertisement in a national newspaper to criticise an FDA decision. The FDA and its supporters would have to counter with their own press releases (2010, 27). Relatedly, this support gave the FDA license to exercise influence in the 'high politics' of innovation policy debates and agenda setting. When the regulator 'spoke', decision makers were compelled, by force of popular opinion, to listen (2010, 37).

Carpenter concludes that a regulator's reputation, as much or more than its formal legal authority, helps to explain its success in governing emerging innovations (2010, 752). Among other factors, the regulator's reputation allows it to influence outcomes beyond its mandate. The agency could persuade others in and outside of government to cooperate with agency goals even in the absence of legal authority to force them to do so. Such informal influence and authority over innovation governance does not automatically arise simply from an agency's formal status as 'The Regulator'. Rather, it depends on a regulator possessing a strong, carefully cultivated reputation (2010, 755).

Particularly important to the regulator's success was cultivating its reputation with one specific stakeholder audience: regulated, innovative firms. As will be seen, reputational dynamics with firms, and their impact on successful innovation governance, are related to – but distinct from – other manifestations of stakeholder support.

Reputation influences regulated firm compliance with, and cooperation in, efforts to govern emerging innovation

Regulated firms are unique stakeholders in that they are some of the most direct targets of regulatory authority in the governance of innovation. By extension, they are one of the most critical stakeholder groups for successful governance (see Table 1.1). Most obviously, regulatory governance efforts are unlikely to succeed if regulated firms do not comply with regulation. **Compliance** refers to the extent to which regulatees follow official, formal law (Carpenter 2001, 60; Nielsen and Parker 2012). Widespread non-compliance with regulation leaves important risks unmanaged. When regulators first try to impose regulation over innovations, this can trigger adversarial legal contestations from firms involved. Minimising such battles over compliance is essential, as they drain a regulator's resources and political capital (Carpenter 2010, 679). In an innovation context, however, compliance beyond following formal law is also vital to regulatory success. Formal regulation over new innovations may take several years to come into force (Ranchordas 2021b, 4). Carpenter thus argues it is important that firms follow "less formal [regulatory] policies" (2010, 60). For example, where firms accord with requirements set out in non-binding regulator guidance for new technologies (2010, 380). While Carpenter does not overtly use the term, **voluntary compliance** will be used in this dissertation to refer to firms following the law even when not threatened with formal sanctions for non-compliance (Gunningham, Thornton, and Kagan 2005, 310). Carpenter also describes instances where regulated firms go beyond baseline compliance, for example imposing stricter drug trial procedures than the regulator requires (2010, 39;

see also: Mandel 2009). In this dissertation, advancing the goals of regulation beyond what is required by law is referred to as **beyond compliance** (Gunningham, Thornton, and Kagan 2005, 309). Such behaviour makes regulatory governance more effective in terms of risk management, without costing the regulator additional resources.

Regulated firms are also critical to success because their cooperation in innovation governance is especially valuable (Carpenter 2010, 221). As discussed, stakeholder support generally can provide regulators with information, capacity, a coalition, and greater agenda-setting power. Regulated firms are often at the forefront of innovation and have a unique, often commercially privileged, information about how innovations work and what risks they produce. Firms have expertise, especially, about how innovations are piloted and commercialized that is essential to designing effective governance instruments (e.g., licensing rules). Firms are very directly involved in the implementation of regulatory rules as they have to find ways to interpret those rules into actual practice ‘on the factory floor’. In some industries, like pharmaceuticals, firms can be very large, wealthy, and politically influentially (Carpenter 2010, 40). Their political endorsement is especially valuable, and politically opposition particularly hazardous. For all of these reasons, securing firm cooperation is an important antecedent of successful regulatory governance over innovation. In this dissertation, **cooperation** is defined as how closely and constructively regulated firms work with regulatory authorities (V. Braithwaite, Murphy, and Reinhart 2007, 138). Cooperation can include a range of behaviours such as regular communication, information sharing, participation in regulatory consultations, assistance with implementing regulation and so on (Pautz and Wamsley 2012). Firms can potentially be compliant with regulation while being relatively uncooperative with the regulator i.e., preferring a distant, minimal relationship. Carpenter finds that regulated firm (voluntary/beyond) compliance and cooperation are influenced by regulator reputation.

Through careful decision-making, and public relations by the regulator in Carpenter’s study, firms came to see the agency as tough and formidable, but also as competent, fair, moral, and acting in the general, long-term interests of the sector and the public. This balanced reputation engendered both “love and fear” (87); regulatory anxiety, deterrence, and obedience, but also trust, legitimacy, and voluntary cooperation. Carpenter writes:

Table 1.1 Innovative firm compliance and cooperation motivation is an antecedent of successful governance

Kind of motivation	Definition	Levels	Impact on successful innovation governance
Compliance	Willingness to follow the law	Non-compliant → Compliant → Beyond/voluntarily compliant	That regulations are generally followed is a baseline condition for regulatory performance. Where mandates over emerging innovations are incomplete, and/or regulatory capacity to govern is stretched, beyond and voluntary compliance by firms becomes vital to success.
Cooperation	Willingness to work closely and constructively with regulatory agencies e.g., information sharing, participation consultations	Uncooperative → Neutral/distant → Cooperative	Uncertainties and complexities of emerging innovations make regulators especially reliant on innovative firms to collaborate in the development, implementation, and continual adaptation of regulatory policies, instruments etc. This kind of cooperation is assumed by many regulatory approaches advocated by innovation scholars and by contemporary governments.

> "Administration officials acknowledge the need to project an image that inspires a moderate degree of fear among firms, but not so much antagonism that the firms as a collective … mobilize to weaken the regulator's essential authorities. The "bad cop" face of enforcement and induced obedience must be balanced by the "good cop" face of assistance in development and recognition of valid research (2010, 665)."

As this quote suggests, different dimensions of reputation induce compliance, voluntary/beyond compliance, and cooperation respectively. There is a tension between these dimensions, which, if they become unbalanced, will undermine one or more desirable regulated firm behaviours. Regulators thus rely upon "different facets of its ambiguous but dreaded image to induce agreeable patterns of behaviour by [] companies" (2010, 37) to induce compliance and cooperation.

Reputation influences compliance and cooperation by affecting firm motivation. **Motivation** is a psychological concept referring to the cognitive "energizing mechanism" that drives human behaviour (Kleinginna and Kleinginna 1981, 272). As with stakeholders in general, the mechanisms linking reputation and motivation were sometime intrinsic and psychological. One example is that the FDA's reputation for being morally committed to advancing the sector and innovation therein motivated firms cooperate; being more trusting and honest in their reporting on risks associated with new drugs (2010, 60). Another is that the general esteem for the regulator held by the pharmaceutical sector motivated the sector to voluntarily, even unconsciously, adopt many FDA norms and language around risk management (2010, 39). However, other mechanisms linking reputation to motivation were more to do with extrinsic strategy. For example, having a strong procedural reputation with the public increased the material incentives for firms to voluntarily comply with FDA standards. Where a regulator has credibility, compliance with their standards increases a firm's credibility with consumers (2010, 220).

In these 'reputation-based' ways, Carpenter concludes, "(a)dministration officials establish boundaries of appropriate action, secure compliance with low effort, and can induce firms to abandon strategies of contestation and to ditch questionable therapies" (2010, 679). This is not to imply that a regulator with a strong reputation never faces opposition. Carpenter's account shows that even a highly respected agency faces constant critique and attack. Rather, the value of reputation lies in reducing the scale of opposition; convincing as many stakeholders as possible to support the agency's efforts to govern, and increasing the reputational risks for stakeholders who would undermine those efforts. Reputation is thus a likely antecedent of successful innovation governance, but one which has been under-examined in innovation scholarship (Mandel 2009). Bureaucratic reputation theory is the most developed framework through which to analyse the links between reputation, support, compliance, and cooperation in regard to innovation. Yet, there are several gaps in bureaucratic reputation literature on this topic.

1.2.4. The cutting edge of research: Gaps in reputation literature

The context of innovation governance has only rarely been theorized and studied

There are only two studies overtly addressing the topic of innovation governance. Both concern the same regulatory agency. No bureaucratic reputation studies have yet to be conducted examining innovation governance outside the US and in sectors other than pharmaceutical regulation. It is unclear whether reputation, and specific dimensions of reputation, play the same roles in different contexts.

The role of reputation in decision-making about innovation is narrowly theorized

Maor's theoretical framework provides the most systematic account as to how reputational considerations affect regulator decision-making about how to respond to emerging innovations. Yet, his framework is narrowly theorized. First, Maor's theoretical model assumes regulatory agencies only perceive emerging innovation in terms of reputational threats. Other reputational literature, however, suggests regulators may also see innovation in terms of its reputational opportunities (Carpenter 2001, 44; 234–4; 310). Second, Maor's study looks only to reputational considerations as determining substantive agency decisions about whether to govern an innovation. This disregards how agencies may use *symbolic* reputation management to shape perceptions of emerging issues like innovation, and what the agency's role should be in governing them (e.g, Maor, Gilad, and Bloom 2013). This reflects a broader fissure in bureaucratic reputation literature. There is a divide between studies which examine techniques of symbolic reputation management and studies which examine how regulators respond to specific kinds of emerging issues (Maor 2015). There is some literature already bridging the two: examining how specific kinds of emerging issues may trigger specific kinds of symbolic reputation management. Literature shows that how agencies seek to frame issues, and their governance role, is influenced by a range of contextual factors e.g. the kind of reputation they have established (Gilad 2015), the composition of their stakeholder audiences (Rimkutė 2020), and how hard the issue will be to govern successfully (Hawkins 1984). To the author's knowledge, however, no study to date has sought to systematically apply these insights to the study of emerging innovation governance.

The influence of reputation on compliance and cooperation have rarely been empirically evaluated

To the author's knowledge, bureaucratic reputation theoretical arguments about the influence of reputation on compliance and cooperation have only been empirically evaluated through Carpenter's historical case studies of US public organizations (2001; 2010) and Capelos et al.'s (2016) survey study of the Cypriot Water Authority. These studies are highly promising, but far from adequate to establish the validity of these theoretical arguments. Not only are these studies researching highly specific contexts, but they use very different conceptualizations and methodologies from one another. Further scholarship is required to develop a more cohesive, better validated account.

Bureaucratic reputation literature has rarely integrated relevant insights from regulatory governance scholarship

Regulatory governance scholarship rarely overtly discusses regulator reputation as it is conceptualized by bureaucratic reputation theory; a holistic but multi-dimensional image with both and individual and popular manifestations (with notable exceptions: Busuioc and Lodge 2016; Lodge 2014; Ayres and Braithwaite 2009). However, there is substantial regulatory governance literature about how perceptions of regulatory authorities influence regulatee compliance and cooperation. Included in this is scholarship on trust (Six and Verhoest 2017; Six et al. 2021); legitimacy (Tyler and Fagan 2008); motivational posture (V. Braithwaite et al. 1994); inspector style (Winter and May 2001); regulatory interactions (Pautz and Rinfret 2013); club theory (Potoski and Prakash 2005); and tax morale (Kogler, Muehlbacher, and Kirchler 2015). This collective scholarship has made very similar findings to those of Carpenter (2010) and Capelos et al. (2016). Various kinds of beliefs about regulatory authorities influence compliance motivation (for e.g., Murphy, Tyler, and Curtis 2009). There are differences between beliefs which motivate subjects to merely comply with regulator demands and those which motivate voluntary compliance, beyond compliance, and cooperation (V. Braithwaite, Murphy, and Reinhart 2007; May 2005). Maintaining compliance and cooperation depends on multiple kinds of beliefs in balance (a finding made, for e.g., in research on tax morale (Muehlbacher, Kirchler, and Schwarzenberger 2004) and on inspector style (May and Wood 2003)). Further, this scholarship provides three essential contributions essential to examining the role of reputation in driving compliance and cooperation in an innovation context.

First, regulatory governance scholarship has found certain, specific beliefs to be important to compliance and cooperation motivation. For example, multiple studies suggest that beliefs about how strictly regulators apply rules — how likely they are to be flexible or 'bend' rules — influences regulatee compliance motivation (May 2005; V. Braithwaite, Murphy, and Reinhart 2007; Heimer and Gazley 2012).

Second, several of these literatures draw on similar well-developed, and empirically supported, theory about the nature and function of regulatee compliance motivation. The extent to which regulatees comply and cooperate, and why, has been found to be complex, idiosyncratic, and changeable. Different regulatees comply and cooperate for different kinds of reasons. Not just to avoid sanctions, but to fulfil social and moral obligations (Nielsen and Parker 2012). The same individual will probably be motivated for a mixture of reasons (J. Braithwaite 2002, 41). As regulatees may have different kinds of motivation (economic, social, moral), beliefs and combinations of beliefs about regulators can influence motivation through different mechanisms (V. Braithwaite et al. 1994).

Third, these literatures offer theory about the role beliefs about regulators play at different stages in a regulatory relationship. Early in the relationship, when regulatees have had little direct contact with the regulator, beliefs about the regulator can encourage them to reach out and begin to cooperate. In deciding whether to start to cooperate with regulators, studies suggest regulatees will be influenced by their impressionistic beliefs about the regulator e.g. whether the regulator is competent, trustworthy, reliable (Braun and Busuioc 2020; Arras and Braun 2018; Busuioc and Jevnaker 2020; Potoski and Prakash 2005; Carter and Siddiki 2019). Once firms start interacting directly with regulatory staff, those interactions are likely to shape their beliefs about the regulator further. Regulator staff are ambassadors of their agency (Braithwaite and Hong 2015). How they treat regulatees in frontline interactions affects how regulatees think and feel about regulation and the regulator in general (Nielsen and Parker 2009; Heimer and Gazley 2012; May and Wood 2003; May and Winter 1999) Thus, when initial interactions with regulatory staff are cooperative, firms form more positive beliefs about the agency (Nielsen and Parker 2009, 383). By building the regulator's reputation in the eyes of firms, among other mechanisms, the quality of early interactions affects how willing regulatees are to comply with regulation and cooperate with regulatory agencies longer term (Ayres and Braithwaite 1995).

In these ways, regulatory governance scholarship offers important insights into how reputation with regulatees is formed, which kinds of reputational beliefs are most relevant to compliance and cooperation, and the mechanisms through which reputation translates to motivation in individual regulatees. Yet, these insights have only been peripherally integrated in bureaucratic reputation accounts about regulatory compliance and cooperation (for e.g., Carpenter 2010, 673).

This dissertation aims to build on bureaucratic reputation literature on this topic by conducting research targeting these theoretical and empirical gaps.

Table 1.2 Glossary of terms

Beyond compliance	Advancing the goals of regulation beyond what is required by law (Gunningham, Thornton, and Kagan 2005, 309).
Compliance	The extent to which regulatees follow official, formal law (Carpenter 2001, 60; Nielsen and Parker 2012).
Cooperation	How closely and constructively regulated firms work with regulatory authorities (V. Braithwaite, Murphy, and Reinhart 2007, 138). Cooperation can include a range of behaviours such as regular communication, information sharing, participation in regulatory consultations, assistance with implementing regulation and so on (Pautz and Wamsley 2012).
Finance	An area of economic activity principally concerning the provision and controlling of credit (Mwenda 2006, 2–3).
Financial regulation	The supervision of financial services firms, designed to sustain fair, efficient, transparent markets for their services. This includes managing risks to consumers, firms, investors, and the financial system at large, in order to maintain investor and consumer confidence (Mwenda 2006, 2–3). Financial services regulation includes several functions: creating principles and/or rules about who can run a financial services firms and authorizing (i.e., licensing) those firms; creating conduct rules, supervising compliance including investigating suspected non-compliance, and enforcing compliance through sanctions; and coordinating with other regulatory authorities (Mwenda 2006, 7).
Fintech	An umbrella term for innovations which came to prominence in the immediate period following the Global Financial Crisis (2007-8) applying 21st century inventions to financial services (Arner, Barberis, and Buckley 2015).
Innovation	The widespread replacement of existing types of products, processes, services, business models etc. in a market sector with ones which are novel to that sector (Brownsword, Scotford, and Yeung 2017, 3–5).
Innovations	Products, services, business model etc. which represent practical applications of inventions. Innovations are often first adopted on a small scale by a small number of users and gradually 'diffused' to more and more users over time (Rogers 1962). Both inventions and innovations refer to the creation of something new. Yet, innovation tends to lag behind invention.
Innovative firms	Companies which either/both: a) have, as a significant portion of their business, the sale of innovative products and services, or b) offer traditional products and services through innovative business models (Fagerberg 2009, 4).

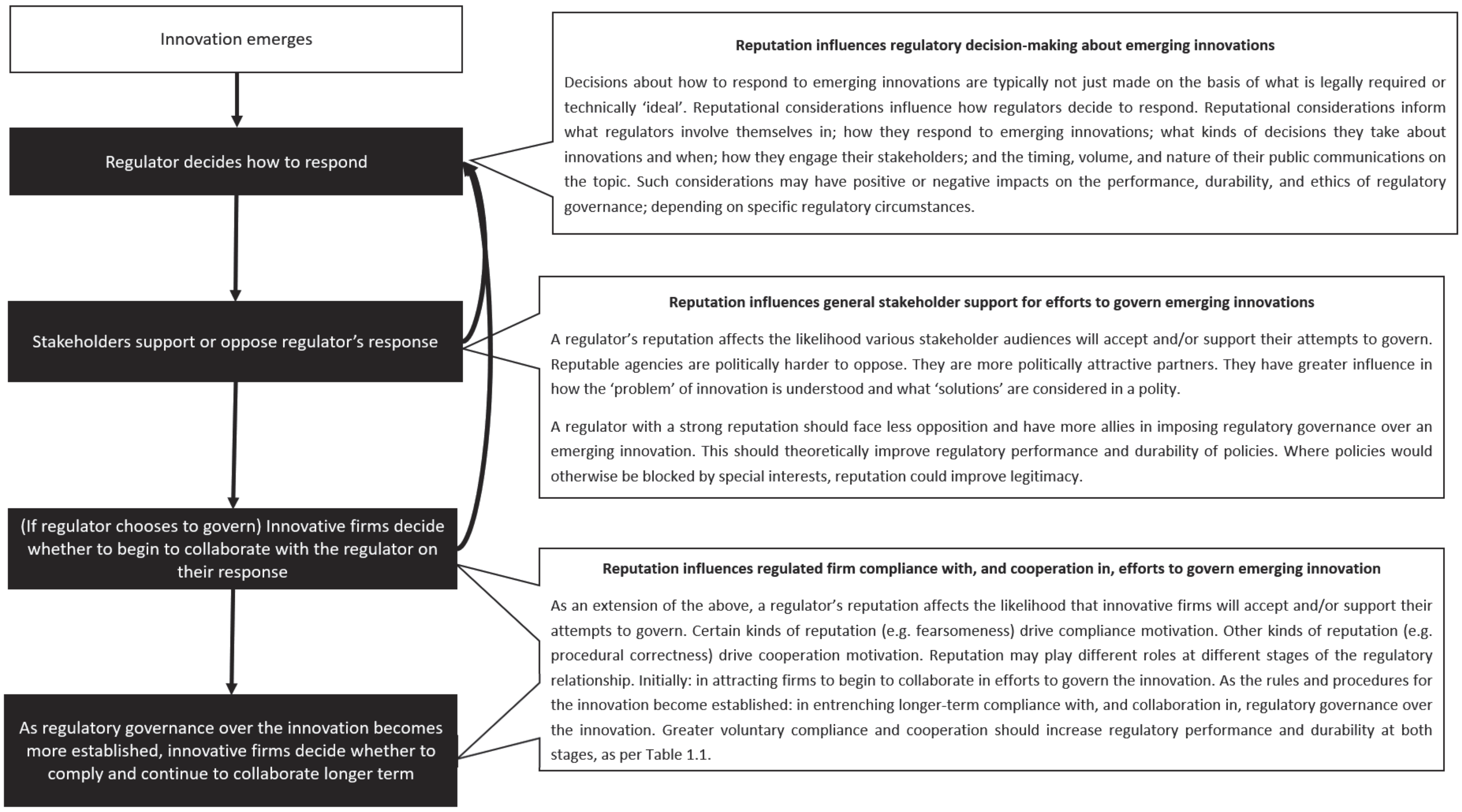
Table 1.2 Glossary of terms (*Continued*)

Disruptive innovation	A process whereby an innovative product, service etc. creates a new market and unexpectedly displaces incumbent firms and products (C. M. Christensen 1997).
Incremental innovation	The replacement of old products, processes etc. with those which are marginally better but largely the same e.g. new generations of car engines are usually more fuel efficient than old (Freeman and Soete 1997).
Motivation	The cognitive "energizing mechanism" that drives human behaviour (Kleinginna and Kleinginna 1981, 272).
Private innovation	The innovation process as conducted principally through for-profit firms in markets rather than by the state, civil society, or individuals.
Radical innovation	The spread of new technologies which significantly reduce input costs, transforming a sector (Freeman and Soete 1997).
Regulation	The intentional use of authority to affect behaviour of a different party according to set standards, involving instruments of information-gathering and behaviour modification (Black 2002a, 20).
Regulatory agency	A public organisation, primarily responsible for implementing regulation, which is structurally distinct from the main ministerial hierarchy, has greater autonomy than normal ministries, has some level of ministerial control over operations, pursues primarily public rather than commercial goals, and is constituted mainly in public law (Pollitt, Talbot et al. 2004, p. 32).
Regulatory governance	Attempts at regulation which recognise the inability of any one actor to entirely direct the behaviour of others, and therefore relies more on techniques to subtly, informally steer behaviour (Levi-Faur 2011, 185).
Reputation	A set of symbolic beliefs about the unique or separable capacities, roles, and obligations of an organization where those beliefs are embedded in audience networks (Carpenter 2010, 45).
(Stakeholder) support	An umbrella term to describe various, helpful stakeholder behaviours in response to agency efforts to govern; either the absence of opposition, or more active behaviours assisting the regulatory agency.
Strong reputation	A reputation which results in a public organization's stakeholder audiences liking, or at least accepting the legitimate existence of, the organization (Carpenter 2010, 45).
Successful regulatory governance (of innovation)	Regulatory agencies effectively managing the risks, and facilitating the benefits, of innovation; in a manner which is consistent with the law and societal ethical standards; and reasonably durable.

Table 1.2 Glossary of terms (*Continued*)

Symbolic reputation management	The strategic use of mass communications designed to bridge the gap between a desired an actual image of an organisation (Wæraas and Byrkjeflot 2012, 190).
Voluntary compliance	Following the law even when not threatened with formal sanctions for non-compliance (Gunningham, Thornton, and Kagan 2005, 310).

Figure 1.1 Roles of reputation in innovation governance derived from theory (Carpenter 2010; Maor 2010)


Innovation emerges
Regulator decides how to respond
Stakeholders support or oppose regulator's response
(If regulator chooses to govern) Innovative firms decide whether to begin to collaborate with the regulator on their response
As regulatory governance over the innovation becomes more established, innovative firms decide whether to comply and continue to collaborate longer term

Reputation influences regulatory decision-making about emerging innovations

Decisions about how to respond to emerging innovations are typically not just made on the basis of what is legally required or technically 'ideal'. Reputational considerations influence how regulators decide to respond. Reputational considerations inform what regulators involve themselves in; how they respond to emerging innovations; what kinds of decisions they take about innovations and when; how they engage their stakeholders; and the timing, volume, and nature of their public communications on the topic. Such considerations may have positive or negative impacts on the performance, durability, and ethics of regulatory governance; depending on specific regulatory circumstances.

Reputation influences general stakeholder support for efforts to govern emerging innovations

A regulator's reputation affects the likelihood various stakeholder audiences will accept and/or support their attempts to govern. Reputable agencies are politically harder to oppose. They are more politically attractive partners. They have greater influence in how the 'problem' of innovation is understood and what 'solutions' are considered in a polity.

A regulator with a strong reputation should face less opposition and have more allies in imposing regulatory governance over an emerging innovation. This should theoretically improve regulatory performance and durability of policies. Where policies would otherwise be blocked by special interests, reputation could improve legitimacy.

Reputation influences regulated firm compliance with, and cooperation in, efforts to govern emerging innovation

As an extension of the above, a regulator's reputation affects the likelihood that innovative firms will accept and/or support their attempts to govern. Certain kinds of reputation (e.g. fearsomeness) drive compliance motivation. Other kinds of reputation (e.g. procedural correctness) drive cooperation motivation. Reputation may play different roles at different stages of the regulatory relationship. Initially: in attracting firms to begin to collaborate in efforts to govern the innovation. As the rules and procedures for the innovation become established: in entrenching longer-term compliance with, and collaboration in, regulatory governance over the innovation. Greater voluntary compliance and cooperation should increase regulatory performance and durability at both stages, as per Table 1.1.

1.3. RESEARCH AIMS, OBJECTIVES, QUESTIONS

The overarching research question of this dissertation is: ***What role does regulatory agency reputation play in the regulatory governance of emerging innovations?*** In examining this question, this dissertation aims to build theory on the role of reputation in the successful regulatory governance of emerging innovation, with a focus on recent innovation in the financial sector. Within this broad aim, the research has several objectives aided by a series of empirical studies.

The first research objective is to better understand the role of reputation in shaping agency decision-making about whether and how to govern financial innovations when they emerge. This is addressed through **RQ1: *What role do reputational considerations play in whether, and how, financial regulators choose to govern emerging innovations?*** This question is explored through a study comparing how financial conduct regulators in the UK, Australia, and New York responded to the emergence of cryptocurrencies. Building on Maor (2010), this study develops and evaluates an expanded theoretical framework. This framework examines substantive and symbolic responses of regulatory agencies to emerging innovation. Second, it explores the extent to which regulators conceive of innovation purely as a reputational threat, or as a potential reputational opportunity.

The second objective is to examine the role of reputation once agencies have committed to governing emerging innovations. These studies focus on how reputation may influence stakeholder support and regulatee compliance with, and cooperation in, regulator efforts to govern emerging innovations.

Toward this second objective, an alleged 'success case' was selected for analysis. The UK's regulatory sandbox for fintech was an obvious choice. Sandboxes have been described as a prototypical example of proactive (Bromberg, Godwin, and Ramsay 2017, 1), adaptable (Marjosola 2019), and experimental (Philipsen, Stamhuis, and de Jong 2021) innovation governance. The UK's fintech sandbox was the first in the world, has been widely perceived as successful by governments and sector alike, has now been imitated in more than 50 jurisdictions, and inspired the European Union's policies on innovation governance (Parenti 2020). Yet, very few studies empirically examine how sandboxes perform in practice, and what factors underlie their alleged success (Alaassar, Mention, and Aas 2020; 2021). Thus, the first stage of case analysis was to interrogate the claim that this sandbox is indeed a model which balance innovation facilitation with risk management. Further: to begin to draw out the potential roles of regulator reputation in its success. This is examined through **RQ2: *To what extent and how, in practice, do sandboxes fulfil their potential to facilitate innovation?***

These first two studies are exploratory, descriptive, and analytical. Their findings led the author to a better understanding of the dynamics of reputation in fintech governance specifically. The next analytical step was evaluating some of these roles in depth. Specifically, the roles agency reputation plays in innovative firms accepting regulatory governance over emerging innovations. This was analysed through ***RQ3: What role does regulator reputation play in innovative firm compliance with, and cooperation in, the regulatory governance of emerging innovations?*** This question was explored through two studies looking at two different stages of the regulatory relationship.

The first study examines the role of reputation in driving compliance and cooperation early in the relationship, when regulated innovative firms have had very little prior contact with the regulatory agency. It does so by asking whether, and how, regulator reputation motivated fintech firms to first apply to participate in the regulatory sandbox.

The second study analyses the role of reputation later in the regulatory relationship, when regulated innovative firms begin to interact with regulator staff. It does so by examining whether fintech firm participation in the regulatory sandbox had an influence on subsequent firm motivation to comply and cooperate, and what role reputation-building may have played.

Each study draws on theoretical insights and analytical approaches from both reputational and regulatory governance literature. These studies aim to bridge these literatures and thereby elucidate the links between various dimensions of regulator reputation and stakeholder support, compliance, and cooperation, and the rich mechanisms which link them. In so doing, the dissertation aims to provide hypotheses for future studies to assess the generalizability of findings.

1.3.1. What role does regulatory agency reputation play in the regulatory governance of emerging innovations?

RQ1: What role do reputational considerations play in whether, and how, financial regulators choose to govern emerging innovations?

RQ2: To what extent and how, in practice, do sandboxes fulfil their potential to facilitate innovation?

RQ3. What role does regulator reputation play in innovative firm compliance with, and cooperation in, the regulatory governance of emerging innovations?

1.4. RESEARCH DESIGN AND METHODOLOGY

Empirically exploring the role of regulator reputation in successful innovation governance poses a number of methodological challenges.

A fundamental challenge is evaluating the ‘success’ of governance efforts. What constitutes success in innovation governance is ambiguous, contested, and evolving. Innovation is plagued by uncertainty. One cannot be sure how innovation will evolve and what impacts it may have on society. These outcomes are affected by myriad factors, most outside regulatory agency influence. The outcomes of governance efforts may not be obvious for years or decades (Taeihagh, Ramesh, and Howlett 2021, 1010). Some technology regulations which seemed sensible in their own time are highly unsuccessful with hindsight. For this reason, performative success is often examined not in terms of outcome achievement but rather through intermediate indicators, like the number of authorizations issued or the number of patents filed in a jurisdiction (Zetzsche et al. 2017). This dissertation sought to examine success beyond narrow indicators. Success is examined in terms of the extent to which governance efforts facilitate innovation, manage its risks, are legitimate, and are likely to be durable. These outcomes are discussed both within individual chapters and reflectively in the Conclusion.

Another central challenge relates to collecting data from innovative firms. To understand the role of reputation in the successful governance of innovation, it was deemed critically important to assess what reputation regulators have with the primary targets of regulation i.e., firms. There is, however, no pre-existing population frame for ‘innovative’ firms. Even with a frame, innovative firms are a notoriously hard-to-reach population. These are private companies, which are often small and young, with limited spare capacity to respond to research requests, and sometimes an ideological suspicion of regulation and regulators (Mandel 2013). Further, the research concerns the sensitive topic of perceptions of regulators and compliance with regulation. Sensitive topics tend to dissuade participation, can create social desirability and self-selection issues, and mean that data collected from participants is also especially sensitive (Nielsen and Parker 2009, 396).

Finally, operationalizing reputation and reputation management poses methodological challenges. First, it was necessary to operationalize reputational beliefs of regulatory stakeholders. While there were operationalizations and instruments at the time of data collection, these were typically oriented to capturing reputational beliefs of citizens or individual regulatees e.g. taxpayers rather than regulated firms (D. Lee and Ryzin 2019).[2] Further, these were designed for quantitative methods like surveys, and not for qualitative interviews. Second, it was necessary to operationalize ‘reputational considerations’ and reputation management by regulatory agencies. Again, prior operationalizations had typically been oriented to quantitative methods (Busuioc and Rimkutė 2020a; Gilad, Alon-Barkat, and Braverman 2016) and a novel codebook had to be created to achieve the aims of the research. A further challenge here is capturing and analysing regulatory communications. Regulators communicate in a wide range of fora; not just formal policy documents but public addresses, television, radio, and podcast appearances, social media and so on. Studying reputation management requires collecting a large volume of data and finding efficient means to analyse the reputational intentions within.

These three challenges motivated the choice of a mixed-method, case-based research design; the case selection; data collection instrument design; recruitment strategy; data management strategy; and analytical approach. This section provides a broad overview of the research design and methodology. More detailed information on each study is provided in each of the four empirical chapters.

1.4.1. Research design

This dissertation employs a multi-method design including qualitative and quantitative research methods. Each research sub-question is answered by using a combination of methods, summarized below. Multiple methods provide complementary approaches to answering the research question (Hendren, Luo, and Pandey 2018). Quantitative methods aim to detect general trends and patterns in the role of reputation. Qualitative methods aim to explore the underlying mechanisms behind these trends and patterns. Different empirical studies were used to address the different sub-questions of research. All of these studies concern cases of early government regulatory intervention to govern fintech, which began in the post-Global Financial Crisis period and continue to the present. Findings of the various studies were compared and integrated in answering the research question in the Conclusion. Table 1.3. (below) provides a summary of the design, cases, and data collection.

1.4.2. Cases and case selection logic

For RQ1, data were collected in a comparative case study of regulatory responses to fintech in the UK, the United States, and Australia. Cryptocurrencies were chosen as an extreme case. Cryptocurrencies are an example of radical innovation because, when they emerged, they presented a fundamental challenge to the millennia-old monopoly of the state in issuing currency. Extreme cases are useful for exploratory research; to probe – in this case – how agencies respond and the possible reasons for those responses in an “open-ended fashion” (Seawright and Gerring 2008, 302). The three regulatory agencies were chosen on the basis of similarity. They are all financial conduct regulators, with responsibilities including consumer protection, with formal autonomy from government, from Anglophone, OECD liberal democracies with large, well-established financial markets and rapidly growing fintech sectors.

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[2] Since that time, more instruments have been validated which are better suited to capturing beliefs of regulated organizations e.g. (Overman, Busuioc, and Wood 2020).

For RQs2 and 3, data were collected as part of a case study of the United Kingdom's Financial Conduct Authority's regulatory sandbox for fintech. The sandbox instrument has been lauded by the Authority itself, other national regulators, international bodies and industry observers as an example of successful innovation governance. Further, the UK has been especially successful in attracting innovative firms to participate; a task with which many other international regulators have struggled (for e.g., Buckley et al. 2020). Further, regulatory reputation has been cited as an antecedent to the instrument's success. Thus, the FCA's sandbox was selected because it provides a critical case (Yin 2014, 229). If there are links between regulator reputation and successful innovation governance, we would expect to see theoretical expectations fulfilled in the UK fintech sandbox case. Another advantage of the sandbox as a case to study is that it allows a comparison between participants and non-participants. One can compare the reputational beliefs of those firms who want to apply against those who do not, and of those who have cooperated with the regulator in the sandbox and those who have yet to do so (or who have worked with the regulator through traditional authorization channels).

1.4.3. Methods of data collection and analysis

RQ1 is a comparative case study using mixed methods: 1) qualitative analysis of primary documents to establish regulator reputation prior to the emergence of cryptocurrency and 2) quantitative and 3) qualitative content analysis of agency communications about cryptocurrency. Hundreds of communications documents from regulators were collected via a systematic search of traditional and social media (Twitter). The study applies Carpenter's conceptual framework of the dimensions of agency reputation (2010). Coding was abductive, and completed in NVIVO by two, independent coders.

RQs 2-3 represent three sub-studies arising from a single case study also using mixed methods. This study collected data through: 1) a questionnaire, 2) in-depth, semi-structured interviews, and 3) qualitative analysis of primary documents. The respondents of the questionnaire and interviews were fintech firm senior managers. A population frame of UK fintech firms was developed by the author, and all firms in the frame were invited to participate. Additional snowball sampling was used in the interview stage. The analytical framework for both questionnaire and interview were based on: 1) Carpenter's reputational framework operationalized through Lee and van Ryzin's (2019) Bureaucratic Reputation scale and 2) conceptualizations of regulatory interactions and regulatee motivation derived primarily from Pautz and Wamsley (2012) and Nielsen and Parker (2009) respectively. Descriptive statistics from the questionnaire were derived using RStudio. Interview responses were coded abductively and completed in NVIVO by the author. Primary documents were collected through a systematic search of the regulator's website, and analysed qualitatively using NVIVO.

In the course of research, several novel operationalizations and analytical frameworks were developed. These include survey questions, a codebook to assess reputation management via regulator communications, a codebook to analyse reputational beliefs of firms about their regulator (designed to be comparative with quantitative surveys on the same topic), and a framework to assess the mechanisms through which early interactions between regulators and innovative firms may influence compliance and cooperation motivations.

These methodological contributions build on prior approaches, but also highlight important limitations of those approaches for studying reputation and its management in an innovation context. One example is that prior approaches to measuring reputation management in this context excluded the ability to distinguish between blame-avoidance and reputation-seeking behaviour (Maor 2010). The codebook and analytical framework developed for RQ1 takes a qualitative approach which can allow researchers to infer a distinction (see Appendix 1: Chapter 2). Another is that prior approaches to measuring reputational beliefs among regulatory stakeholders often aim for conceptual clarity and delineation between the dimensions of reputation (D. Lee and Ryzin 2019; Capelos et al. 2016). Operationalizations seek to make clear who has a positive versus negative opinion of the regulator, and to strictly separate out which beliefs are about performative, moral, technical, and procedural dimensions. While this is valuable for quantitative research, this approach disregards that organizational reputation is often ambiguous within firms and individuals. In defining the concept, Carpenter argues that dimensions are not entirely distinct and regularly overlap in the imagination of audiences (2010, 69). Further, that regulators specifically rely on an ambiguous reputation to govern effectively (2010, 68). Ideally, regulated subjects should have a somewhat logically inconsistent view of the regulator; the agency is both tough and forgiving, both procedurally strict and flexible. In the qualitative approach taken for the codebook used for chapters 4 and 5, this kind of ambiguity is allowed to emerge from the data. These studies reaffirm Carpenter's arguments about the essentially ambiguous nature of reputation, a methodological 'finding' discussed at length in the appendices for chapters 4 and 5.

1.4.4. Ethics and data management

Prior to the collection of personal data, the research plan was approved by the Ethics Approval Board of Utrecht University's Faculty of Law, Economics and Governance and the Data Protection Impact Assessments was then approved by the Utrecht University Data Protection Officer. Measures were put in place to manage risks arising from collection of personal data. Respondents signed informed consent forms. Interviews recordings were transcribed promptly, and recordings deleted. Identifying information was saved on secure servers (Utrecht University's 'YODA' repository) to be deleted at completion of the study. All identifying information was removed prior to data analysis on regular UU servers, and in publication. Subjects had right to withdraw from the study prior to publication. Dissertation research was conducted in the period when the General Data Protection Regulation was still being interpreted and implemented in Dutch universities. This led to some complications, discussed in the Conclusion.

1.5. STRUCTURE OF THE DISSERTATION

To answer the main research question, results of the empirical studies are presented in four chapters. Table 1.3 shows how chapters relate to the sub-RQs.

Chapter 2 examines the role of reputational considerations in explaining whether, and in what ways, financial regulators responded to the emergence of fintech (RQ1). **Chapters 3-5** report findings from the case study in of the UK FCA's regulatory sandbox for fintech. **Chapter 3** examines whether and how the UK's sandbox, in practice, balances facilitating innovation with managing risks, and draws out some of the roles reputation may play (RQ2). **Chapter 4** asks whether the FCA's reputation was a factor driving companies to apply to the sandbox, and if so, how (RQ3). **Chapter 5** presents findings on the outcomes of the sandbox, including examining whether (and how) companies who take part develop more favourable beliefs about the regulator and become more motivated to comply and cooperate with regulation (RQ3). **Chapter 6** provides overarching findings, conclusions, and implications of the empirical chapters for theory and practice. Appendices describing the detailed methodologies for chapters 2, 4, and 5 are included as an annex to the dissertation.

Table 1.3 Overview of dissertation

RQ(s)	Chapter	Methodology	Data collection	Data analysis	Publication status
RQ1. What role do reputational considerations play in whether, and how, financial regulators choose to govern emerging innovations?	1. Introduction				
	2. Keeping up with cryptocurrencies: How financial regulators used innovation to bolster agency reputation	Comparative case study: UK, New York, Australia	Analysis of primary documents; Content analysis of regulator communications (n: 538)	Qualitative and quantitative coding in NVIVO	Published in: *Technology and Regulation* Co-author (Lead) with Douglas and van Erp
RQ2. To what extent, in practice, do sandboxes fulfil their potential to facilitate innovation?	3. Regulatory sandboxes and innovation in practice: Lessons from the UK's regulatory sandbox for fintech	Single case study: UK regulatory sandbox for fintech	Analysis of primary documents (n: 113); Questionnaire (n: 36); and In-depth interviews (n: 21) with fintech firm senior managers	Statistical analysis in RStudio Qualitative coding in NVIVO	To be submitted Single author
RQ3. What role does regulator reputation play in innovative firm compliance with, and cooperation in, the regulatory governance of emerging innovations?	4. Regulator reputation and professional stakeholder participation: A case study of the UK's regulatory sandbox for fintech				Published in: *European Journal of Risk Regulation* Single author
	5. Fostering regulator-innovator collaboration at the frontline: A case study of the UK's regulatory sandbox for fintech				Published in: *Law and Policy* Single author
	6. Conclusion				

Chapter 2

Keeping up with cryptocurrencies: How financial regulators used innovation to bolster agency reputation

This chapter is based on the following published article: Fahy, L., Douglas, S., and van Erp, J. (2021). Keeping up with cryptocurrencies: How financial regulators used innovation to bolster agency reputation. Technology and Regulation. The co-author statement can be found in Appendix 2.

2.1. ABSTRACT

Invented in 2008 with Bitcoin, cryptocurrencies represent a radical technological innovation in finance and banking; one which threatened to disrupt the existing regulatory regimes governing those sectors. This article examines, from a reputation management perspective, how regulatory agencies framed their response. Through a content analysis, we compare communications from financial conduct regulators in the UK, US, and Australia. Despite the risks, challenges, and uncertainties involved in cryptocurrency supervision, we find regulators treat the technology as an opportunity to bolster their reputation in the immediate wake of the Global Financial Crisis. Regulators frame their response to cryptocurrencies in ways which reinforce the agency's ingenuity and societal importance. We discuss differences in framing between agencies, illustrating how historical, political, and legal differences between regulators can shape their responses to radical innovations.

2.2. INTRODUCTION

The financial sector is experiencing a wave of radical innovation unmatched since the popular adoption of the Internet. Innovation can drive economic growth and better quality of life (Ford 2017, 7). Yet, its disruptive nature poses challenges for regulators (Ford 2017, 16–17). Cryptocurrencies are a case in point. Emerging in 2008, cryptocurrencies like Bitcoin have brought new types of technically complex and ever-evolving products into financial markets. Cryptocurrencies exacerbated risks financial regulators typically supervise and introduced new risks. Cryptocurrencies work very differently to traditional forms of currency, payment, and money transfer. It was not immediately clear whether their use was legal, and whether it should be (Arner, Barberis, and Buckley 2015, 1271). How do regulatory agencies respond to this kind of radical innovation?[3]

Legal and regulatory governance scholarship often focuses its analysis of this question, fittingly, on legal and operational responses. These are the ways regulators reform rules and practices to continue to efficiently manage market risks e.g., revising regulations. There is a rich literature describing, analysing, and evaluating such responses(Brownsword, Scotford, and Yeung 2017; Yeung 2017; Mandel 2013) . Prior studies, however, also show a 'political' dimension to how regulators respond. Different stakeholders have different economic interests in, and ideological positions on, how innovation will be regulated (Jones and Millar 2017). Regulators are sensitive to these tensions. They want to build stakeholder support for, or at least avoid criticism about, their legal and operational responses (Maor 2010). Agencies may do so through choosing legal/operational responses which are broadly acceptable to the public (Maor 2010). They may also try to maintain/build stakeholder support through strategic communications about those responses (Tzur 2019, 13; Gerding 2016; M. Lee 2017). Research, however, has not yet systematically and empirically analysed the kinds of communication strategies agencies use, and why.

Reputational theory has been increasingly applied to analyse political dimensions of regulatory agency behaviour (J. Boon, Salomonsen, and Verhoest 2021). Reputation is the image of the agency held in the minds of its audiences (e.g., the public, politicians, companies). Reputation is what those audiences imagine the agency to be like; "a set of symbolic beliefs about the unique or separable capacities, roles, and obligations of an organization, where these beliefs are embedded in audience networks" (Carpenter 2010, 45). Reputational theories argue that, when faced with a new problem or task, agencies will consider how their response will be perceived. In responding, they seek to manage their reputation so that they maintain audience support (Maor 2015). Agencies manage their reputation in various ways, including 'symbolic' strategies; through the use of public relations, communications, and marketing (Carpenter 2010, 70).

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[3] Radical innovations, here, are inventions which significantly reduce the costs of key inputs in a way that significantly transforms sectors, economies, or societies (as opposed to gradual, 'incremental' innovations) (Freeman and Soete 1997). Cryptocurrencies, and the underlying technology of blockchain, have the potential to reduce the costs of financial products and services and are proving disruptive to financial markets, as well as adjacent markets like financial law and accounting (Ford 2017, 49; Arner, Barberis, and Buckley 2015, 7).

How, though, do regulatory agencies symbolically manage their reputation in response to the specific challenges posed by radical technological innovation? To answer this question, we draw primarily on bureaucratic reputation theory (Carpenter 2001; 2010). This theory provides a framework to describe and compare the symbolic strategies agencies use (Gilad and Yogev 2012; Alon-Barkat 2020; Rimkutė 2018) and explain why agencies choose some strategies over others (Carpenter and Krause 2015; Maor, Gilad, and Bloom 2013). Bureaucratic reputation thus provides a strong basis to analyse agency reputation management in the face of new kinds of regulatory challenge. The unique features of innovation governance as a regulatory task are little discussed in theory and rarely empirically examined (Maor 2010). This study aims to begin to address this gap.

In this study, we compare communications about cryptocurrencies from three financial conduct regulators in the United Kingdom, United States, and Australia. We use quantitative and qualitative con- tent analysis to determine what kind of symbolic reputation management strategies these agencies used. We then apply a bureaucratic reputation theoretical framework to draw out possible explanations as to why regulators chose the responses they did, analysing responses in historical, political, and legal context.

This study contributes to theory by presenting a more comprehensive framework for describing and explaining how regulatory agencies manage reputation in the face of radical innovation. Through the case study, we illustrate how such a framework helps us understand the political dimension of regulator responses to innovation. The study illuminates that reputational considerations can deter regulators from intervening to govern radical innovations. Under certain circumstances, however, and — as the cryptocurrency case shows — a desire to bolster agency reputation can actually drive regulators to involve themselves in even the most risky, uncertain, and challenging radical innovations.

2.3. CASE BACKGROUND

Cryptocurrencies began with Bitcoin. In 2008, Satoshi Nakaomoto (a pseudonym for a group of individuals) released Bitcoin's open-source code. Alongside, Nakaomoto published a paper. It argued that, in the Internet age, relying on financial institutions to pay one another was inefficient and risky. Bitcoin would eliminate the need (Davis 2011). Cryptocurrencies are systems by which to send and receive payments through an encryption system run on a decentralized network of computers. They allow users to pay one another through digital transfers in (more or less) real time, like cash, and without mediation by a bank or any third party (Narayan et al. 2016).

Today cryptocurrencies have become more mainstream and commercial. Some people use cryptocurrencies as originally intended: as an online payment system. Others buy cryptocurrencies as an investment or as speculation. Some uses of cryptocurrencies – or uses in some jurisdictions –are illegal, some legally ambiguous, and some fully legal (for example, the regulated Gemini exchange in New York) (Lanxon and Kharif 2020). We can now understand cryptocurrencies as part of a large wave of radical innovation in finance in the post-Global Financial Cri- sis period (along with the rise of other 'fintech' like crowdfunding and financial AI). We are still in the midst of this wave, which is introducing new kinds of businesses, products, and ideas to the market (Arner, Barberis, and Buckley 2015, 22; Ford 2017, 143).

This study, however, is concerned with how regulators respond to radical innovations as they emerge. Our analysis looks to the first decade after cryptocurrencies were invented. Our case study focuses on three financial conduct regulators: the New York State Department of Financial Services (NY DFS), the Financial Conduct Authority of United Kingdom (UK FCA), and the Australian Securities and Investments Commission (AUS ASIC). These regulators began to publicly acknowledge cryptocurrency trading in their jurisdictions around 2012. At that time, cryptocurrencies were a strange, fringe development. As cryptocurrencies were different to existing financial technologies, they fell outside many legal definitions such as 'currency', 'financial institution', and 'derivative' (Ford 2017, 143). Governments, regulators, and courts were still determining how they should be defined and regulated. Such questions were legally complex, and difficult to answer given the novelty and technical complexity of cryptocurrencies (Davis 2011). Regulatory agencies had to consider whether and how to intervene on cryptocurrencies given (typically) gaps in policy and law. Cryptocurrencies, however, were also a controversial topic, of interest to consumers, politicians, and business (Davis 2011). As the next section outlines, we would expect regulators under these circumstances to manage their reputation very carefully as they respond to this radical innovation.

2.4. THEORETICAL FRAMEWORK

2.4.1. Radical innovation: A reputational threat to be managed?

How do regulatory agencies symbolically manage their reputation in the face of innovation in their jurisdiction? Presently, bureaucratic reputation theory provides a partial answer. Two studies to date have examined the field of innovation governance (Maor 2010; Carpenter 2010). Both examined the US Food and Drug Administration's response to innovation in the pharmaceutical sector.

In his study, Maor developed a model applying bureaucratic reputation theory to explain regulatory responses to radical innovation. Specifically: to explain and predict when agencies will and will not claim their legal authority extends over novel technologies. Claims, here, can refers to statements which explicitly or implicitly demonstrate the agency believes it has authority e.g. policy statements, issuing guidelines (Maor 2010, 134).

When deciding how to respond to innovation, Maor argues, regulators do not simply consider objective, technical and legal questions (e.g., does our current legal authority cover this new biotechnology?). They will also consider how their response will be perceived by their audiences (Maor 2010, 134). How will their response affect the agency's reputation? In bureaucratic reputation theory, a strong reputation is one of an agency's most important assets. A reputation is strong when most people in a group (or many groups across society) like, or at least accept the legitimate existence of, that organization (Carpenter 2010, 45). A strong reputation helps agencies to survive and achieve their goals. A weak reputation makes agencies less effective, and at risk from having their funding cut, or being eliminated altogether (Carpenter 2010, 727). Agencies are thus highly motivated to manage the reputation. They want to influence audience perceptions in ways that maintain or build support for the agency and its actions (rather than eliciting public questioning, criticism, or defiance) (Carpenter 2010, 752–53).

Regulators make decisions about responding to innovation in this context (Maor 2010, 134). Maor contests that regulators are risk averse: they prioritize minimizing anticipated reputational damage over pursuing opportunities (Maor 2010, 138; Weaver 1986; Hood 2011; van Erp 2017). Regulators prefer to pursue the low hanging fruit of easy regulatory wins over tackling unwieldy problems (Hawkins 1984). Radically new technologies are uncertain, hard to regulate, and controversial (Ford 2017; Ranchordás 2018). Jurisdictional claims over novel technologies can fail.35 Even if regulators gain authority to act, their responses are likely to be deemed a failure in whole or in part due the complexities of supervision and mixed public opinion about what constitutes success.

To minimize risks, agencies prefer to delay making claims over novel technologies (or never make them at all) (Maor 2010, 137). Regulators want time to consider and/or prepare a solid claim. They also want time to build a coalition of supporters for that claim. Agencies have different kinds of audiences who could form such a coalition (politicians, business, consumers etc.). Agencies want to build and maintain support with as many audiences as possible, especially those audiences critical to their survival and success (Maor, Gilad, and Bloom 2013, 583; Gilad, Alon-Barkat, and Braverman 2016, 371). Different audiences, though, often have different interests, ideologies, and preferences. It thus takes time for agencies to secure support from various audiences to make a claim.

While agencies prefer to (indefinitely) delay their response to innovation, this strategy can become untenable. Delaying a claim can do more damage to the agency's reputation if certain, other 'threats' arise. One such threat is negative publicity. New information may be published showing this novel technology is harmful e.g., this unregulated medical practice is killing people. Agency audiences then start criticizing the agency for its negligence. Negative publicity makes agencies more likely to make a timely claim (Maor 2010, 139). Other bureaucratic reputation research reinforces negative public attention increases the likelihood of a quick response (Maor, Gilad, and Bloom 2013; Carpenter and Krause 2015).[4]

The second category of threat driving claims concerns how other regulatory agencies respond. Novel technologies tend to potentially fall under the authority of two or more agencies. This can incentivize regulators to make a claim quickly before others can (Maor 2010, 140). Agencies want to avoid a scenario where other agencies make competing claims over technologies they themselves want to supervise (see also: Wilson 1989; Busuioc 2016, 40). Competition can damage their relationship with professional colleagues (Maor 2010, 141). Further, agencies typically do not want to risk having to share authority (Busuioc 2016). They do not want to share authority over specific technologies nor the broader regulatory field.[5] Sharing responsibilities means regulators have less autonomy; leaving them open to criticism about a technology whose supervision they cannot fully control (Wilson 1989; Busuioc 2016). Sharing or losing authority like this can, too, make the regulator come to be seen as less unique.

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[4] In bureaucratic reputation theory, responses can be either in the form of communicating, like issuing a press release, or substantive action, like increasing regulatory resources to address a risk.

[5] For example, if a second agency claims authority over one biotechnology this may give them a foothold to claim authority over the supervision of medical technologies in general.

Agencies, ideally, want to build and then maintain a unique reputation. They want to be seen as the sole provider of a public good or service in their jurisdiction. Agencies seen to make a unique contribution are more recognized, socially valued, and harder for politicians to attack or replace (Carpenter 2010, 45). In the case of innovation, agencies are more likely to make a quick claim if they think it will build their unique reputation (Maor 2010, 140). Conversely, agencies are less likely to make claims over technologies peripheral to their unique reputation. This reflects a more general tendency for agency reputation management to be path-de- pendent (Maor 2015, 25; Wilson 1989, 76). Once agencies establish their unique position in their society — one which elicits support from enough audiences — they tend to seek to maintain rather than change that reputation (Gilad 2015, 593; Boin et al. 2017, 663). Maor argues, in the case of innovation, unusual claims over areas tradition- ally regulated by someone else upsets the business community. That audience wants agencies to stick to "traditional goals and areas of oversight, rather than innovative forms..." (Maor 2010, 140). One possible exception is if the agency who should be traditionally responsible does not make the obvious claim. A 'vacuum' can lead to more negative publicity, compelling the regulator to respond (Maor 2010, 141).

Maor explored the validity of this model through an analysis of actual claims by the Food and Drug Administration over biotechnologies (Maor 2010). His analysis supports the expectations discussed thus far. This would imply that, when faced with innovation, regulators prefer not to respond or take responsibility. This argument is broadly supported by findings from scholarship on innovation law and governance (Gerding 2009; Ford 2017; Frieden 2003; R. Lee and Petts 2013). A major limitation of such accounts, however, is they assume regulators always see innovation as a threat.

2.4.2. Expanding the framework: Innovation as a reputational opportunity

In the main, bureaucratic reputation scholarship examines agency reputation management in cases where, either: 1) events are inherently threats e.g. crises, scandals(Maor and Sulitzeanu-Kenan 2013, 31) or 2) agencies are theorized to perceive them as threats (Krause and Corder 2007, 129). In his theoretical model, Maor maps these assumptions onto the field of innovation governance. Yet, we cannot assume, a priori, regulators see innovation in these terms.

Carpenter's (2001) research shows agencies do not always respond to external events purely as threats. Agencies are not always risk-averse. They can recognize externals events, like innovation, as opportunities to strengthen reputation. Agencies do not simply react to negative publicity to fulfil audience demands. Rather, agencies have some capacity to: 1) frame how audiences perceive external events and the agency's response to them, and 2) choose who their audiences are. Agencies can use language and symbolism to shape how the public understands the opportunities and risks of an event, and court sup- port from new and different audiences (Carpenter 2001, 144; 234; 244; 310).

Carpenter theorizes more directly about technological innovation in his 2010 study of the US Food and Drug Administration. Carpenter's study shows innovation can be a reputational opportunity for regulators, first, because it creates opportunities for agencies to build their unique reputation. New technologies mean new kinds of public goods and 'bads' (i.e. regulatory risks to be managed) (see also: Busuioc 2016). This creates opportunities for agencies to do something new and of societal value. Second, innovation can introduce new audiences for an agency and shift the relative power of audiences (e.g. with the influx of different kinds of businesses to a market) (Carpenter 2010, 72; see also: Young 2013, 460). In his study, the Food and Drug Administration proactively cultivated support for the agency and its interventions into the development of new pharmaceuticals. They did so through their practical actions, but also through their communications: through the use of discourse, rhetoric, language, and symbolism (Carpenter 2010, e.g. 60; 66-67).

Combining Maor and Carpenter's perspectives provides a more nuanced and realistic picture of how regulatory agencies manage their reputation in the face of innovation. Yet, neither author systematically examines what symbolic reputation management strategies agencies use and why. Further, both perspectives were developed through studies of the same regulator, in the same sector, in the same country. It is not clear how well this extends to other contexts (J. Boon, Salomonsen, and Verhoest 2021). This study builds upon theoretical frameworks to date, and provides an analytical framework to describe and explain symbolic reputation management in the face of innovation. Further, we explore the validity of this framework through a case study in a significantly different context (finance in the US, UK, and Australia).

2.4.3. Analytical framework

Another strand of bureaucratic reputation research provides us with the basis for our analytical framework (Rimkutė 2018; Busuioc and Rimkutė 2020b, 1256; Gilad and Yogev 2012; Alon-Barkat 2020). This research has catalogued the kinds of symbolic reputation management strategies agencies use. Critical to this theory is that agency reputation is multi-dimensional. Audiences judge agencies on several different kinds of criteria. This study draws upon the criteria Carpenter (2010) proposes: how well the agency delivers quality outputs and outcomes (*performative* reputation); how expert the agency is (*technical* reputation), how well it follows required or desirable processes (*procedural* reputation), and how ethical and good its goals and means are (*moral* reputation) (Carpenter 2010, 45–46).

Table 2.1 Carpenter's conceptual framework of agency reputation

Competency	Description
Performative	Concerns agency outputs i.e., how well they are doing the task at hand or achieving their goals.
Moral	Concerns the normative aspects of the agency i.e., the moral value of its goals or its behaviours (e.g., demonstrating compassion).
Technical	Concerns the extent to which the agency has necessary expertise in relevant areas.
Procedural	Concerns how well the agency follows required or desirable processes e.g., administrative, legal.

In their communications, agencies try to shape how audiences perceive them and their actions (Carpenter 2010, 70; Moschella and Pinto 2019). They use language and symbols designed to 'signal' to audiences that they are, for example, an ethical organization whose actions are based on technical expert judgements. In this study, we refer to this behaviour as 'image management strategy' (Wæraas and Byrkjeflot 2012, 190). Agencies may frame themselves or their actions with more emphasis on some dimensions of reputation over others (Rimkutė 2018; Gilad and Yogev 2012; T. Christensen and Gornitzka 2019). Agencies will also emphasize more specific 'aspects' within dimensions. For example, while selling itself on good moral reputation, one agency might discuss the aspect of protecting consumers while another might focus on facilitating market competition (Wæraas and Byrkjeflot 2012, 190).

Agencies further try to shape how audiences perceive them through making strategic choices about whether to communicate in a high- or low- profile manner (here: 'communications strategy'). Agencies sometimes choose a strategy of 'positive visibility' (Gilad, Alon-Barkat, and Braverman 2016). They communicate a lot and in forums designed to attract public attention.

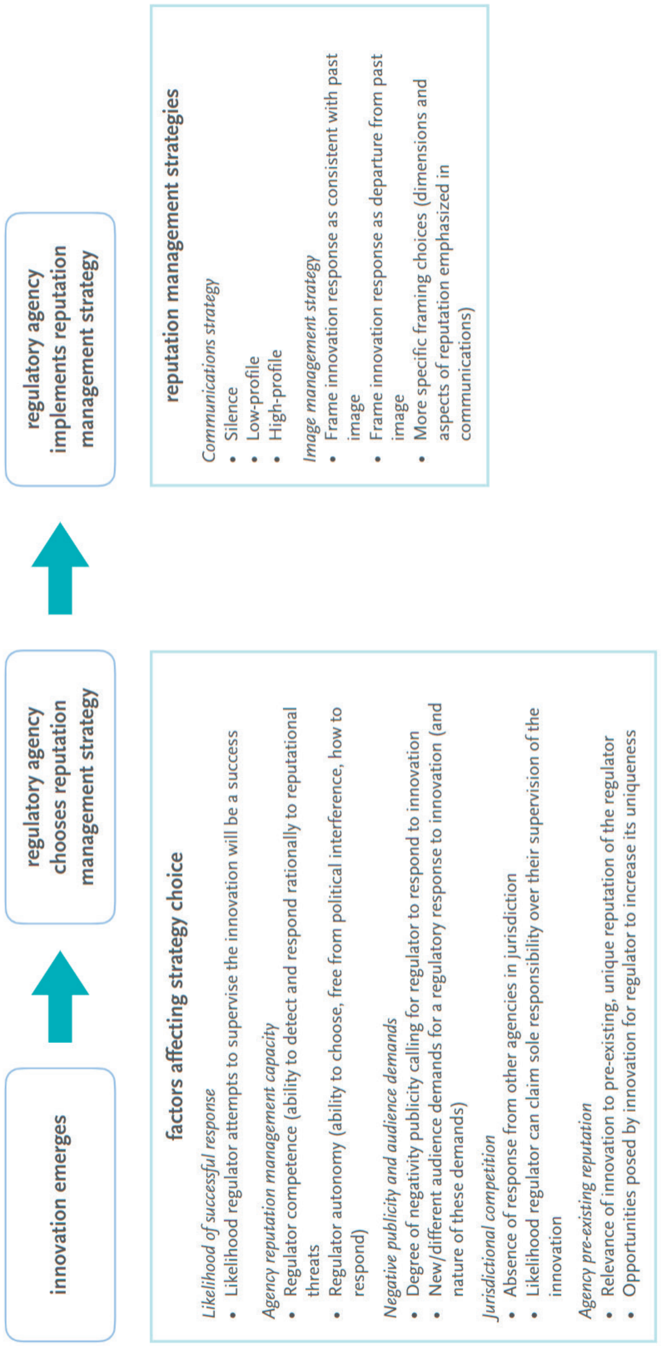
Alternatively, agencies may be 'strategically silent', communicate very little, and/or in forums designed to have a smaller audience (Maor, Gilad, and Bloom 2013). In the context of responding to innovation, agencies also make strategic choices about image management. Centrally: whether they should frame their response as consistent with their existing image, or a departure from that image (Gilad and Yogev 2012; Maor and Sulitzeanu-Kenan 2013; Carpenter 2010, 68; Rimkutė 2018, 6).

Which strategies, then, would we expect regulators to choose when faced with innovation? As presented in the theoretical framework, this depends on what the agency is like, what the innovation is like, how audiences perceive the innovation and the agency, and how other agencies respond. These factors are summarized in Figure 2.1. Prior to a detailed analysis of the cases, we cannot make specific predictions as to which strategies each agency will choose. Our aim is not to develop universal "singular laws" (Carpenter 2010, 754) for how regulators manage reputation in the face of innovation. Rather, in the following analysis of the cryptocurrency case, we aim to illustrate how applying a reputational lens — and this framework in particular — to innovation governance can help scholars better understand how and why regulators respond as they do.

2.5. METHODOLOGY

We chose cryptocurrency as an extreme case of innovation (Seawright and Gerring 2008, 301). As will be discussed further, cryptocurrencies are a case of radical innovation (Ford 2017, 49). Cryptocurrencies represent a substantial departure from previous technologies, rather than an incremental improvement (Zhou, Yim, and Tse 2005). Radical innovations are especially challenging – technically and politically– for regulators to manage (Brownsword, Scotford, and Yeung 2017). Extreme cases are useful for exploratory research; to probe – in this case – how agencies respond and the possible reasons for those responses in an "open-ended fashion" (Seawright and Gerring 2008, 302).

Figure 2.1 Regulatory agency symbolic reputation management in the face of innovation: Theoretical framework


innovation emerges
regulatory agency chooses reputation management strategy
regulatory agency implements reputation management strategy
factors affecting strategy choice
Likelihood of successful response
• Likelihood regulator attempts to supervise the innovation will be a success
Agency reputation management capacity
• Regulator competence (ability to detect and respond rationally to reputational threats
• Regulator autonomy (ability to choose, free from political interference, how to respond)
Negative publicity and audience demands
• Degree of negativity publicity calling for regulator to respond to innovation
• New/different audience demands for a regulatory response to innovation (and nature of these demands)
Jurisdictional competition
• Absence of response from other agencies in jurisdiction
• Likelihood regulator can claim sole responsibility over their supervision of the innovation
Agency pre-existing reputation
• Relevance of innovation to pre-existing, unique reputation of the regulator
• Opportunities posed by innovation for regulator to increase its uniqueness
reputation management strategies
Communications strategy
• Silence
• Low-profile
• High-profile
Image management strategy
• Frame innovation response as consistent with past image
• Frame innovation response as departure from past image
• More specific framing choices (dimensions and aspects of reputation emphasized in communications)

In this study we compare reputation management responses of three regulators (NY DFS, UK FCA, and AUS ASIC). We sought to compare a manageable number of cases which were from broadly similar contexts: Anglophone, OECD liberal democracies with large, well-established financial markets and rapidly growing fintech sectors (Z/Yen 2018; EY 2017). We chose agencies, too, which were similar. All three agencies included are financial conduct regulators, with responsibilities including consumer protection, with formal autonomy from government.[6]

We examined which communication strategy each agency chose and whether, and how, they engaged in image management. Image management was determined through comparing the image they presented in their communications about cryptocurrency to their image in the period immediately prior, then comparing between cases. The before and after, and inter-agency, comparisons increase our confidence agencies chose particular strategies in response to cryptocurrency trading.

The study used three methods: 1) qualitative document review of the agency's pre-existing image and 2) quantitative and 3) qualitative content analysis of cryptocurrency communications. The quantitative analysis determined communications strategy. The document analysis, with the qualitative content analysis, analysed image management.

For the document analysis, we searched Google Scholar, Westlaw, and Lexis Nexis with agency titles, acronyms, and 'reputation'. Documents were included if they were published in the three years prior to the agency's first communication about cryptocurrency. Documents included the agency's own statements, academic literature, and authoritative media and expert judgements. To determine the nature of the agency's pre-existing image, documents were interpreted using the coding schema described below.

For the quantitative content analysis, we collected all agency communications published after 2008 and before March 2018 about crypto- currency (a total of 538 individual texts). These were imported into NVIVO and analysed to determine text type and audience (Moschella and Pinto 2019, 520). Agencies were considered to have chosen low- or high- profile strategy based on number of texts, frequency of publishing, and high- versus low- profile fora (e.g., targeted, private speeches versus media appearances). A sample of 351 texts were then subjected to qualitative con- tent analysis to determine what kind of image each agency presented. We developed a coding schema using Carpenter's framework of reputational competencies and informed by previous analyses using that framework (e.g. Rimkutė 2018 described in detail at Appendix 1: Chapter 2). The schema was applied to determine what overall image agencies were signalling (Hsieh and Shannon 2005, 124–25). This was then compared with the competencies and aspects, presented by the other two agencies, and compared to its pre-existing image. In the final stage, we compared the images agencies presented with their pre-existing reputation, and with the reputation presented by the other two cases.

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[6] On this basis, we chose a US state regulator over a federal agency. US financial regulation is heavily decentralized, partially because the US market is so large (Brian Knight, Federalism and Federalization on the Fintech Frontier, 20 VAND. J. ENT. & TECH. L. 129 (2017)). In mandate and market size, NY DFS is more comparable to UK FCA and AUS ASIC than a federal regulator like the Securities and Exchange Commission.

2.6. FINDINGS AND ANALYSIS

In this section, we first present findings of the quantitative and qualitative content analysis. We then move on to an interpretive analysis. We apply our theoretical framework to draw out some historical, political, and legal case factors which help to explain why regulators responded in this way, and why we see some differences between reputation management by different agencies.

2.6.1. Findings of the content analysis

Low- or high- profile communications strategy?

The quantitative content analysis found all three regulators chose a high-profile communications strategy. Agencies published texts about cryptocurrencies frequently. Figure 2.2 shows regulators consistently communicate on the topic. Agencies display somewhat different preferences for specific text types (e.g., speeches versus mass media). Yet, the most common text types were those one would usually use to target mass audiences: tweets, press releases, and web pages (Figure 2.3). Thus, agencies can be said to have responded to cryptocurrencies in ways one would expect to draw public attention.

(How) do agencies engage in image management?

This section discusses each regulator's image prior to cryptocurrency trading (results of the document analysis) and whether and what signals were different in cryptocurrency communications (results of the qualitative content analysis).

NY DFS

The New York State Department of Financial Services was founded in 2011 in response to the perceived failure of previous regulatory arrangements to prevent the Global Financial Crisis. Perhaps as a result, NY DFS emphasized moral competencies first and foremost. The agency presented itself as a consumer protector standing up to Wall Street to ensure fair play. Performatively, the regulator portrayed itself as tough, strong, and unyielding. As having "worked aggressively to protect consumers, prevent systematic risk and encourage financial services to thrive and create jobs" (NYDFS 2012). The regulator characterized a prominent enforcement action against a large bank as protecting the United States against "terrorists, weapons dealers, drug kingpins and corrupt sectors" (cited in O'Brien and Dixon 2013, 960). Early enforcement successes led the press to characterize NY DFS as performatively "muscular" (Rappaport 2011), and "the new cop"(Hakim 2012). Superintendent Ben Lawsky was profiled as "Wall Street's Sheriff' (Silver-Greenberg and Protess 2015); a "marathon-running lawyer" with a "taste for Wall Street blood" (Neville 2012). Procedurally, NY DFS presented itself as willing to 'go rogue' in the pursuit of its objectives, even overriding norms of inter-regulator coordination (Treanor 2012). In its cryptocurrency communications, NY DFS shows little attempt at manage its image away from this reputation.

Figure 2.2 Relevant texts published by regulator over time

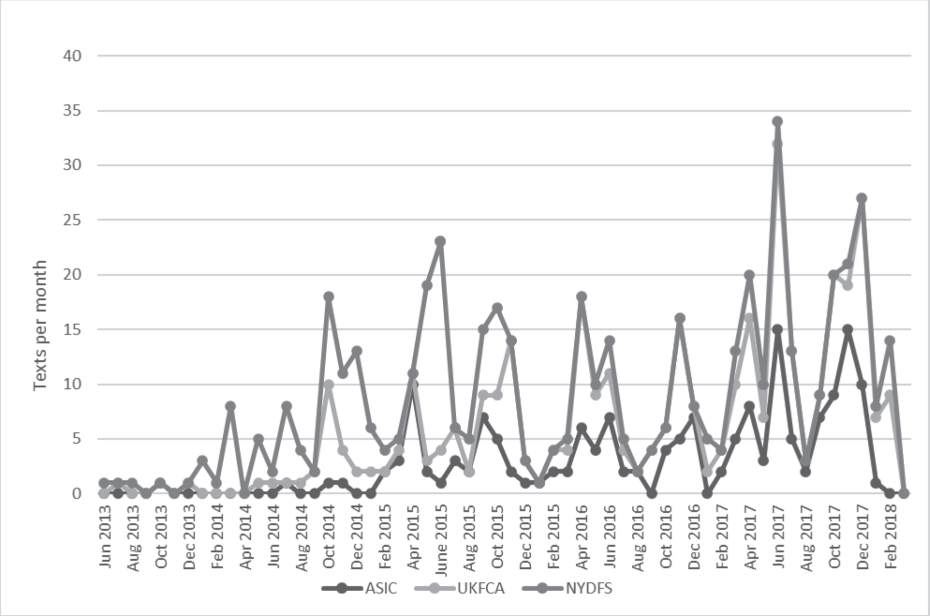

Figure 2.3 Texts by type (as percentage)

Text type	AUS ASIC	UK FCA	NY DFS
Tweet	35.1%	46.4%	56.8%
Web page	16.8%	14.1%	1.4%
Speech	11.5%	16.1%	3.6%
Press release	14.1%	8.9%	14.4%
Mass media	2.1%	2.1%	13.7%
Other	20.3%	12.4%	9.6%
TOTAL	100%	100%	100%

NY DFS framed cryptocurrencies as a new area of supervisory activity in which they had obvious jurisdiction.

> “If there was money transmission going on [in cryptocurrency trading] as the state regulatory in New York we had a very specific regulatory obligation to license those entities, examine those entities, and otherwise regulate those entities in New York” (NYDFS 2014).

In discussing the quality of the agency’s involvement in cryptocurrency, NY DFS emphasized the moral, performative, and procedural competencies consistent with its established image. The agency presented itself as the same tough regulator, intervening to take on cryptocurrency supervision to protect consumers and combat illegal activity.

> “If virtual currencies remain a virtual Wild West for narcotraffickers and other criminals, that would not only threaten our country’s national security, but also the very existence of the virtual currency industry as a legitimate business enterprise… It is vital to put in place appropriate safeguards for consumers and law abiding citizens” (Lawsky 2013).

Also consistent with its pre-existing image, NY DFS suggests its performance on cryptocurrency regulation cannot and should not be undermined by federal regulation. The agency argues state-based regulators are more experienced than federal, and especially more experienced with regulating non-bank financial entities (Vullo 2017).

> “DFS has proven that the state regulatory system is the best way to supervise and cultivate a thriving fintech industry, like virtual currency” (Vullo 2017, 2).

Some signals NY DFS sent in cryptocurrency communications, however, were different. First, NY DFS emphasized the performative uniqueness and novelty of its approach to cryptocurrency in ways not previously seen. In August 2015, NY DFS introduced the BitLicense scheme. Any firm seeking to use cryptocurrency for finance or banking purposes had to obtain a ‘BitLicense’ in order to operate legally (CNBC 2016). The agency repeatedly emphasized they were the first in the nation (and the world) to implement this kind of system.

> “NY DFS proposed a first-in-the-nation, comprehensive regulatory framework for firms dealing in virtual currency, including Bitcoin” (NYDFS 2015).

Second, NY DFS framed its involvement not only in terms of enforcement but also facilitation. Indeed, the agency positions themselves morally as aiming to enabling financial innovation generally.

> “…We also want to make sure that we don’t clip the wings of a fledgling technology before it gets off the ground. We want to make certain that New York remains a hub for innovation and a magnet for new technology firms” (NYDFS 2014, 2).

Performatively, the agency argued it was already regulating in ways which either did not hurt, or indirectly helped, business.

> “Numerous fintech companies have already succeeded and grown under this regulatory framework…In implementing regulations for the licensing and supervision of virtual currency entities, DFS enhanced trust and legitimacy of a promising emerging financial services technology” (Vullo 2017, 6).

Third, and finally, signals about NY DFS’s procedural competencies have a different emphasis in discussions of cryptocurrency supervision. Whereas the agency had previous presented itself as willing to violate procedural norms to get results, on cryptocurrency NY DFS signals it is making decisions on cryptocurrency based on rigorous inquiry and fact-finding

Notably, in the NY DFS case and in regard to the other two regulators, technical competencies were not significantly emphasized. NY DFS does make occasional reference to having general experience in regulating the New York financial market, and once or twice to lacking expertise on cryptocurrencies (discussed further below).

UK FCA

Like NY DFS, the United Kingdom’s Financial Conduct Authority was established to replace a regulator implicated in the Crisis (the Financial Services Authority) (UK FCA

2012). The UK FCA similarly emphasized its moral, performative, and procedural competencies in the period preceding cryptocurrency trading. Morally, UK FCA presented a renewed moral mission and standards of behaviour. Procedurally, it emphasized ongoing commitment to accountability and transparency while avoiding rigid, rule-based supervision (UK FCA 2013, 2-). Performatively, the regulator emphasized the quality of its approach, rather than the strength of its regulation. In particular, that its approach was proactive, responsive, outcome-focused, and suitably flexible. The UK FCA described itself as having performative characteristics of "curiosity", being "already on the case", and demonstrating "professional excellence" (UK FCA 2012). The UK FCA liked to characterize itself as leading the world in creative solutions (Ferran 2011). Further, that the regulator was morally committed to, and performatively demonstrated, a balance in promoting competition and protecting consumers (Vullo 2017, 44). In communicating about cryptocurrency, UK FCA presented a largely similar image.

Formally, the UK FCA has argued that, until or unless the use of cryptocurrencies constitutes a financial product, they do not have the necessary powers to regulate (Mashraky 2017).[7] In their communications, however, UK FCA placed cryptocurrency and fintech supervision generally front and centre in their regulatory brand.[8] The regulator has argued, indeed, that their statutory obligations compel them to take a role.

> "So, our duty to promote competition is actually, it's full title is 'competition in the interests of consumers'. So, you know that's where we start [our approach to fintech] from" (Barefoot 2017, 3).

In characterizing the agency's approach to cryptocurrencies, UK FCA continued to send strong performative and moral signals that it was a principles-based, outcomes-focused, flexible, and proactive regulator.

> "In addition to supporting individual businesses, we look to add more flexibility to our regulatory framework and identify barriers to entry for innovative firms...Our approach is typically to regulate the outcome, rather than the specific process" (UK FCA 2016b).

Perhaps in this spirit, the UK FCA launched 'Project Innovate' in 2014. Project Innovate was composed of an Innovation Hub[9] and regulatory sandbox. The sandbox allowed new kinds of fintech including cryptocurrency and related technology to be 'tested' on the live market, with firm-bespoke licenses, to calibrate regulatory conditions for their final authorization. Performatively and morally, the UK FCA presented these instruments as representative of the fact that it is an experimental regulator (in ways largely consistent with its pre-existing image).

> 'The FCA's regulatory sandbox was a first for regulators worldwide and underlines our deep commitment to innovation and our willingness to think outside the usual regulatory parameters" (UK FCA 2016b).

Another consistent aspect of reputation is the performative claim that UK FCA's approaches represent world-leading, unique, and novel solutions for fintechs like cryptocurrency.

> "We are the first regulator to launch a programme like the sandbox anywhere in the world.... It is an experiment for all involved and we will need to learn as much as the firms engaged in it" (Woolard 2016b).

There were, however, a number of aspects of reputation signalled in cryptocurrency communications which were not present (or not emphasized) in the agency's pre-existing reputation. First, UK FCA more heavily emphasized a moral commitment to facilitating innovation and business development, respectively.[10] Officials overtly characterized Project Innovate as an attempt to make UK FCA more approachable to innovators (UK FCA 2017g). Further, UK FCA emphasized its strong performance in developing the sector. Here, UK FCA claims far more direct credit than is seen with NY DFS.

> "We have seen [sandbox] tests across the full range of sectors that we regulate and I'm pleased that the majority of firms that have tested products in the sandbox have gone on to take the innovation to market" (O'Brien 2012; Medcraft 2013).

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[7] Since the period analysed, the FCA has begun to change this stance on cryptocurrencies (Davies 2019)

[8] Substantively, cryptocurrencies, wallets, and blockchain applications have been present in multiple rounds of the regulatory sandbox.

[9] Innovation Hubs are specialized units designed for the purposes of fintech sector engagement and mutual information-sharing.

[10] This is not to say the FCA was uninterested in criminal activity and consumer protection. Rather, it is a matter of relative emphasis on these aspects in FCA's communications when describing the regulator and its actions.

Second, the focus on moral aspects to do with transparency and accountability were not emphasized in this period. Whether this is due to the focus on cryptocurrency communications, or changes over time, is addressed in the discussion.

AUS ASIC

Established in 1998, Australia's Securities and Investments Com- mission has a longer history of image management than the other regulators. Focusing on the period immediately prior to cryptocurrency, though, we see AUS ASIC presented itself as a procedurally oriented, legalistic regulator (ASIC 2013b). The agency emphasized aspects of appropriate stakeholder consultation and cooperation with other regulators (O'Brien 2012; Medcraft 2013). A focus on procedures, however, ran through all its competencies. AUS ASIC had a performative focus on enforcing financial regulation through litigation; successfully prosecuting a series of high-profile cases. While this might suggest a similar image to NY DFS, AUS ASIC and others characterized its enforcement as 'lawyerly'; cautious and rule-oriented (AUS ASIC 2010). Another aspect of its performative competencies emphasized was high-quality 'customer-service'. In this regard too, a focus on procedure is apparent, with AUS ASIC issuing charters with detailed standards. In its communications about cryptocurrency, the agency presents a largely similar image.

Like in the UK, cryptocurrencies in the period analysed were not inherently subject to financial regulation (Chau 2017). AUS ASIC claimed the regulator had relevant powers where their trade constituted certain kinds of financial goods and services (APH 2015). Despite apparent limits in legal authority, ASIC indicated it had some role in supervising cryptocurrencies. In early 2015, the regulator launched its own Innovation Hub and, in 2016, a regulatory sandbox (AUS ASIC 2016c).

In communications, AUS ASIC presented largely the same procedural, performative, and moral competencies. While AUS ASIC did somewhat reduce its focus on procedural competencies compared with its pre-existing reputation, the agency continued (and far more prominently than in the other two cases) to justify agency decisions by reference to appropriate consultation processes and legal/technical consideration.

> "In considering the feedback received, we have also consulted with the insurance industry. Based on these discussions, and the submissions received, we consider that the proposed condition is generally workable" (AUS ASIC 2016d).

In discussing cryptocurrencies, ASIC primarily focused on restating its high-quality and ever-improving performance on customer service. The regulator repeatedly discussed improvements to processes, especially in regard to fintech regulatory approvals.

> "The agreement will enable innovative FinTech companies in Singapore and Australia to establish initial discussions in each other's market and faster and receive advice on required licenses, thus helping to reduce regulatory uncertainty and time to market" (AUS ASIC 2016c).

There are, however, some notable differences in the image ASIC presents in its cryptocurrency communications compared with its pre-existing image. ASIC more heavily emphasizes its performance as a facilitator of business development. Its characterization here is more similar to NY DFS's indirect credit claiming than UK FCA's hands-on involvement.

> "ASIC supports innovation and we have endeavoured to assist persons to understand their obligations under the laws [regarding digital currency trading] we are responsible for" (Saadat 2015).

Relatedly, ASIC emphasizes a moral commitment to facilitating innovation not seen in its pre-existing image.

> "ASIC's fintech licensing exemption reflects our commitment to facilitating innovation in financial services. However, we are equally committed to ensuring that innovative products and services are regulated appropriately and promote good consumer outcomes…" (AUS ASIC 2016c).

Another new aspect of its performative reputation is the repeated characterization of its specific approach to the Hub and sandbox was performatively unique and novel.

> "The proposed licensing exemption compares favourably to measures in other jurisdictions as it will allow some fintech businesses to commence testing of certain product offerings in the absence of detailed assessment by the regulator" (AUS ASIC 2016a).

Also, in regard to uniqueness, in communicating about its performance on cryptocurrency AUS ASIC presented the agency as world-leading in regard to its inter-agency coordination efforts.

> "Under a new world-first agreement, innovative fintech companies in Australia and the United Kingdom will have more support from financial regulators as they attempt to enter the other's market" (AUS ASIC 2016b).

While this framing reflects a pre-existing reputation for continuously improving procedures, the focus on uniqueness and novelty was not previously strongly emphasized.

Unlike UK FCA, AUS ASIC sought to amend legislation to accommodate the existence of a sandbox. AUS ASIC's sandbox is a sector-wide 'white list' system allowing start-ups only to test new products on temporary licenses (AUS ASIC 2018). The way AUS ASIC discusses its approach reflects a pre-existing reputational tension between performative responsiveness and procedural correctness. AUS ASIC characterizes its performance as proactive, but only in the sense of identifying matters to be resolved through proper legal procedure.

> "Your input [on the Innovation Hub] will also help ASIC stay on top of laws that have become impractical or inappropriate as the sector moves forward" (AUS ASIC 2015).

2.6.2. Analysis

In all three cases, agencies presented an image in their cryptocurrency communications largely consistent with their pre-existing reputation. In framing their response, there is little evidence regulators sought to drastically rebrand. The image agencies present, however, differs from their pre-existing image in a few, common ways. Agencies signalled new aspects of their image in regard to cryptocurrency/ general fintech regulation. All three began to overtly characterize themselves as innovation regulators. To a greater extent than in their pre-existing image, regulators emphasize they are morally commit- ted to, and performing toward, innovation and the development of innovative businesses. Finally, all three emphasize performative uniqueness and novelty in their regulatory approach in cryptocurrency communications. Overall, regulators frame supervision of crypto- currency as a natural extension of, and bolster to, of their existing regulatory brand.

There are, however, differences between cases. As each agency framed its response in terms of its pre-existing reputation, there were differences in the nature of the image agencies signalled communications on cryptocurrency. NY DFS showed the least change in the image it presented before and after cryptocurrencies. When dis- cussing its new role as a cryptocurrency regulator, further, NY DFS claimed to have exclusive authority over the technology in its jurisdiction, which AUS ASIC and UK FCA did not. Further, UK FCA and AUS ASIC usually discussed cryptocurrencies as part of a broader fintech phenomenon. NY DFS was more likely to refer to cryptocurrency as a stand-alone innovation, although increasingly discusses it as part of 'fintech'.

What may explain why agencies managed their reputation in these ways? To interpret their responses, we draw on the theoretical framework at Figure 2.1, derived from bureaucratic reputation theory.

One explanation from theory is that regulators respond to innovation, and claim a role in its supervision, when they think they can govern the technology successfully. This is, however, unlikely to be the case for cryptocurrencies. Cryptocurrencies have anonymous users, are generated and traded across borders, and are technically complex and legally ambiguous (Narayan et al. 2016, ix–xxiii). It is often unclear, and was certainly in cryptocurrency's early years, whether tokens are currency or financial products and thus, whether financial regulators have jurisdiction (Saadat 2015).

Regulatory efforts to supervise cryptocurrencies were therefore likely to be difficult, with a high chance of real or perceived failure. That regulators in the case study chose to use highly public communications to claim a role, then, is surprising.

It could be the case that regulators, here, were forced by their political masters into involving themselves in a risky technology. We consider this possible, but unlikely, given each agency in the study has formal, legal autonomy from government. Another explanation is regulators are incompetent at reputation management. They have been insensitive to the risks supervising cryptocurrency posed to their reputation. Our analysis of communications, however, strongly suggests regulators were well aware of the reputational stakes.

> "However, there are significant, well-founded concerns that financial institutions and regulators for that matter are not keeping up with the expectations of consumers for fast, reliable digital trans- actions. And that's a serious problem that we all need to address with a heightened sense of urgency and focus" (Lawsky 2014).

> "But I want to reiterate what I said earlier, which is that community expectations have changed. So too have the expectations of the government and the regulator, and even the black letter law. In line with this, we have set out in our Corporate Plan, released last year, our view of 'what good looks like' in the sectors we regulate" (AUS ASIC 2017).

> "Innovation can arise from diverse sources, such as start-ups, technology providers as well as regulated firms, including large financial institutions. They all have

> the potential to challenge existing business models, products and methodologies to benefit consumers and markets as a whole" (UK FCA 2017g).

Assuming regulators were sensitive to the considerable risks of supervising cryptocurrencies, this would suggest the risks of silence or inaction on the technology were greater. There are some evidence regulators may have experienced public pressure to act. Cryptocurrencies and their (lack of) supervision was a topic in the media at the time. Anecdotally, much of this coverage was negative; pointing out the risks to consumer protection, systematic stability, money laundering, and the funding of terrorism and the drug trade (Monaghan 2017; Zetter 2012). In all three jurisdictions, we see examples where politicians, the media, and other audiences call for more regulatory oversight by financial conduct regulators (Committee on Banking, Housing, and Urban Affairs 2018; Hartge-Hazelman 2013). It would follow that their high-profile communications, and taking on of responsibility, are a rational strategy designed to reassure audiences they were 'on the case' to manage the risks of the technology (see also: Tzur 2019). The use of a high-profile communications strategy in response to external threats is consistent with findings from Alon-Bar- kat and Gilad (2017), Moffitt (2010), and Busuioc and Lodge (Busuioc and Lodge 2016, 95).

To fully understand regulator reputation management in this case, however, one cannot just examine media coverage of cryptocurrencies. One must consider the broader reputational landscape for financial conduct regulators at the time. Cryptocurrencies emerged in the immediate wake of the Global Financial Crisis. The Crisis, it was widely argued, had been triggered by another innovation: over- the-counter derivatives. The invention of this new kind of financial product "shattered the atom of property" (Ford 2017, 142), with ultimately explosive results. Financial conduct regulators, however, largely failed to detect and understand their seismic implications. Many regulators left the market for these derivatives un- or under- regulated for decades; a major contributor to the Crisis (Ford 2017). Most jurisdictions, and certainly those studied, had reformed or were reforming regulatory regimes

in this period. This was typically toward stronger, stricter, more prescriptive regulations for financial institutions (e.g., Dodd-Frank in the US, the new Banking Act in the UK, and implementation of Basel III in Australia). Two of the regulators in this study were replacements for predecessors terminated due to their perceived failures (New York Department of Financial Services and the Financial Conduct Authority). AUS ASIC had survived, but still received some criticism for, its handling of the credit market leading up to the Crisis (Hartge-Hazelman 2013). Financial regulators were at this point, then, on the public mind and likely receiving more scrutiny than in more rosy economic times.

It would probably have been far riskier at this moment to try to ignore cryptocurrencies or dodge responsibility.

Regulators may also have chosen high-profile communications strategies, however, in order to shape and manage audience expectations to the nature of their response (Gilad, Alon-Barkat, and Braverman 2016; Moffitt 2010, 95). Agencies in our case study do appear to use communications to mitigate the risks of taking on a role in cryptocurrency regulation. There are a number of instances where agencies put boundaries on their obligations and manage expectations about regulatory capacity.

> "We are regulating financial intermediaries. We are not regulating software development. It's not what we do" (NYDFS 2014).
>
> "However, we cannot mitigate every risk, nor do we aim to do so" (UK FCA 2017e).
>
> "Our response to these developments should be driven by... resisting the temptation to jump before we properly understand developments" (Medcraft 2017).

Indeed, the goal of expectations management may help to explain why all three regulators communicate so little about the technical dimension of reputation. Agencies may seek to moderate expectations about what they could be expected to know about cryptocurrencies, especially in early stages. From this perspective, regulator reputation management is a rational strategy designed to mitigate risks. To respond to media criticism about regulatory negligence, agencies seek to convince their audiences that they are taking swift action to supervise cryptocurrencies. At the same time, they frame responses in ways which temper audience expectations about what can be achieved.

In all three cases, however, in their image management regulators signal not just that they are doing 'something' about cryptocurrency, but that they are doing something extraordinary. The regulators all signal they are unique, novel, and highly successful innovation super- visors. This kind of strategy is irrational if agencies are just managing risks. This kind of public credit-claiming, novelty, and differentiation are high risk communication strategies (Hood 2011; Deephouse 1999). They raise expectations. They make agencies a bigger target if anything goes wrong. To help to explain this behaviour, we need to turn to other contextual factors in our framework: agency jurisdictions and pre-existing, unique reputations.

Cryptocurrency trading supervision was relevant to all three financial conduct regulators studied due to risks to – at minimum — consumer protection. None of these regulators, though, necessarily held exclusive jurisdiction over every area of cryptocurrency supervision. NY DFS had a more extensive mandate than UK FCA and AUS ASIC, including powers over criminal investigation, enforcement, and market regulation.[11] In terms of actual instances of jurisdictional competition, in the UK there is little evidence of other agencies trying to claim jurisdiction over UK FCA's traditional regulatory responsibilities (e.g. consumer protection, competition) (Cuthbertson 2018).[12] UK FCA actually collaborated with Bank of England and Treasury on a response. For AUS ASIC, we see more competition; notably with other agencies granted formal jurisdiction over certain aspects of cryptocurrency supervision (AUSTRAC 2018). NY DFS experienced jurisdictional incursion from above. The Office of the Comptroller of the Currency discussed offering cryptocurrency companies charters at the federal level, going over heads of state regulators. NY DFS fought this; successfully challenging OCC's charters in court (Saadat 2015; Mashraky 2017).That cryptocurrencies were relevant to the core business of financial conduct regulators may help to explain why all three regulators chose a high-profile communication strategy and sought to integrate a role for its supervision into their existing public image. Differences in the nature of NY DFS's jurisdiction and mandate to that of UK FCA and AUS ASIC may also help us to understand how each framed their response. UK FCA and AUS ASIC framed their response in ways that acknowledge the agencies' limited mandate and jurisdiction. They present themselves as having a partial role in the regulation and facilitation of high-tech financial innovation, but lacking legal jurisdiction to singlehandedly regulate cryptocurrencies.152 NY DFS made a far stronger claim, arguing they were the obvious, exclusive regulator of cryptocurrency trading in its financial conduct aspects. NY DFS may well have communicated as early as it did on cryptocurrencies because of its – obviously founded – fear that other agencies would try to make claims first. It is notable here that NY DFS had more potential competition than AUS ASIC or UFCA. As a state regulator, NY DFS did not only have to guard against encroachments from other agencies in their state but also from federal regulators. Whereas UK FCA and AUS ASIC would likely have had to share authority with other agencies over cryptocurrencies, NY DFS had the potential to supervise largely autonomously. There were, however, other differences in the exact image the three regulators presented; in which dimensions and aspects of reputation they signalled. Bureaucratic reputation theory suggests such differences are likely to arise from differences in their pre-existing reputations.

In our case study, despite the disruptions of cryptocurrency, and its differences to traditional payments, currencies etc., agencies tend to frame their response as an extension of the agency's existing brand. This helps to explain differences in image management between agencies. Why NY DFS presented its responses – certainly initially– as tough, enforcement measures against terrorists and money launders. Why UK FCA presented its response as part of a broader flexible and world-leading strategy on fintech. Why ASIC signalled procedural caution, and a willingness to wait for a new legal mandate to act.

These differences in image management also reflect differences in the unique reputation of each regulator. UK FCA emphasizes that the agency promotes competition through its response to crypto- currencies, while NY DFS and AUS ASIC do not. Indeed, its role as a competition regulator may help to explain UK FCA's greater focus on innovation and business facilitation in framing its response com- pared to the other regulators. AUS ASIC repeatedly claims it protects investors, while NY DFS and UK FCA do not directly address investor interests. NY DFS presents itself as a part of the fight against global money laundering and terrorism, a competency to which the other two regulators do not commonly refer. In all cases, these obligations (competition, anti-terrorism, and investor protection) are important parts of each agency's mission statements. These were priorities their governments intended the agencies to address.

In these cases, then, agencies have sought to frame their response to cryptocurrencies to bolster their pre-existing image. In bureaucratic reputation theory, as discussed, this is typically rational behaviour.

Agencies have established a reputation which appeals to their audiences prior to innovation and will be reluctant to change a winning formula (Busuioc and Lodge 2016). In this case, we can make informed speculations about the role of agency audiences in shaping how regulators framed their response to cryptocurrencies. In fact, the composition of audiences for financial conduct regulators helps to explain the new and different aspects of reputation all three agencies do demonstrate.

Finance and banking are sectors dominated by medium-large, highly professionalized institutions (banks, credit unions, corporations etc.) This is what regulators were accustomed to and what regulatory regimes had been designed around. Cryptocurrencies were one of the first fintechs to bring tech start-ups into finance (Arner, Barberis, and Buckley 2015, 1305). One might expect this audience has different priorities and preferences for their regulator than large, professional institutional incumbents. The introduction of these new audiences could help to explain why regulators signal they are now innovation supervisors, and why all

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[11] In Australia, competition is the responsibility of the Australian Competition and Consumer Commission. In New York it is an obligation of the Antitrust Bureau. Investor protection in the UK and the US is governed by private law, whereas it is public in Australia (and in ASIC's remit). In Australia, money laundering and counter terrorism issues related to currency are the responsibility of the Australian Transaction Reports and Analysis Centre. In the UK, the UK FCA is formally responsible for anti-money laundering but does so as a supervisor of private and professional bodies who engage in the actual enforcement. Counter-terrorism in relation to currency is primarily managed by the Treasury. Both money laundering and counter terrorism matters regarding cryptocurrency are also shared jurisdictions with European Union regulators.

[12] UK HM Revenue & Customs did assume responsibility to administer laws about tax and money laundering.

regulators moved toward a more positive, facilitative tone over time (Maor 2010; Carpenter 2010, 33). Regulators may also be trying to frame responses to appeal to existing financial institutions seeking to exploit the opportunities of tech like cryptocurrency.[13] As cryptocurrency proponents become more powerful and influential relative to detractors, one would expect more of the pro-innovation, pro-business framings we do indeed see in this case (Young 2013; Rimkutė 2018; Moynihan 2012).

Agency image management, then, could be an attempt to respond to the demands of a burgeoning pro-cryptocurrency coalition. Alternatively, agencies may have been using their communications to construct such a coalition. They framed their response to cryptocurrencies to proactively build support for the agency's preferred course of action, rather in capitulation to audience demands (Suchman 1995). There are a number of reputational opportunities which may explain such behaviour.

As discussed, novel technologies provide agencies the opportunity to be seen as more unique and valuable to their society. Cryptocurrencies were an opportunity, in particular, for regulators to bolster their reputation in post-Global Financial Crisis period. As discussed, this was a time of reduced trust in traditional financial institutions and their regulators. While this meant that regulators were facing greater scrutiny at this time, it also may have meant they were looking for opportunities to prove themselves. For NY DFS and UK FCA specifically, cryptocurrencies were an area where they could demonstrate success where their predecessors were seen to have failed. Cryptocurrencies offered an opportunity to demonstrate these agencies could competently manage complex regulatory challenges.

It is notable, further, that regulators tended to frame their responses to cryptocurrency regulation as having a role in innovation supervision. Economically, this was a period of high interest and investment in digital technology in general and financial technology in particular (EY 2017). There is evidence that the US, UK, and Australia were all interested in attracting and keeping financial technology in their jurisdiction (Maume 2019; Claessens et al. 2018). Financial technology firms are relatively mobile, not as tethered to geographic locations as businesses with more of a physical presence.

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[13] The payments and money transfer sectors are not monolithic in this regard. One of the most disruptive aspects of cryptocurrencies is their challenge to the hegemonic power of banks and other large financial institutions. Some institutions have responded by demanding regulators ban their competitor. Others sought the freedom to pursue cryptocurrency's commercial applications (Inman 2020).

Such firms, then, were well placed to engage in regulatory arbitrage (Marjosola 2019). Culturally, technology and 'innovation' have largely positive connotations in those societies (progress, modernity, 'cool') (Ford 2017, 7–9). In societies which value innovation, regulators perpetually stand a lot to gain reputationally from being seen as making a unique, irreplaceable contribution to facilitating the safe and legal trade of novel technologies (Carpenter 2001). The period in which regulators were responding to cryptocurrencies aligns, though, with a renaissance of public interest in – and romanticism of — 'tech' (after the disillusionment of the dotcom bubble bursting in the 1990s) (Smyth 2019). In terms of fintech in particular, the wave of innovation in this period was highly consumer-facing. Unlike previous waves, which mostly affected financial professionals, ordinary people were using and enjoying fintech products. After all, anyone can buy cryptocurrency tokens.[14] The enthusiasm for fintech and public faith in its ability to bring about growth and better quality of life stands in stark contrast to the banal image and lack of public trust in traditional finance. Cryptocurrencies are emblematic of these differences; designed as a decentralized, democratized, reliable, and high-tech replacement for centralized, elite, untrustworthy, unstable, and old-fashioned banking (Davis 2011). Public opinion on tech, fintech, and mainstream finance, therefore, may have created a disincentive for regulators to be perceived as opposed to or undermining innovation and growth. Thus, there are historic, economic, cultural, and political reasons that financial conduct regulators might have wanted to realign their public image to include a role in innovation supervision.

This goal would explain why – in our findings — regulators were signalling unique and novel regulatory performance. They were willing to bear the risks of a high-profile failure on cryptocurrencies in order to forge a reputation as an effective innovation supervisor. This goal also explains why all three regulators came to – over time — discuss cryptocurrency more often as part of the broader phenomena of 'fintech' and 'innovation'. Innovation is both a more expansive, and more PR-friendly, framing. Analysing the cryptocurrency case with a bureaucratic reputation framework, then, we see several factors which may explain why regulators chose the reputation management strategies they did. Our findings have implications for both theory and practice.

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[14] Other kinds of fintech in the current innovation wave – apps, platforms, crowdfunding, roboadvice – are similarly technologies used by ordinary people and not just financial professionals.

2.7. DISCUSSION AND CONCLUSION

In this study we examined how regulatory agencies manage their reputation in the face of innovation through a case study of three financial regulators responding to the emergence of cryptocurrency trading. We find all three agencies managed their reputation through a high-profile communications strategy where they discussed their response to cryptocurrency often and in very public fora. In those communications, agencies frame their response as largely consistent with — rather than a radical departure from – their existing public image. Our analysis suggests regulators in this case did not purely see cryptocurrencies as a threat. Rather, they saw opportunities to bolster their reputation in the wake of the Global Financial Crisis.

This paper makes a theoretical contribution by bridging bureaucratic reputation and innovation governance scholarship. We present a theoretical framework to describe and compare how regulators manage their reputation in the face of innovation, and why. Our case study illustrates how — theoretically and methodologically — such a frame- work can be applied to provide insight into the political motivations and tactics of regulators responding to innovation (Carpenter 2010, 754). Our findings contradict a common assumption that regulators always see innovation in terms of threats (Maor 2010; Weaver 1986; van Erp 2017; Hood 2011). Conversely: that reputational concerns will make regulators reluctant to get involved in the supervision of complex, uncertain new technologies (Gerding 2009; Ford 2017). In the case study, further, we find regulators do not simply react to public demands about technology supervision, but seek to shape those demands. Regulators are independent political actors who use discourse and rhetoric to shape how we see new technologies; their risks, and their opportunities (Carpenter 2001; 2010; Suchman 1995; Jones and Millar 2017). This demonstrates the value of our theoretical framework over earlier accounts which assume regulators only consider innovation in terms of its risks (Maor 2010). Our findings, however, suggest our own theoretical framework should be further expanded. We find that the way regulators responded to cryptocurrency was not just about that technology. It was seemingly about the regulators' broader strategies to build reputation after the damage of the Global Financial Crisis. Thus, in explaining regulator reputation management in response to innovation, we suggest one must also consider the wider political context.

From a practical perspective, regulatory practitioners responding to innovation in their jurisdiction need to be aware of the kind of image they present. When innovative companies see regulators as tough and combative, for instance, this can undermine their willingness to share information and otherwise cooperate with those regulators (Mandel 2013). Regulatory reputation is a factor which explains why some regulators succeed, and others fail, in their interventions to supervise innovation (Mandel 2009; Carpenter 2010). From our findings, practitioners should note, in particular, that agencies tend to frame responses as an extension of the regulator's existing brand. This may, however, be counter-productive if one's existing brand is at odds with the demands of innovation supervision.

2.7.1. Limitations and topics for future research

Limitations of the study are, first, its methodological focus on communications about cryptocurrencies rather than all communications published by the agency. While it would have been impractical to qualitatively analyse a decade's worth of agency communications, this allows for the possibility agencies decided to rebrand generally and not just in cryptocurrency communications. Another limitation is that, because Twitter archives tweets, some may not have been available at the time of data collection. Some issues also arose from the coding method. Our method intentionally only captures explicit statements[15], and not more 'implicit' signalling agencies may have used (e.g. Thorbjørnsrud 2015). This may explain why technical competencies were not commonly signalled: because technical competency is more often 'shown' than it is 'told'. This study collected communications about cryptocurrency in a set period of time, but cryptocurrencies and their regulation are an ongoing and evolving field. Many new developments have emerged since analysis was completed (for example, Her Majesty's Treasury in the UK has launched a consultation on cryptocurrencies in January 2021). The agencies chosen for the case study are not perfectly identical to one another. While we intentionally chose a state over national regulator for the US case to make the cases more comparable in some regards, differences between these two types of regulators could potentially account for differences in NY DFS's choices of reputation management strategy. Finally, responses to radical innovation by three financial regulators may not be representative of all responses by all kinds of agencies in all domains.

Further studies could seek to apply this theoretical framework, and the expectations it implies, to the study of reputation management by other regulators responding to radical innovation in other fields (beyond finance and pharmaceuticals). Theory and research on this topic is still in early stages. More exploratory work is required in a range of regulatory contexts (in-depth case studies, ethnography, discourse analysis etc.). A central question for future research is the extent to which regulatory agencies manage reputation in the face of radical innovation reactively (in response to audience demands) or proactively (attempting to shape audience demands). For the regulators discussed here, a valuable future study would be a media analysis examining of what demands were being made by which stakeholders in these three jurisdictions as a potential explanation for their choice of reputation management strategies. Interview studies with regulator staff could further test the findings of this study, and examine possible reactive and proactive explanations.

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[15] ASIC, for example, had a pre-existing reputation for procedural correct- ness. Its communications used far more distant, technical language; more commonly entered around questions of law. This implicit signalling of procedural competency could not be captured in this study.

Chapter 3

Regulatory sandboxes and innovation in practice: Lessons from the UK's regulatory sandbox for fintech

3.1. ABSTRACT

Regulatory agencies seek to govern emerging new kinds of products and services in a way which manages risks while not unduly stifling innovation. Regulatory sandboxes are an instrument which aims to achieve this balance. Literature to date has focussed on how sandboxes can best be designed to safely facilitate innovation, but offers only limited research into how actual sandboxes perform in practice. This chapter builds on that burgeoning scholarship, presenting findings from a case study of the world's longest-running sandbox: the UK's regulatory sandbox for fintech. The case study demonstrates that the sandbox plays multifaceted roles in facilitating innovation. Far from its popular image as a mere 'safe space' from regulatory interference, the sandbox is better understood as an active regulatory intervention bringing innovator firms into the supervised, mainstream market.

3.2. INTRODUCTION

Regulatory agencies seek to govern emerging new kinds of products and services in a way which manages risks while not unduly stifling innovation. Innovation is a primary driver of economic growth and better quality of life. Regulators increasingly seek to either tolerate or actively facilitate innovation in their jurisdiction (Renda and Simonelli 2019). Yet, innovations sometimes pose risks which regulators aim to manage (Brownsword, Scotford, and Yeung 2017).

Regulatory sandboxes are an instrument with the potential to balance the goals of facilitating innovation with managing its risks (Bromberg, Godwin, and Ramsay 2017). Sandboxes are 'concrete frameworks which, by providing a structured context for experimentation, enable where appropriate in a real-world environment the testing of innovative technologies, products, services or approaches … for a limited time and in a limited part of a sector or area under regulatory supervision ensuring that appropriate safeguards are in place' (ECOMP 2020).

The world's first regulatory sandbox was established in 2015 with the UK's FCA's regulatory sandbox for emerging technologies in fintech (UK FCA 2015a). Since then, sandboxes have been established in more than 50 jurisdictions and have been promoted by the European Union (Ranchordas 2021a). Governments have cited a range of justifications, but safely facilitating innovation has been the central policy goal (Philipsen, Stamhuis, and de Jong 2021). Sandboxes typically focus on innovative products and services ('innovations') at the pre-commercial stage i.e., on innovations which are being developed, tested, and refined prior to wide-scale diffusion.

Theory suggests three roles sandboxes can play in facilitating innovation in this context. First, sandboxes can create space for innovation; providing innovators with temporary dispensations from regulatory requirements which normally stymie experimentation with new products (Buckley et al. 2020; Gromova and Ivanc 2020; Omarova 2020; Ranchordas 2021b; Khalid and Kunhibava 2020; Yefremov 2019; Allen 2019; Philipsen, Stamhuis, and de Jong 2021; Zetzsche et al. 2017; Ringe and Ruof 2020; Ahern 2021). Second, sandboxes can be a means to develop superior supervision over a given innovation. They provide opportunities not only for innovators to experiment with products, but for regulators to experiment to discover the best legal response to a given innovation (Ranchordas 2021a; Omarova 2020; Yefremov 2019; Philipsen, Stamhuis, and de Jong 2021; Allen 2019; Ahern 2020). Finally, sandboxes can provide direct support to innovators, such as free legal advice (Ranchordas 2021a; Allen 2019; Gerlach and Rugilo 2019).

Most literature to date has focussed on how sandboxes can best be designed to fulfil these various roles. Sandboxes must have a legal basis upon which to operate (Ranchordas 2021b, 4) and administrative procedures (Omarova 2020, 41; Huang, Yang, and Loo 2020) in place to provide space, superior supervision, and/or support respectively. Not every sandbox will fulfil all three roles (Khalid and Kunhibava 2020). Trade-offs can arise. Designing a sandbox which gives innovators freedom to test products may be at odds with designing a sandbox which produces rigorous experimentation with legal responses (Philipsen, Stamhuis, and de Jong 2021). Different sandboxes in different jurisdictions and for different sectors aim to facilitate innovation in different ways, and these differences are reflected in their various designs (Ranchordas 2021b, 9). There has been only limited research, however, analysing sandbox implementation (Choi and Lee 2020; Butor-Keler and Polasik 2020; Alaassar, Mention, and Aas 2020; 2021; van der Waal, Das, and van der Schoor 2020). Of these, only three studies specifically examine how well sandboxes facilitate innovation in practice.

In their analysis of the FCA's fintech sandbox, Butor-Keler and Polasik (2020) find evidence that political constraints, capacity issues, and regulator culture may limit the potential for sandboxes to facilitate innovation. Their analysis, however, is at a high level and does not seek to draw out a broader range of mechanisms through which sandboxes in practice facilitate or fail to facilitate innovation. Alaassar, Mention, and Aas (2020; 2021) have explored the day-to-day function of 16 different sandboxes from around the world. Through their in-depth analysis, they find that the capacities, perceptions, and attitudes of innovators — and not just regulators — is key to how well sandboxes facilitate innovation in practice. Alaassar et al.'s studies, however, have only a very small number of participants from each sandbox and focus primarily on innovation from a business rather than regulatory perspective. A more general limitation of research on sandboxes in practice has been that this literature has not been well integrated with broader literature on law and regulatory governance in regard to innovation (Gazel and Schwienbacher 2021).

This chapter aims to contribute to this burgeoning scholarship, asking: to what extent and how, in practice, do sandboxes fulfil their potential to facilitate innovation? The chapter presents findings from a case study of the world's longest-running sandbox: the UK's regulatory sandbox for fintech. The case study included a document study of publications from the Financial Conduct Authority (the agency which administers this sandbox) and interviews and questionnaires from fintech companies.

This chapter begins by elaborating the case study methodology. The findings of the study are then presented in two sections. The first describes how the FCA intended its sandbox to facilitate innovation by providing space, superior supervision, and support. The second examines how and how well the sandbox fulfilled these roles in practice.

This chapter concludes with key practical and normative lessons from the FCA case. It is argued that, far from its popular image as a mere 'safe space' where firms can experiment free from regulatory interference, the sandbox is better understood as an active regulatory intervention. An intervention which brings innovators into the supervised, mainstream market through a combination of support, space, and iterative refinements of supervision. A central contribution of the study is demonstrating the means through which sandboxes allow regulators to govern the innovation process in a 'soft', informal, introductory manner, in the absence of *sui generis* rules or policies (Mandel 2013). Yet, the sandbox is not an unproblematic success story. Findings here reinforce that sandboxes, if improperly designed and implemented, can pose risks to private innovation and to the public interest.

3.3. METHODOLOGY

This chapter is based on a larger exploratory, mixed-method case study of the UK's regulatory sandbox for emerging technologies in fintech (here forth: 'the sandbox').[16] The case study included a document study, interviews, and a questionnaire.

The document study involved a qualitative content analysis of all publications by the Financial Conduct Authority to date which refer to its fintech sandbox. This analysis was necessary because, while sandboxes can fulfil the three roles described, not all sandboxes aim to fulfil all three, or all three to the same extent. Further, the precise ways in which sandboxes are designed to fulfil these goals differs sandbox to sandbox. The document analysis was conducted first to clarify the intentions the FCA had in regard to facilitating innovation via the sandbox. While prior studies have discussed the FCA's innovation goals (e.g., Allen 2019), this is the first study to present findings from a systematic document study capturing the full range of the FCA's intentions for the sandbox. Documents were collected by searching the FCA's website, then qualitatively analysed using NVIVO. The goal of this analysis was to determine in what ways the FCA intended the sandbox to facilitate innovation (space, superior supervision, and support), whether the FCA reports it achieved those goals and how, and what factors the FCA cites as enabling or constraining the sandbox from facilitating innovation.

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[16] The methodology for each of these is described in detail in Chapter 3 *Methodological Considerations*, but will be summarized here as they pertain to the chapter at hand.

Interviews were conducted with 21 fintech firms (15 sandbox participants, and 6 non-participants).[17] Interviews with firms included questions about both fintech firms' perceptions of the sandbox and its impact on their sector, and (for participants) their specific experiences with the sandbox and its influence on their ability to develop and commercialise their products. Transcripts were qualitatively coded in NVIVO. Firm comments were coded according to the major theorised roles of the sandbox (space, superior supervision, support), and then into sub-categories describing the more specific ways the sandbox facilitated (or failed to facilitate) innovation. Additionally coded were firm remarks about the factors which enabled or constrained the sandbox from facilitating innovation in their case or in general.

Thirty-two firms responded to a questionnaire. Descriptive statistics from the questionnaire were used to analyse whether firms sought to apply to the sandbox to benefit from space, support, or superior supervision.

The document analysis was conducted first to clarify the intentions the FCA had in regard to facilitating innovation via the sandbox. The interviews and questionnaire responses were then analysed to examine how the sandbox function in practice, from a firm perspective. Comparing findings from the document study, interviews, and questionnaire responses allowed for an analysis of how – in actual implementation - this sandbox facilitated (or failed to facilitate) innovation. In presenting insights derived from the study, the focus is on reporting how sandboxes in practice (fail to) facilitate innovation in ways that challenge, or expand on, existing theory.

3.4. THE INNOVATION GOALS OF THE UK'S FINTECH SANDBOX

3.4.1. Space

The document analysis shows the FCA justified the introduction of the sandbox by arguing existing financial regulation was impeding innovation. Regulation was designed for incumbent firms and their activities, and failed to keep pace with innovation. This left innovating firms uncertain about how regulation might apply to them, if at all. Regulation was also said to make it slower and more expensive for firms to innovate.

In particular, the FCA cited a clash between product development practices of fintech start-ups and financial regulatory requirements. Fintech start-ups in the UK at this time were often operating on 'lean' start-up methodology. The lean methodology centres on an experimental approach to product development. To simplify: firms focus on developing a minimal viable product as soon as possible. This product is a pilot version of the finished product. Firms then test and adapt the MVP with their customers iteratively; releasing several versions over time based on rounds of customer feedback. Financial regulation at the time, however, was at odds with this model. Firms had to have all applicable authorizations before they provided products or services to customers. Firms were typically unwilling or unable to invest significant time and money into an authorization just to run a 10 customer 'proof of concept'-type test. Further, the authorization process required a definitive statement of precisely how the product would work; going against the experimental approach companies sought to take.

A central role for the sandbox, then, was to provide a "safe space" (UK FCA 2016a) allowing firms to "test their propositions" (Woolard 2018a) without "immediately having to meet all the normal regulatory requirements" (UK FCA 2013), or "incurring all of the normal regulatory consequences" (Woolard 2016c). At times, the agency was more explicit. The FCA might be able to "limit or … define sandbox firms' liabilities", "modify rules" (Woolard 2016b), and "waive rules" (UK FCA 2018) during the sandbox test period. The sandbox would thus grant regulatory dispensations to enable product piloting with real customers and, therefore, facilitate the development and commercialisation of innovations.

However, FCA publications also repeatedly state the sandbox would not involve lower regulatory standards. The agency pledged there would "unequivocally be no lowering consumer protection standards" (McDermott 2016) in the sandbox. In 2018, the agency continued to argue "all firms adhere to the same regulatory standards" in and outside the sandbox (UK FCA 2017c). This might seem like a contradiction. How could the FCA simultaneously say they would waive or modify rules during a sandbox test while also saying all firms must meet the same standards?

The answer lies in the FCA's principles- and risk- based approach to regulatory enforcement (Gilad 2014). When the FCA say standards will not be lowered this did not mean that all firms have the same requirements to meet said standards. How a firm would ensure protection for its consumers is different, for example, depending on whether it has 50 customers or 5,000. While the same 'standards' apply to all firms, sandbox participants could benefit from reduced compliance requirements against those standards, proportionate to their risk.

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[17] All interview respondents came from small to medium sized companies, and therefore the case study is limited in its ability to present the views of large firms.

3.4.2. Supervision

The FCA envisaged the sandbox would lead to the development of superior supervision in several ways. For individual participating firms the sandbox offered an alternative to traditional authorization processes that would otherwise be required to pilot their products. The sandbox was not presented as universally superior to traditional authorization. Rather, the sandbox would be a superior option for certain firms; those in need of a tailored process because they were innovating in a regulatory "grey area" (UK FCA 2017d). It was anticipated such firms would require "case by case" (UK FCA 2017b), "bespoke" (UK FCA 2015a), or "tailored" (Woolard 2016a) supervision in a way firms using established technologies would not. With the sandbox, the regulator aimed to "enable the FCA to work with innovators to ensure that appropriate consumer protection safeguards are built-in to their new products and services before these reach a mass market" (UK FCA 2015b). Finally, the sandbox would expedite authorization.

The FCA expected the sandbox would also provide test cases to potentially inform the development of better rules and policies applying to the sector as a whole. The sandbox is often described as a "learning journey" for the regulator (Woolard 2016c). This learning would not be limited to the sandbox itself, but was envisaged to potentially lead to adaptations in how the whole agency would supervise innovation. Instead of the "more traditional Big Bang approach to regulatory reform", the agency speculated about a transition to the more "collaborative, experimental and iterative approach" as "a sensible way to adapt the regulatory framework in fast moving markets" (Starks 2016).

Sandboxes can certainly be designed to facilitate formal regulatory experiments in regard to innovative products. That is, sandboxes can be used to test possible legal and regulatory approaches to innovations. For instance, a regulator might conduct an experiment by applying one set of rules in one part of the country, and another set of rules in another part, to see what impacts these different rules have on risk management and innovation facilitation. Formal regulatory experiments aim for a science-like rigour. They require representative sampling, control groups, hypotheses etc. (Ranchordas 2021a). The FCA, however, did not express the intention for its fintech sandbox to involve formal regulatory experiments. There was no intention to systematically test what impact various regulations had on firms. Superior supervision would rather manifest in the improved regulation of individual firms and through (non-scientific) 'implement then evaluate' type learning typical for regulatory agencies.

3.4.3. Support

The FCA envisaged the sandbox providing "space *and* support" (Woolard 2019) to firms in developing and commercialising their innovations. In FCA publications, advisory services are the most prominent kind of support discussed. The intention was for regulator staff to assist participating firms in interpreting financial law as it applies to their specific product via "bespoke engagement" (Woolard 2016b). This advice, the FCA hoped, would help firms spend less time and money getting innovative products to market.

The regulator also cited more indirect ways through which the sandbox would facilitate innovation. The sandbox itself (along with the larger Project Innovate) would attract entrepreneurs and investment to the UK. Beyond the UK, the FCA fintech sandbox would serve as a regulatory model to other jurisdictions; promoting innovation globally.

With the FCA's stated goals in mind, the next section analyses how the sandbox fulfilled (or failed to fulfil) its intended roles in practice. It condenses case study findings into a series of key insights.

3.5. INNOVATION IN THE UK'S FINTECH SANDBOX IN PRACTICE

3.5.1. Space

The regulatory space for innovation in the sandbox is more cramped than some anticipate.

Interviews with fintech firms show most agree the sandbox helps create space for product testing and refinement. It was rarely the case that existing regulatory rules outside the sandbox made product testing illegal per se. Rather, the major benefit of the sandbox was reducing testing costs. In the sandbox, compliance requirements could be lowered during the test to make it quick and affordable. As the FCA had hoped, firms generally said the sandbox helped to address tensions between lean business models and regulatory compliance. As one respondent summarized:

> "We're building [COMPANY] on lean processes... we wanted to go out to market, get some samples and work out what people want, rather than us trying to guess what people want. And this, the sandbox has allowed us to do that...you couldn't do it otherwise" (SB6).

Respondent firms, however, also report that the space for innovation in the sandbox is relatively cramped. The FCA is supportive of innovation and has a competition as well as consumer protection mandate. Together, this has meant the FCA has the motivation and legal capacity to be flexible about compliance requirements. However, the FCA cannot offer exemptions to European nor UK financial law. Further, the FCA is only one of the regulators with whom firms must contend. Other regimes, like tax and privacy, set legal limits on what firms can test. These limitations took some firms by surprise. The marketing of the sandbox as a 'safe space' led some to expect they could test free of authorizations or other requirements. They were quickly disavowed of this misconception.

Firms note the FCA "don't tend to accept compromises" on actual rules (SB10), a fintech firm's "arguments don't matter" (SB2), and it is futile for firms to "try to change the regulation" (SB9). Even with the potentially lower requirements of the sandbox, "red tape" (NSB1) and thus costs are still an issue. Several firms argue the sandbox is no faster or easier than a standard authorization process. Finally, some firms report they were limited not by 'black letter' law, but by rules and norms which had built up over time to suit incumbents. For example, several firms complained about an alleged requirement to provide customers with all their documentation on paper rather than digitally. This prevented firms from piloting 'digital by default' products. Such requirements were not to do with law but rather the entrenched preferences of incumbents the FCA seemed unwilling to challenge. On the basis of these limitations, some respondents concluded the sandbox was only truly valuable for facilitating a narrow variety of innovation. The sandbox is useful for products innovative enough to warrant regulatory space in order to test them, but not so exotic as to meaningfully violate the rules or norms of the existing regime.

Some of these limitations have been identified in earlier studies of sandboxes in practice (Butor-Keler and Polasik 2020; Alaassar, Mention, and Aas 2020). These findings somewhat dampen expectations about the permissiveness and flexibility of sandboxes (Gromova and Ivanc 2020, 15). However, as will be seen, there is still flexibility within the legal limitations of the sandbox.

Regulators need to actively convince potential participants that the space is safe.

Interviewed firms often said that, even where the law did not prevent them from testing an innovative product, they still initially felt insecure about doing so. Their perception was typically that regulators are risk-averse and anti-innovation. Surely the FCA would shut down any discussion before it began.

However, the FCA's messaging about the sandbox reassured many firms. Project Innovate appeared a clear statement of government and regulator support for fintech. Further, several firms report getting a more positive impression via meeting FCA staff on 'road shows' around the UK, at events in London, or visiting their incubator. Firms generally came to see the FCA as an agency open to discussing new products and services. The sandbox was a good faith effort by the regulator to establish whether innovations could be developed legally. It was this perceived openness more than any legal or administrative reforms of the FCA, many said, which made them believe there was space for innovation. For those firms who went on to participate, their experience in the sandbox typically reinforced this perception that the FCA could be trusted not to automatically reject an innovative idea.

Respondent firms, though, tend to report far greater distrust in FCA staff outside the Innovation Unit. In particular, firms cite a disconnect between Innovation staff and rank-and-file enforcement officers. The latter are said to be far less open to innovation and thus far less willing to create space for it to occur. As one respondent put it, there is a lingering perception that, on the whole, the "FCA still has limited trust in technology being able to do something" (NSB6). For these reasons, some ex-sandbox firms reported feeling nervous about returning to the agency to discuss the regulatory status of new products.

These findings reinforce that the space sandboxes can create is not just about dispensations in law (cf., for example, Philipsen, Stamhuis, and de Jong 2021). Sandboxes are as much, or more, about regulators taking an open stance toward innovation (Gromova and Ivanc 2020; Zetzsche et al. 2017; Alaassar, Mention, and Aas 2020, 12). These findings specifically build on Butor-Keler and Polasik's (2020) conclusion that agency culture toward innovation can drive or inhibit the effectiveness of sandboxes. Findings here imply that cultural differences between divisions of agencies are also significant. Such intra-agency differences support Mangano's (2018) expectation that fitting sandboxes into conventional command-and-control regulatory structures will be problematic in implementation.

Space can be unnecessary or even counterproductive to innovation.

For some firms, existing financial regulation was simply not a barrier to innovation. There were no legal issues nor ambiguities impeding the piloting or diffusion of the product. These firms, thus, did not need regulatory space in order to innovate. While for some firms this meant they did not need the sandbox, others still found the sandbox valuable for facilitating innovation (for reasons discussed future below).

Another group of firms, however, found regulatory space actively counterproductive to innovation. They suffered from too much regulatory space. Regulation for their kind of product or service did/does not exist. Alternatively, the FCA had/has yet to provide detailed guidance on how regulation will apply to businesses like theirs.[18] In these cases, the absence of clear financial regulation limited innovation. Firms were unwilling to proceed with product testing until confident the product could be developed within the law.

More than half of interview respondents said that sandbox tests are thus not about – or not primarily about - testing the technical viability of products. The test is about regulatory viability. The interview results are mirrored in the questionnaire findings. One-third of questionnaire respondents cited they wanted to apply to the sandbox to "make sure we're compliant with the law". Only half as many respondents cited that they wanted the sandbox to "make the authorization process cheaper, easier, and/or quicker". As will be seen, the value of the sandbox for such firms is not to shield them from regulation. Rather, to establish their products could be delivered legally, they needed the sandbox to confront them what compliance would require.

Firms who said they did not need the sandbox to pilot their innovative product, though, are more critical of the instrument. Some say it is a "gimmick" (NSB3). The sandbox is a distraction from the urgent need to publishing the consistent, sector-wide guidance which would facilitate the widespread diffusion of innovations. As one respondent opined, the sandbox is essentially trivial because only "once there is regulation will we have mass-adoption" (NSB5).

3.5.2. Supervision

Sandboxes let participants test and refine not just their products, but their regulatory and commercial strategies; helping them enter mainstream market.

Firms generally state that the sandbox helped them to work out technical, commercial, and regulatory kinks in their product before they truly took it to market. Indeed, interviews highlight that firms see addressing technical, commercial, and regulatory barriers to innovation as inseparable processes. Finance is a heavily regulated sector. How a product functions on a technical level influences how it will be regulated. How the product is regulated has major implications for its commercial appeal.

Sandbox participants typically describe their test as a way to demonstrate to themselves and to potential partners and clients the technical, commercial, and regulatory viability of the innovation. Firms often describe the sandbox test as a demonstration that their innovation is "worthy" (SB11), "had merit" (SB13), is "economically viable" in the broader financial market (SB6) and can become "mainstream" (SB9). As one respondent summarized, "we wanted to show that change is possible. We wanted to demonstrate how that change could be done, and make it publicly available" (SB13).

Indeed, the sandbox gives participants the opportunity to refine their technical, commercial, and regulatory strategies in a cohesive way. The most straightforward example is firms addressing or avoiding regulatory barriers through technical and commercial changes. Several firms recall going into the sandbox with a very complex product or business model. Talking to FCA staff, they realized their proposal would trigger complex regulatory requirements. They then took that opportunity to redesign the product or rethink their business model in ways which made regulation far simpler.

> "[When we first started out, cause [TECHNOLOGY] and all that wasn't anything I'd done before … so even I made a few fortunate slips and called [PRODUCT THE WRONG THING] when it isn't. You know, at the very beginning, even in our FCA sandbox application I was just reviewing it the other day. I did write in there that [PRODUCT IS X]. But it is not [X] it is [Y], is what [COMPANY] is… Because I was inexperienced…I assumed that it was going to be [X]. If it was [X] then yes, the FCA wouldn't touch us with a bargepole" (SB6).

These kinds of early pivots were highly significant to the ability of firms to test and develop their product. Seeking authorization is an expensive process. Small or new firms may not be able to afford spending "months and months of trying to understand what it is and how it works" (NSB4), only to get it wrong.

Another example is firms adapting their commercial 'pitch' in light of regulatory concerns. Several firms describe developing a pitch for their innovation highlighting its novelty and exciting potential. This kind of pitch could put regulators on high alert that the product was risky or outside the law. Such language sometimes also raised red flags with potential customers, investors, and partners, concerned that the product was untested and 'out there'. Through the sandbox firms could refine this pitch. They learnt to "verbalize a lot of things that were written down in code" (SB2), and to treat regulation as "a framework to translate my ideas through…like those playdough things you squeeze, and it comes out like a star…where I can translate it and communicate it to other financial people because I had the testing plan" (SB15). In other words, firms learnt how to pitch their products in a language financial professionals would find comprehensible and assuring.

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[18] For example, some firms reported that when PSD2 regulation was passed at the European level they wanted to wait for the FCA's interpretation.

These findings reflect those of Alaassar, Mention, & Aas (2020; 2021) in two respects. First, that sandboxes facilitate innovation by being proactive. Early in the product development process, and often in the absence of clear regulation, sandboxes allow for early government intervention. Intervention which aims to manage emerging risks and provide some certainty to innovating firms (see also: Gromova and Ivanc 2020; Buckley et al. 2020; Butor-Keler and Polasik 2020). As Ranchordas (2021a, 10) puts it, regulatory sandboxes are "primarily enforcement policies" rather than the absence of regulation. Second, that sandboxes provide 'incubator'-like services for participants, especially small and inexperienced firms. Like a private incubator, regulatory staff sometimes work with firms in ways analogous to a consultant or business coach. Participants can talk through technical, commercial, and regulatory issues and get tailored guidance from skilled professionals in order to improve their offerings. This includes the ability to communicate in ways regulators understand (see also: Heimer and Gazley 2012).

The ability for a sandbox to provide 'superior' supervision depends on the motivation and capacity of its participants.

In interviews, firms tend to agree that the sandbox is contributing to superior innovation supervision in the ways the FCA envisaged. Notably, several firms said their sandbox test was used as a test case that went on to inform the FCA's stance on specific innovations (Ranchordas 2021a; Yefremov 2019). Indeed, the FCA has published policy papers on distributed leger technology and cryptoassets implying test cases informed their stance:

> "This previous experimentation and analysis proved invaluable when we came to develop a common cryptoassets taskforce framework' (Woolard 2018b).

Innovation supervision, however, is not just something regulators deliver to regulated firms. As the FCA operates a principles-based enforcement strategy, the regulator is responsible for setting and enforcing relatively high-level regulatory principles. Firms are responsible for working out how their products will be delivered in conformity with those principles. As such, firms often do a lot of the legal heavy lifting. Indeed, in interviews some first-time CEOs were surprised to discover the regulator was not going to hand them a rulebook. Instead, firms were expected to translate law to their product. As one respondent described it, "new regulations come in and we have to try to interpret that to our world" (SB9). This is a complex process, especially for inexperienced firms. Fintech firms are typically innovating on the regulatory periphery. Their products are technically and legally complex. There are multiple potential interpretations of which laws and regulatory principles apply to a given innovation, and under what conditions it could be delivered legally. There are typically few or no templates for what compliance for their innovation 'looks like'. It is here, though, where firms find the greatest flexibility for negotiating and tailoring requirements for their product.

Firms have to then test their interpretations of what is possible with the regulator. The complexity of the technologies involved often means lengthy firm 'walkthroughs' with the regulator to explain what is proposed. These kinds of conversations take place almost exclusively before the sandbox test, during earlier stages of the process: application, authorization, and negotiating the testing plan. By the time firms test, regulatory questions should already be resolved. According to respondents, in these conversations the FCA would rarely give definitive advice. Rather, the regulator would give broad guidance and informal steers. Firms must interpret this as meaning they can move forward, or have to rethink their regulatory strategy. FCA staff rarely provide regulatory 'answers' to uncertainties surrounding a product. Instead, the sandbox involves a firm-led process of cooperative, iterative legal interpretation. In effect: the creation of detailed standards of compliance for that product rather than the discovery thereof. As one respondent said:

> "We are guiding the FCA really deep into our project. It's like 'give it to us, then we can talk about the gaps, you're the one that's going to have to do everything.' I had to create a plan. I had to create the test cases. I had to create a risk register. All this documentation on an idea where that was no precedent. On something that didn't exist, where no code had been written...We just had conversations" (SB1).

Interview findings are supported by questionnaire results. One-third of questionnaire respondents cited they wanted to apply to the sandbox to "help the FCA improve the regulation of products/services like ours". The ability of the sandbox to lead to 'superior' supervision in the ways the FCA intended is thus heavily dependent on sandbox participants themselves. Legal interpretation and the development of detailed compliance standards comes from collaborative, pre-test regulatory conversations (Black 2002b).

Firms generally speak about these conversations in positive terms. Such conversations help the firm and regulator to ensure products are — in their opinion — proportionately and correctly regulated on an individual and sector level. Yet, firms also make two prominent critiques. The first is that the demands the sandbox places on firms excludes those who have greatest need of its services. Firms who had their applications rejected, for instance, sometimes report it was because they cannot yet articulate the regulatory issues surrounding their product nor afford legal advice on this question. However, others contest that this is not a limitation but an essential selection criterion. The sandbox should only accept firms with the experience and capacity to meaningfully collaborate with the FCA on regulatory questions. The second limitation is to do with a lack of transparency about conversations had in the sandbox. There is no obligation for firms who fail at any sandbox stage to publicly account for what went wrong. Other actors, like other fintech firms or foreign regulators, are not able to learn about why certain products failed or what regulatory issues may have killed them. That learning is limited to the FCA and the sandbox firm involved.

That firms are heavily involved in refining the supervision of innovative products reflects Alaassar, Mention, and Aas's study (2021, 7; see also: Choi and Lee 2020). Their study observes that developing a shared understanding of regulatory boundary conditions over new innovations is a central function of sandboxes. This function of sandboxes in practice, however, has important practical and normative implications which Alaassar, Mention, and Aas do not discuss.

Sandbox design needs to reflect capacity of firms in targeted sector to collaborate on supervision

On a practical level, sandboxes like the FCA's rely not just on the capacity of the regulator, but also that of participants. Thus, in jurisdictions with smaller, less mature financial and start-up sectors, the sandbox might not be as effective. Further, some sandboxes are designed in ways which truncate the pre-test administrative stages (Buckley et al. 2020, 5). Findings here suggest that sandboxes with such a design may be less useful for regulatory learning and improvement compared to the FCA's fintech sandbox.

Legal endogeneity may undermine the supervisory effectiveness of sandboxes

Normatively, findings here give yet more weight to critiques about the risks of sandboxes in regard to capture. Specifically, that the sandbox facilitates legal endogeneity (Edelman, Uggen, and Erlanger 1999). Firms play a leading role in developing proposals as to what compliance requirements for their innovation will look like in practice. This role can become problematic where it undermines rigorous risk management in the public interest (Devaney 2014, 60). These issues are not unique to sandboxes (Kwak 2013). Yet, they still warrant consideration, especially given the recent track record of principles-based financial regulation. As Ford (2017) writes, regulators allowing financial firms to work out the detailed requirements of regulation of innovative products was a key contributing factor to the Global Financial Crisis.

More uniquely to sandboxes, these findings suggest incumbent endogeneity is a barrier to innovation. Incumbents have set certain norms of compliance in ways which suit their technological set up (e.g., paper over digital). Firms in the sandbox allegedly have little influence to challenge these norms. The FCA certainly seemed unwilling to prioritise these newcomers over the preferences of established players (see also: Gilad and Yogev 2012). This behaviour is reminiscent of public choice theory's contention that established industry players capture the regulatory process to create legal barriers to entry for potential competitors (Stigler 1971). In this case study, the barriers are not formal law but more informal norms and best practices.

Sandbox pseudo-experiments may make regulators overestimate their understanding of the innovation

Another normative implication concerns the risk of 'pseudo-experimentation'. Legal literature sometimes implies a strict dichotomy between sandboxes for regulatory experimentation versus for product experimentation (van Gestel and van Dijck 2011). Findings here, however, reinforce that all sandboxes have the potential to facilitate some degree of 'experimentation'. Experimentation, even if loose and informal, can still contribute to mutual learning for regulators and sandbox participants (Philipsen et al. 2020). Learning that likely informs business and regulatory decision-making surrounding an innovation in future (Allen 2019; S. Y. Tan and Taeihagh 2021; Philipsen, Stamhuis, and de Jong 2021, 5). This kind of pseudo-experimentation, however, has the potential to become problematic and risky.

Tests in the FCA's fintech sandbox are not scientific. They are not necessarily representative of an emerging innovation, its market applications, or its risk profile. Regardless, regulators may consciously or unconsciously treat sandbox test results as if they were scientific, rigorous, and representative. Regulators might, for example, use them to justify sector-wide reforms (Ranchordas 2021b). Indeed, this case study shows that the FCA does reference sandbox tests in their policy documents. The regulator does not explicitly suggest the tests are justification for sector-wide reforms, but this may be implied, and test cases could well shape the regulator's thinking about innovations. Findings here suggest pseudo-experimentation may also pose problems from a business perspective. Firms share 'lessons' from their sandbox test with peers and stakeholders, potentially shaping business perceptions on the basis of one, perhaps unrepresentative, case.

More transparency about sandbox tests could strengthen the regulatory governance of innovation

Relatedly, the lack of transparency about the inner workings of sandboxes has already been criticised from a democratic legitimacy perspective. If the supervision of innovation is to be informed by sandbox conversations, it follows that political leaders, the general public etc. have a right to know what those conversations involved (Ranchordas 2021b, 20; Philipsen, Stamhuis, and de Jong 2021, 9). This study suggests transparency is also an issue from a business perspective. There would be a great deal of benefit to other firms being able to read about the internal conditions applied to sandbox tests, and the outcomes of tests; both those which succeed and those which 'fail'. This information could prevent firms from trying to pursue innovations which do not work with regulatory frameworks. It could help firms to develop better internal risk management frameworks. Ethically, it would help to rebalance the unequal benefits provided to sandbox versus non-sandbox firms (Philipsen, Stamhuis, and de Jong 2021, 9). Indeed, a common recommendation from interviewed firms was that the FCA should host an alumni network for former sandbox firms to share information with each other and newcomers.

3.5.3. Support

Sandboxes support innovation by connecting participants to the broader, mainstream market of customers, investors, partners, and other regulatory agencies.

In interviews, firms generally argue the sandbox delivers the advisory support intended. Advice has been instrumental in quickly earning necessary authorizations. Advice, however, is not the only form of support they gained through the sandbox. As, or more, important to facilitating innovation were the connections they gained to the mainstream financial market.

Firms can rarely pilot a product on any scale without partner institutions. In finance, partnerships with a bank and an insurer are often a baseline regulatory requirement. In fintech especially, partnerships with institutions to share financial data is vital to many products. Firms typically also need investors and consumers to be willing to participate in a real-world pilot. Thus, a firm's ability to pilot a product relies on the buy in from a constellation of different stakeholders. This buy-in can be a bigger barrier to innovation than regulatory or technical issues.

Several interviewed firms said the sandbox helped them to overcome this barrier. It helped them make connections to clients, investors, partner institutions, and even foreign regulators in targeted markets. This kind of sandbox support could be highly direct. FCA staff would provide an introduction, or even speak to the third-party on the firm's behalf.

This kind of support, however, operated within legal limitations and Anglo-sphere norms of regulatory conduct. The regulator, firms report, does not force partnership, merely facilitate them. Naturally, the sandbox alone cannot and does not solve all issues of access to data, investment capital, partnership, and customers (Butor-Keler and Polasik 2020). The FCA has similarly stated there would be limits to its support for innovators saying "it is about enabling change; it is not about picking winners" (UK FCA 2017a) and "there are no favourites, there are no free passes" (Woolard 2018a).

These findings align with those of Alastair, Mention, & Aas (2021). Those authors state the number one benefit of sandboxes for participants is a means to connect with the broader market ecosystem. Findings also reflect Buckley et al.'s (2020) argument that sandboxes are unhelpful in isolation. They can only contribute to innovation when they are embedded in broader market, societal, and regulatory institutions.

This contrasts with a popular image of sandboxes as insulating participants from the broader market. The sandbox metaphor comes originally from software design. There, a sandbox is a way to test code in isolation without risking impacts on a wider system (Butor-Keler and Polasik 2020, 623). In regulatory sandboxes firms are typically insulated from the market in their actual test through authorization conditions like customer limits. Yet, in the pre- and post- test stages, the regulator actively connects participants to the mainstream market.

Pragmatically, Buckley et al. (2020) are quick to note that not all regulators would necessarily be able to provide this kind of support. As discussed, the FCA has a competition mandate. Regulators focussed on consumer protection only might not be seen to have a legitimate basis to support innovators in these ways. Normatively, this kind of support risks 'picking winners'; distorting markets and, thus, the innovation process (Knight 2019).

The sandbox helps reassure the broader market that adequate regulatory space for innovation already exists.

In addition to directly connecting firms to third parties, the sandbox helped more indirectly. A major issue firms cite is that third parties believe or fear the product is illegal. Therefore, they are unwilling to work with a fintech firm to run a pilot. This very often makes a pilot legally, practically, or commercially impossible. Through the sandbox, the FCA helped to reassure these third parties. For some firms, simply being accepted into the sandbox was enough for firms and their products to be seen as credible and legitimate. In other cases, their sandbox case officer reassured potential partner organizations the FCA considered their pilot test acceptable, and therefore this should be no barrier to the partnership or investment. Many firms said this kind of FCA 'backing' increased their access to investors and consumers by reducing their fears and uncertainties about the innovative technology.

> "We wanted, banks, law firms, market infrastructure to take us seriously and if the regulator takes you seriously then the financial industry will take you seriously...

> [The FCA] started then to talk to other firms about us and say: why don't you guys talk to [COMPANY] because they are doing xyz'. And then they started saying that to the banks. That's when the credibility for us started to go up" (SB13).

> "I dragged [INSURER] to the FCA and the FCA said: 'you have got to do it now'. At which point [INSURER] said: 'okay we realize we got to do it now'. So, they actually prompted a commercial decision on that side ... It gave [INSURER] some confidence that the FCA had looked at it and that there weren't going to be any regulatory headaches for them" (SB4).

It is unclear whether this kind of facilitation was something the FCA intended the sandbox to do. Yet, the FCA agrees that the sandbox has had these effects.

> "Testing in the sandbox has helped facilitate access to finance for innovators…by providing more certainty to prospective partners and investors" (UK FCA 2017f).

> "The sandbox is regulation that can give consumers the confidence to participate in the first place" (Woolard 2017) because "consumers are more likely to have confidence in a new product if it is within the regulatory framework" (Woolard 2016b).

In this way, the sandbox can be helpful even to firms who face no formal regulatory barriers to piloting products. The sandbox instead addresses barriers arising from market uncertainties about the legality of those products.

Alaassar, Mention, and Aas (2020; 2021) and Butor-Keler and Polasik (2020) made similar findings. Both state that participation in the sandbox led to greater access to investors and partners. Alaassar, Mention, and Aas attribute this to the legitimacy participation lends firms (2020, 7). Butor-Keler and Polasik (2020, 6) suggest investors and partners are more likely to become familiar with sandbox firms because participation gives firms positive promotion in the media. This study suggests it is both.

Study results, however, also reinforces concerns from legal and regulatory governance theorists that the sandbox is a potential tool for 'riskwashing' innovations (Omarova 2020). Riskwashing refers to making products appear low-risk through "superficial or narrow", ingenuine risk assessment processes (Brown and Piroska 2021, 2). Study results here show that reducing the perception of risks is a conscious strategy by the FCA to promote innovation. There was no indication from analysis that the risk assessment process surrounding the sandbox, though, were more superficial than other authorization procedures. Indeed, most firms suggest the sandbox was quite demanding. However, the process itself was not necessarily significant in shaping risk perceptions of market shareholders. Firms report sometimes mere acceptance into a sandbox, even before a test, can be enough for stakeholders to see a product as having a manageable risk profile. Results from this case study alone cannot confirm nor refute that the FCA's fintech sandbox is a tool for riskwashing. Yet, they should raise concerns about whether regulators can accept products into sandboxes without signalling to the market that they are necessarily safe and legal.

To provide consistent support, sandboxes need ongoing funding and dedicated, experienced staff.

While sandbox participants report broadly similar experiences of the instrument, this study implies that there are some differences between cohorts. Some respondent firms imply the first cohort was more exploratory and less administratively streamlined than those which came later. While the procedures are said to have arguably improved, some firms suggest the capacity of the Innovation Unit to provide support has declined.[19] Notably, several firms report earlier cohorts were mostly staffed by experienced, relatively senior officers. Later cohorts have seen, some allege, a shift to less experienced, more junior officers. Firms dealing with less experienced officers cite this made the sandbox a less useful instrument than they had expected. Those officers were both less versed in the law and had less authority to take decisions about an innovation's supervision, making regulatory conversations less meaningful.

These findings reinforce that the effectiveness of a sandbox lies not only in its design, but in the capacity of its implementing regulator. As Buckley et al. observe (2020, 6) sandboxes are not a "resource light" form of innovation supervision. They require adequate, consistent funding to ensure enough skilled and experienced staff members (see also: Brown & Pirsoka 2021).

On a normative level, scholars have raised concerns that sandboxes may devolve into a shallow technical exercise. Omarova (2020, 41), for instance, suggests that assessing whether a product is innovative and in the public interest requires regulators engage in "normatively thick analysis". Omarova questions whether sandboxes allow for this in practice. Sandboxes might, rather, lead to casuistic, tick-box analysis which obscures the political, legal, and moral questions innovation raises. One could interpret the results of the current study as giving more empirical support for such concerns. The alleged evolution of the FCA's sandbox can be seen as one toward as a move toward a narrower, more technical approach. An evolution enabled by a standardisation of procedures and necessitated by a transition to less experienced staff. This transition reflects a broader critique of principles-based regulation. Principles-based regulation is more complex to interpret than simple rules. For a principles-based approach to function effectively requires regulatory staff to be experienced and skilled. In an innovation context, this limitation is even more pointed as legal and technical complexities and uncertainties are more profound (Devaney 2014, 74). This is reflected in the current study. Firms report that the sandbox requires skilled, experienced officers to negotiate the nuances of principles-based regulation and how it applies to innovations. Thus: how effectively the sandbox supports innovation is a product of the skill and experience of the officers staffing it.

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[19] Some firms experienced this first-hand, as they participated in multiple cohorts. Others reported what they had heard from industry peers.

Table 3.1 Summary: The roles, contingencies, and risks of the FCA's fintech sandbox in facilitating innovation

Sandbox role	Facilitates innovation by…	Is contingent on…	Creates risks of…
Space	Temporarily removing regulatory barriers to product testing	Regulator mandate to create space	Leaving risks of innovation unsupervised
	Lowering the costs of product testing	Barriers posed by intersecting national and supra-national regulatory regimes not insurmountable	Failing to provide firms with adequate regulatory guidance, hindering innovation
		Regulator reputation, and reputation management with innovative firms; market must be confident that 'space' exists, and regulator holds 'open' stance toward innovation	
Supervision	Improving how innovations are supervised at a sector level	Participant motivation and capacity	Harmful regulatory capture, endogeneity
	Improving how individual innovations are supervised at the firm level, avoiding regulatory barriers through early intervention, collaborative conversations, and tailored licenses	Pre-test sandbox stages allow for collaborative conversation with participants	Riskwashing Inequity
		Transparency about sandbox authorization conditions and test outcomes	Illegitimate rules Lack of democratic accountability, transparency
		Regulator capacity: funding and experienced staff	

Table 3.1 Summary: The roles, contingencies, and risks of the FCA's fintech sandbox in facilitating innovation

Sandbox role	Facilitates innovation by…	Is contingent on…	Creates risks of…
Support	Providing advice that helps firms earn authorizations fast	Regulator mandate to connect firms to market	Riskwashing Inequity
	Connecting firms to third-parties required for a product test	Regulator reputation with market; established credibility	Distorting innovation, picking winners
	Reassuring third-parties that the product test is legal	Regulator culture/norms toward connecting firms to markets	
		Regulator capacity: funding and experienced staff	
		Pre-test sandbox stages allow for collaborative conversation with participants and third-parties	

3.7. CONCLUSION

Regulatory agencies worldwide have rapidly embraced regulatory sandboxes. Governments have been sold on the promise that this instrument can help to govern the risks of new technologies while facilitating innovation. Yet, we are only beginning to understand how well sandboxes fulfil this promise in practice.

Although it is not possible to generalize from one case study alone, the finding presented here indicate that sandboxes play multifaceted roles in facilitating innovation. The FCA's fintech sandbox is popularly seen as a 'safe space'; an instrument which lets firms test products, unburdened from regulatory interference. Findings here suggest that this space is more limited than generally assumed. Authorizations were still required in the sandbox, and the FCA had an only limited ability to offer dispensations from UK and EU financial law. Further, for some firms, the presence of regulation was not the primary barrier to innovation. The primary barrier was the lack of regulatory clarity about their technology. A lack of clarity undermined firm confidence, and the confidence of potential customers, investors, and partners, preventing firms from testing and keeping them out of the market. This case study suggests that, rather than a safe space free from regulation, the FCA's sandbox is better understood as an active regulatory intervention. An intervention which brings innovators into the supervised, mainstream market through a combination of support, space, and iterative refinements of supervision.

Findings here build on prior research analysing the implementation of sandboxes. Findings reinforce that sandboxes are collaborative. Their ability to facilitate innovation thus relies on the attitudes, perceptions, and capacities of potential participants (Alaassar, Mention, and Aas 2020; 2021). Further, regulatory agency culture toward innovation, and their capacity, were once again shown to be essential to an effective sandbox (Butor-Keler and Polasik 2020). Findings from this study additionally draw out the more detailed mechanisms through which sandboxes facilitate (or fail to facilitate) innovation in practice. A central contribution is demonstrating the means through which sandboxes allow regulators to intervene in the promotion and governance of the innovation process. Specifically, to intervene in a 'soft', informal, introductory manner, in the absence of *sui generis* rules or policies toward the innovation (Mandel 2013).

The sandbox facilitates such interventions in several ways. First, the sandbox allows regulators to begin to intervene through shaping business perceptions of regulatory limitations on innovation. The sandbox, and its marketing, signalled to fintech firms, financial incumbents, and customers that the there was regulatory 'space' to test innovative products (fulfilling expectations of Zetzsche et al. 2017). The regulator was able to cultivate a reputation for being open to, and supportive of, innovation. Through individual tests, the regulator was able to further signal its interpretation and intentions toward a given innovation. This was communicated to participant firms but also to the broader financial sector. Second, the sandbox allows regulators to intervene early in the innovation process. No rules need have been broken for regulators to begin to have collaborative conversations with innovators (as anticipated by Gromova and Ivanc 2020, among others). These conversations help to develop a shared understanding how their specific innovation can be safely developed. Finally, the sandbox allows for informal experimentation not just for the regulator but also for participating firms. The regulator uses sandbox test cases to inform their eventual formal policies on certain technologies. Firms use the sandbox as a way to test various regulatory strategies with the agency. Rather than having perhaps one or two chances to apply for the right authorization the right way, firms are able to explore their options in more informal conversation with regulatory staff.

This does not imply the sandbox is an unproblematic success story. Findings made in the case study lend yet greater weight to normative concerns about potentially unsustainable financial costs, pseudo-experimentation, riskwashing, and capture. At times, scholars have implied these normative risks should be ‘designed out’ of sandboxes (Brown and Piroska 2021, 12; Omarova 2020, 53). That is, sandboxes should be made to function more like traditional regulation. This study, however, reinforces arguments that the informal, flexible, and collaborative nature of sandboxes like that of the FCA holds real advantages for innovation supervision. Not just the promotion of innovation, but the development of incremental, adaptive regulatory intervention (Allen 2019; Gromova and Ivanc 2020; Alaassar, Mention, and Aas 2020; Butor-Keler and Polasik 2020; Buckley et al. 2020; Fenwick, McCahery, and Vermeulen 2018; Marjosola 2019). What may be a more promising approach is to ‘design in’ institutions, procedures, and standards which mitigate these risks. How this might be achieved is addressed in the final chapter of this dissertation.

Chapter 4

Regulator reputation and stakeholder participation: A case study of the UK's regulatory sandbox for fintech

This chapter is based on the following published article: Fahy, L. (2022). Regulator reputation and stakeholder participation: A case study of the UK's regulatory sandbox for fintech. European Journal of Risk Regulation.13(1).

4.1. ABSTRACT

This article contributes to the discussion about managing the risks and uncertainties of emerging technologies through increased stakeholder participation. Authorities have increasingly invited stakeholders from high-technology sectors to participate in assessing the risks of, and designing responses to, new technologies. Yet, authorities often struggle to attract stakeholders from such sectors to participate; a critical challenge identified but still undertheorized in the literature. Responding to this gap, this article presents a case study of the United Kingdom's regulatory sandbox for financial technologies, applying a document study, questionnaire, and interviews to explore fintech firm motivations and apprehensions about participation. Drawing on bureaucratic reputation literature, the study finds fintech firms have a range of practical, reputational, and normative motivations to participate and these motivations are inextricably tied to the regulator's strong reputation with the sector; as procedurally correct, high-performing, and morally committed to facilitating innovation. On this basis, recommendations for practitioners and hypotheses for future research into the drivers of stakeholder participation in regulatory decision-making surrounding emerging technologies are proposed.

4.2. INTRODUCTION

The EU has a long-standing strategic goal to make Europe the world's most competitive knowledge-based economy (The European Council 2000). This goal has led to the continuous search for better regulatory approaches, balancing facilitating innovation with managing the risks of new technologies. Central to these approaches has been encouraging active participation by stakeholders from high-technology sectors (scientists, universities, research organizations, firms etc.) (Florin 2014). New technologies are often subject to deep uncertainties and information asymmetries, which leave authorities with limited information to assess and respond to their risks. Pragmatically, bringing stakeholders into the process of identifying and responding to risks is a means to better access their expert knowledge (Reichow 2016). Normatively, greater stakeholder participation can increase the transparency and legitimacy of regulatory responses to new technologies (Heine and Li 2019).

In this spirit, in 2020 the Council of the EU recommended the Commission consider the use of regulatory sandboxes. Sandboxes are 'concrete frameworks which, by providing a structured context for experimentation, enable where appropriate in a real-world environment the testing of innovative technologies, products, services or approaches ... for a limited time and in a limited part of a sector or area under regulatory supervision ensuring that appropriate safeguards are in place' (ECOMP 2020, 4). The Council argues sandboxes are 'tools for an innovation-friendly, future-proof and resilient regulatory framework that masters disruptive challenges in a digital age' (2020) and a mechanism for 'regulatory learning' (ECOMP 2020, 4) from participating stakeholders. The Commission has already announced one EU-level sandbox, for blockchain technologies, will launch in 2022.

The Council's recommendation reflects increasing enthusiasm for sandboxes among member states. In 2015, the UK Financial Conduct Authority launched the world's first sandbox, designed to facilitate commercialization of emerging technologies in 'fintech' (financial products and services which utilize 21st century technology) (Arner, Barberis, and Buckley 2015). In the FCA's sandbox, firms apply and, if selected, test their innovative product. They can sell to real customers, without incurring the full gamut of regulation, but on a small scale, for a set period of time, and under close supervision (UK FCA 2015a, 1). Through testing, firm and regulator gather more information about the nature, risks, and benefits of the product, which may include establishing precise regulatory conditions to apply were it sold commercially (Barefoot 2017; UK FCA 2017f). Based on the FCA's example, sandboxes have now been implemented in more than 50 jurisdictions, including 32 among European member states (Parenti 2020, 60–61).

For a sandbox to be successful, the hosting regulator must attract stakeholders to participate (Allen 2019, 597). Scholarship on existing (sub-) national sandboxes shows agencies often struggle with this task but offers little theory as to why (Alaassar, Mention, and Aas 2021). Indeed, despite their prevalence, scholarship on sandboxes is limited. Scholars are still at the stage of defining sandboxes in conceptual terms, as instances of — for example — principles-based (Allen 2019), smart (Zetzsche et al. 2017), or experimental (Fenwick, McCahery, and Vermeulen 2018) regulation. Empirically, there have been dozens of studies describing sandboxes(e.g. Allen 2019), yet few which evaluate their capacity to manage risks (e.g. Gerlach and Rugilo 2019), and very few which have collected primary data from targeted stakeholders (Alaassar, Mention, and Aas 2021). Further theorizing and empirical research is required to better understand sandboxes and when and why they are effective, particularly on the fundamental issue of stakeholder participation.

To that end, this article presents evidence from an explanatory, embedded, single case study (Yin 2014, 220–26) of the UK's regulatory sandbox for fintech. The UK's sandbox is targeted to a particular sub-set of stakeholders — private firms — and thus the analysis of the case study focuses on regulatory participation by this group. Participation by private firms is a salient issue for regulators supervising innovation. Private firms are often central to the development and diffusion of new technologies and primary subjects of regulation thereof. Thus, they can be essential sources of regulatory learning when they choose to participate in regulatory decision-making processes. To investigate their motivations for participation, this case study draws on data from a document study as well as questionnaire of 36 UK fintech firms and qualitative interviews with 21 firm senior managers.

Analytically, the case study positions sandboxes within existing literature on stakeholder participation in regulatory assessments, design, and implementation in a European context (Braun and Busuioc 2020; Busuioc and Jevnaker 2020; Arras and Braun 2018; Florin 2014). This literature observes agencies are increasingly inviting stakeholder participation (Haber and Heims 2020), but stakeholders often do not respond (Joosen 2020). Non-response has been a particularly acute problem for agencies hosting sandboxes because they typically target professional stakeholders (usually firms) in high-technology sectors. Such stakeholders are less likely than those in mature industries to trust regulators and have administrative capacity for participation (Mandel 2013). The UK's regulatory sandbox for fintech, however, has received a large number of applications (Robinson, Altkemper, and Johal 2019).

One potential explanation for the UK sandbox's success is the reputation of its hosting agency. Christopher Woolard, former CEO of the FCA, has said the agency struggled at first to attract engagement by fintech firms, and only succeeded by improving its reputation with the sector; from 'burdensome' and frightening, to helpful and 'approachable' (Barefoot 2017). Zetzsche et al. (2017) similarly speculate stakeholders will only be motivated to participate when they perceive the hosting regulator as trustworthy and credible. These anecdotal explanations find support in bureaucratic reputation theory.

Scholars have begun to apply bureaucratic reputation theory to the context of stakeholder regulatory participation in Europe, arguing agency reputation is an important factor explaining the success or failure of stakeholder participation exercises (Busuioc and Rimkutė 2020b; Flear 2019). Yet, research has focussed on how a regulator's reputation influences the kind of participation it invites (Rimkutė 2020; Fink and Ruffing 2020), paying limited attention to what motivates stakeholders to take up those invitations (Busuioc and Rimkutė 2020b, 1257). Carpenter's studies of US regulators have shown how a regulator's reputation with stakeholders affects stakeholder motivations as to how they engage with the agency (2001; 2010), but these ideas have rarely been empirically explored in a European context (Capelos et al. 2016). Responding to this gap, this study asks: *How does regulator reputation affect stakeholder motivations to apply to regulatory sandboxes?*

The case study finds fintech firms who want to participate in the sandbox have a range of motivations, prominently to ensure compliance with regulatory requirements and boost corporate reputation. These motivations are inextricably linked to the FCA's reputation with the fintech sector as procedurally correct, high-performing regulator, morally committed to facilitating innovation.

These findings expand bureaucratic reputation scholarship by beginning to integrate Carpenter's theory on reputation as a driver of stakeholder engagement with theory on stakeholder regulatory participation in a European context. Findings illustrate the ways in which bureaucratic reputation likely plays a role in both regulator motivation to 'supply' participation opportunities and stakeholder motivation, 'demand', to take up those opportunities.

More practically, results imply a regulator's ability to attract good quality, good faith stakeholder participation in regulatory assessments, design, and implementation is dependent on its reputation with the targeted sector. EU regulators should, thus, thoughtfully market themselves and their sandboxes if they want to secure participation from stakeholders in high-technology sectors (Zetzsche et al. 2017).

4.3. THEORETICAL FRAMING

4.3.1. Regulatory sandboxes and stakeholder participation

Regulators often present sandboxes as a technical instrument designed to make it easier for innovators to test and commercialize new technologies while managing adherent risks and uncertainties. (Allen 2019) Sandboxes, however, are also instruments of stakeholder participation in regulatory assessments, design, and implementation (Sabel and Simon 2011; Zetzsche et al. 2017). Sandboxes allow regulators to learn about the risks of emerging technologies and get immediate feedback on different kinds of regulatory responses, directly from innovators (Ringe and Ruof 2020). Stakeholder participation was a central goal for the FCA's sandbox. The FCA hoped to 'engage with the ecosystem and encourage firms to embrace new ways of doing things in the interests of consumers' (UK FCA 2015a, 3); 'facilitating dialogue' through an 'open channel of communication' (Woolard 2016c, 3). The Council of the EU similarly cited the goal of 'regulatory learning' (ECOMP 2020, 4).

For this reason, sandboxes can be understood as part of a broader trend of independent regulatory agencies increasingly inviting stakeholder participation in regulatory assessments, design, and implementation (Haber and Heims 2020; Florin 2014). Greater stakeholder regulatory participation can lead to a range of benefits: reduced information asymmetries, more democratic decision-making, and the legitimation of regulatory authority (Braun and Busuioc 2020; Heine and Li 2019). These benefits, though, are contingent on a number of factors, one of which is attracting enough and the right kind of stakeholder participation. Many stakeholders do not take up regulatory participation opportunities and not all use those opportunities to give substantive input (Joosen 2020). Some participate to capture agencies and bias the outcomes of regulatory deliberations (Arras and Braun 2018; Busuioc and Jevnaker 2020).

Indeed, attracting participation from the fintech sector was a challenge the FCA had to overcome, as it has been for many regulatory agencies (Gerlach and Rugilo 2019; Alaassar, Mention, and Aas 2021). The FCA's sandbox, like many sandboxes, targets a particular sub-group of stakeholders: firms. Unlike more mature sectors, fintech lacks a history or institutional structure for routine consultation (Barefoot 2017). Further, newer fintech firms were often poorly equipped for, and daunted by, the administrative demands of regulatory participation (Mandel 2013; Carter and Siddiki 2019). Such firms can be especially mistrustful or antagonistic toward regulators intervening in their sector (Barefoot 2017).

Advocates praise the FCA's sandbox for managing to attract a high rate of stakeholder participation, thus facilitating more sector consultation on the UK's response to fintech (EY 2019). Critics, though, attest firms who participate do so in bad faith; to bias regulatory decision-making to serve special interests (Kelly 2018). This study aims to empirically examine what motivates stakeholders to participate in the FCA's sandbox, drawing on bureaucratic reputation scholarship.

4.3.2. The role of regulatory agency reputation

In bureaucratic reputation theory, reputation is 'a set of symbolic beliefs about the unique or separable capacities, roles, and obligations of an organization where those beliefs are embedded in audience networks...'(Carpenter 2010, 45). Regulators act to build and maintain the kind of reputation which secures capitulation and support from their stakeholder audiences. Audience support increases the agency's authority, power, and influence (Carpenter 2010, 61), and autonomy (Bertelli and Busuioc 2021). Scholars writing on stakeholder regulatory participation in the European context have begun to apply this theory to explain the outcomes of specific participation exercises e.g. consultation processes (Busuioc and Rimkutė 2020b).

Regulators, scholars argue, invite participation not just to gather information, but improve their reputation. Regulators want to cultivate support from specific audiences and generally be seen as exercising authority in consultative, democratic, accountable ways (Braun and Busuioc 2020). Different regulators take different approaches to participation. Due to differences in their reputation, some regulators are more incentivised than others to engage in the 'persuasion politics' of stakeholder engagement (Rimkutė 2020), and to invite certain kinds of stakeholder input over others e.g. technical versus procedural input to decision-making (Fink and Ruffing 2020). Thus, reputation influences the outcomes of stakeholder participation exercises by affecting what kind of participation a regulator is motivated to invite.

This literature, and indeed literature on stakeholder participation in a European context generally, has paid far less attention to why stakeholders take up (or disregard) those invitations (Busuioc and Rimkutė 2020b, 1257). When discussed, professional stakeholders are usually said to be motivated to participate out of a desire to influence regulatory decision-making.(for example, Arras and Braun 2018) Broader bureaucratic reputation theory, though, provides a more nuanced account.

Daniel Carpenter's work, in particular, draws out the varied motivations professional stakeholders — here firms — have for engaging with regulators (2001; 2010). Firms have their own stakeholder audiences, like consumers and investors. A firm's actions are motivated by a desire to build the kind of reputation which secures stakeholder support and avoids criticism, attack, or resistance to their agenda (2010, 663). These include how a firm acts toward a given regulatory agency, and this is inextricably linked to that agency's reputation.

The reputation the regulator has with a firm shapes that firm's motivations as to how they engage. Those who see the regulator as tough, for instance, are more motivated, out of fear of sanctions, to comply with its demands than those who see it as toothless (2010, 40). The reputation a firm thinks the regulator has with third parties, further, shapes how they engage. Firms who believe the regulator is well-respected by the media, for example, will be more afraid of the damage to their corporate reputation if they defy the agency (2010, 443).

Carpenter's theory thus implies regulator reputation shapes what firms think they may stand to lose or gain through regulatory participation. Reputation could affect how many stakeholders respond to invitations, what kind of stakeholders respond, why they respond, and how. This aspect of Carpenter's work, however, has yet to be integrated with theory about the conditions which drive successful stakeholder regulatory participation exercises in a European context (Braun and Busuioc 2020). Indeed, his ideas have only rarely been empirically examined outside US settings (Capelos et al. 2016).

The goal of this study is to examine what motivates stakeholders to apply for regulatory sandboxes and explore how these motivations are influenced by the reputation of the hosting regulator. In so doing, this study aims to contributes to building theory on how a regulator's reputation might motivate stakeholders to take part in regulatory design and implementation in other European regulatory contexts.

4.3.3. Analytical approach

This study asks: *How does regulator reputation affect professional stakeholder motivations to apply to regulatory sandboxes?* To address the research question, I first examined what motivations firms report for wanting to apply. Due to the nature of sandboxes, firms may have motivations other than the commonly posited desire to influence policy.

One motivation could be wanting to ensure one's activities are compliant with regulation. Legal and regulatory risks abound for firms seeking to develop and commercialise novel financial technologies. Finance is a heavily regulated sector. Firms and individuals offering financial services, especially to everyday, non-professional consumers, must hold all appropriate licenses to do so. Even if one holds the right licenses for existing activities, novel kinds of services may require new licenses or new compliance requirements for existing ones. For firms, it is not always clear whether they need a (new) license and what would constitute compliance with that license. This is exacerbated where services are so novel that they were not anticipated in existing regulation and there is still significant legal uncertainty about their status, as was the case – for example – with peer-to-peer lending crowdfunding platforms. Sandboxes provide a means to work directly with the FCA to better understand whether and how a novel service could be compliant with regulation. For some firms, sandboxes are simply a testing ground to discuss potential regulatory issues during product development. For others, sandboxes are effectively an authorization process. The sandbox test becomes an additional step in earning the licenses required to operate commercially.

Another possible motivation is expedience. Here, firms are less motivated by a desire to be compliant and more by a desire to take advantage of the facilitation services sandboxes can provide. Most prominent among these is essentially free, bespoke legal advice about how their activities can comply with regulation. These benefits are often not trivial, as some firms would otherwise have to pay significant sums to hire a lawyer or pay a legal firm for advice. A third possible motivation to apply is to boost corporate reputation; as the FCA's sandbox is highly publicised and may offer positive publicity (Zetzsche et al. 2017, 90).

As a final point on participation motivations, sandboxes are, formally, voluntary. Firms can test and commercialise products without the sandbox (as the high rate of non-participation in many jurisdictions attests). Firms can opt to pursue traditional authorizations, adapt their existing authorizations, work under the 'umbrella' of another institution's or individual's authorization (either temporarily or by becoming a subsidiary), adapt their product to avoid triggering obvious regulatory requirements, or simply bare the legal and regulatory risks (see, for example, Uber's strategy of operating in many cities prior to confirming its legal status). Still, some firms may see the sandbox as their only cost-effective, viable, low-risk option. Worth noting, though, is the sandbox is also not without costs. Applying for an authorization has fees, but more importantly sandbox participation bears administrative costs in the form of developing testing plans, reporting during testing, and evaluating the test.

Regardless of their motivations, when firms decide whether to participate in sandboxes, they consider the capacities and intentions of the regulator behind it. Not every regulator is equally capable of delivering the benefits of a sandbox, nor necessarily intends to (Zetzsche et al. 2017, 93). As firms do not have perfect, objective information on a regulator's capacity and intentions, Carpenter's theory implies they will rely on its reputation.

In deciding whether to apply, firms will be influenced by their impressionistic beliefs about the regulator derived from direct experience, second-hand accounts (e.g. as industry gossip or media reporting) and other sources (Carpenter 2010, 752). Regulator reputation is subjective. A regulator will have a somewhat different reputation with different audiences and different individuals (D. Lee and Ryzin 2019). Reputation does not perfectly reflect reality e.g. firms typically overestimate a regulator's enforcement capacity (Ayres and Braithwaite 1995, 44). Realistic or not, a regulator's reputation informs firm decisions about how to engage with the agency (Carpenter 2010, 40).

For the case study at hand, then, I examined what reputation the FCA had with the UK fintech sector generally and each firm individually. Carpenter argues stakeholders form beliefs about agencies on four dimensions: the quality of agency outputs (performative reputation), its expertise (technical reputation), the normative value of its goals and qualities (moral reputation), and how well it follows required or desirable processes (procedural reputation) (Carpenter 2010, 45–46). Carpenter's scholarship further suggests, within these dimensions, stakeholders form yet more specific beliefs that influence engagement. The relationships between specific beliefs and motivations for engagement are most fully explored in his 2010 study of the US Food and Drug Administration and its supervision of the pharmaceutical sector.

In that study, Carpenter writes the regulator cultivated a balanced reputation which came to engender from firms both fear and capitulation, but also trust and voluntary engagement and cooperation. On *performative reputation*, Carpenter observes a reputation as a 'fearsome' (2010, 40), 'intimidating' (2010, 669) 'bad cop' (2010, 665) makes firms more afraid of sanctions, and therefore more motivated to comply with a regulator's implicit and explicit demands. Yet, regulators must avoid being seen as unreasonably punitive, as this undermines industry trust and goodwill. Relatedly, on *moral reputation*, firms are motivated to work with regulators they see as acting in the sector's interests; as facilitators of industry growth and innovation (2010, 679). On *technical reputation*, where regulators come to be seen as *the* authority on a given sector or technology this contributes to firms accepting and cooperating with the agency (2010, 60). On *procedural reputation,* a reputation for procedural correctness — for applying fair and rigorous administrative processes — similarly drives firms to accept a regulator's authority as legitimate (2010, 40). Further, such a reputation makes firms more motivated to act in ways which win the regulator's approval. Firms want to improve their reputation with such agencies; hoping the regulator's approval will increase trust in the firm, reducing scrutiny over firm activities. Receiving approval from a procedurally correct regulator also increases firm credibility with third-parties e.g. consumers (2010, 220, 493–94; see also: Gunningham, Thornton, and Kagan 2005; van Erp 2011; Carter and Siddiki 2019). Once again, however, to maintain industry trust and goodwill, regulators have to balance this with a reputation for procedural flexibility. Firms are more motivated to comply and cooperate, and be 'honest', when they expect the agency not to be unreasonably strict (2010, 60).

The UK fintech sandbox case bears some similarities to Carpenter's study. Both represent efforts by independent regulatory agencies to supervise the risks of highly technically complex innovations. These contexts, though, are not identical and I anticipated reputation might play a somewhat different role in motivating engagement than Carpenter describes. In the case study analysis then, guided by Carpenter, I focused my analysis on the influence each of the specific beliefs in Table 4.1 may have on motivations. Yet, I remained open to different kin ds of beliefs and relationships arising inductively.

Table 4.1 Regulator reputation dimensions, and specific beliefs, which may influence firm motivations to participate (derived from Carpenter 2010)

Dimensions		Specific beliefs
Performative	Agency can and does deliver valuable outputs and outcomes	Agency is a tough regulatory enforcer Agency can help firms achieve their goals
Moral	The agency has ethical and moral goals and means	Agency generally aims to help firms achieve their goals
Procedural	Agency uses the correct procedures associated with decision-making	Agency is procedurally correct Agency is procedurally flexible
Technical	Agency has the expertise needed to perform its role	Agency is an expert on a given sector

4.4. DATA AND METHOD

This study employs an explanatory, embedded, single case study (Yin 2014, 220–26). This case study included: exploratory interviews with FCA staff and industry stakeholders; document study; self-administered online questionnaire; and semi-structured, qualitative interviews with fintech firm senior managers.

For questionnaire and interviews, I created a population frame of 520 UK fintech firms.[20] All were invited to interview via email. I also engaged in snowball sampling, using the networks of contacts gained through the course of the study. At time of data collection, approximately 130 firms had or were participating in the sandbox. Some of these companies were not captured by the official population frame, as they no longer operated (in the UK), but were also invited to participate.

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[20] The frame was developed through a systematic search of LinkedIn, cross-referenced with Companies House data. A detailed explanation is provided in Author forthcoming.

Thirty-six respondents answered the questionnaire and 21 were interviewed.[21] While the sample size is small, it offers a rare empirical insight into sandboxes from a firm perspective. The sample is diverse in that respondents come from different sandbox cohorts, sub-sectors, and countries. Fifteen of the interview respondents were current or ex-sandbox, and six were seeking/had sought licensing through traditional channels.

I developed a questionnaire and interview schedule. Both ask respondents whether they want to apply for the sandbox and why, and what reputation the regulator has with the respondent firm. Questions and codes were replications or adaptations of existing conceptualizations, wherever available (see Appendix 1: Chapter 4).

Motivations to apply to the sandbox were conceptualized in two ways: how motivated respondents were to apply, and why they were (not) motivated to apply. Respondents were considered to be more motivated when they said they probably or almost certainly would apply in future (assuming eligibility and need). To capture the range of possible reasons why they would apply, I adapted the conceptualization used in Nielsen and Parker's (2009) study of business motivations for regulatory compliance.

Regulator reputation was conceptualized drawing on Lee & van Ryzin's (2019) Bureaucratic Reputation Scale. In the Scale (derived from Carpenter 2010), reputation as made up of five dimensions: performative, moral, technical, procedural, and 'general esteem'. I also asked questionnaire respondents about their specific beliefs about the regulator (see Table 4.1) and allowed interview respondents to raise other beliefs in an open-ended fashion.

Interview transcripts were analysed in NVivo, using qualitative, directed content analysis (Hsieh and Shannon 2005). I explored the relationship between different reputational beliefs about the regulator and the extent and nature of motivations to apply. I examined this relationship explicitly, by cataloguing the different ways respondents stated their beliefs influenced motivations. I also considered more implicit relationships, examining whether certain kinds of beliefs about the regulator were more common among more motivated firms. Questionnaire data was too limited for meaningful linear regression but was used to present descriptive statistics to expand on interview findings.

4.5. ANALYSIS AND FINDINGS

4.5.1. Professional stakeholder motivations to participate in a sandbox

In interviews, 13/21 firms said they probably or almost certainly would apply. Questionnaire results indicate similarly high motivation (M =3.46, $Median$ = 3.5, SD =1.26). Of 36 respondents, 14 said they would probably or almost certainly would apply and only five said they probably or certainly would not.

As to why, the *most commonly cited reasons from interview respondents were: expedience* and *making sure they were following the law* (13/21 firms cited these motivations). The sandbox was seen by many as 'simpler' (NSB1), 'easier' (NSB4), the 'quickest' (SB7) 'fast track' (SB4) to 'get you to market as soon as possible' (SB8) while providing adequate 'legal cover' (SB11) for a product test and/or commercialization. Some respondents believed the sandbox was 'the only way to get to market' (SB7) because their product was too innovative for a standard authorization process. Others saw the sandbox as providing 'added value' (SB4) because the sandbox put firms in 'unique position to get feedback from the FCA' (NSB4).

The *third most commonly cited motivation was to boost corporate reputation* (10/21). Nearly half of respondents said they wanted to participate in the sandbox for this reason. Being selected would be good source of 'branding' (SB2) and help put them 'on the map' (SB11). Further, fintech firms are novel and exciting, but can be seen as untested and risky. Many firms hoped being accepted would show the firm was 'genuine' (SB13), 'give comfort' to your customers or 'conservative' business partners (SB10) and 'prove [to] external validators you're not just a guy with an idea' (SB1). One respondent argued reputational benefits of the sandbox were the central reason the FCA's sandbox has attracted so much participation:

> "[The FCA's] sandbox was a marketing activity, and this is what every other sandbox missed. There are cohorts in FCA … There is an announcement of who is accepted. It is a cherished element of publicity by start-ups and absolutely gold for a start-up to be included in that list in the cohort. [It] gives us an ability to go to [their business partners] and say: 'look this is what we are doing, this is what we are testing with the regulators'. Gives us completely different standing" (SB9).

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[21] As some respondents both answered the questionnaire and were interviewed, I gathered data from a total of 52 unique firms.

No interview respondents explicitly said they wanted to apply to the sandbox in order to *influence* regulatory policies to serve their interests. A small minority of respondents, though, said they wanted to participate to improve their relationship to the FCA (3/21) and provide information and assistance to the FCA in policy making (2/21).

For questionnaire respondents, making sure they were following the letter and spirit of the law was also the most frequent motivation. Nearly half of respondents cited a desire to minimize risks to their customers (16/36). The second most frequent motivation was to be compliant with the law (12/36). Influence was, again, a relatively uncommon motivation (6/36). Contrary to interview results, however, corporate reputation (8/36) and expedience (6/36) were not as commonly cited. I address these differences in Discussion.

4.5.2. The role of regulatory reputation in driving participation

Performative reputation

Respondents typically believe the regulator is capable of helping firms like theirs. The majority of interview respondents (16/21) state their firm sees the regulator as able to help them and questionnaire respondents generally share this view *(M =3.69, Median* = 4, *SD* =0.13). Questionnaire respondents also see the regulator as a tough, capable enforcer of regulatory rules *(M* =4.17, *Median* = 4, *SD* =0.79). Interview respondents rarely explicitly discuss the regulator's enforcement capacity (4/21) but, as will be discussed, do tend to implicitly hold this belief.

The regulator's reputation as helpful drove firms to apply out of expedience. A belief the regulator was able to help was commonly held by firms more motivated to apply. Interview respondents explicitly said they were motivated by a belief the regulator would be able to expedite the authorization process, and/or offer legal support and resources. One respondent recalled becoming motivated after reading another fintech's blog about how much the FCA had helped during their sandbox.

> "[I] looked at some of the previous experiences and it seemed really, really positive. The reasons we went ahead with it was based on … a case study online. It just showed how the interaction with the FCA was really positive. And I wanted that" (SB6).

The regulator's reputation as a tough enforcer, though, was not discussed by respondents as motivating their application. This is surprising, as the regulator is commonly seen as a tough enforcer and complying with regulation was the most commonly cited motivation to apply. One would thus expect firms are motivated, in part, out of fear the FCA will otherwise sanction their unlicensed testing or commercial operations. That they do not cite this fear could suggest the belief the regulator will punish misdeeds is so widespread as to be taken for granted: interview respondents did not even think to remark on this belief as its influence on their motivations to apply is obvious. Alternatively, firms may have motives unrelated to fear of punishment.

Moral reputation

The questionnaire results show most respondents believe the FCA aims to help innovative companies (*M* =3.53*, Median* = 4, *SD* =0.16). More than half of interview respondents state the FCA is generally supportive of innovative companies. 'Supportive' for respondents did not mean the FCA is biased, or unlikely to criticise or sanction illegal/unethical innovations. Rather, interview respondents praise the FCA for 'trying to work with more fintech and future tech companies' (NSB1), being 'open' (SB4, SB8, NSB1), and willing to 'engage'; to listen to ideas and try them out (NSB6, SB7, SB8, SB9).

This reputation made firms more motivated to apply out of expedience. Sandbox participation requires firms to trust the regulatory agency. In a sandbox, participants share a lot of information about the inner workings of their product and business. The regulator has the power to summarily quash an innovative product (Deloitte 2018). A belief the regulator was open and progressive made firms expect the sandbox would ultimately be good (or at least not bad) for their business. They trusted that, in the sandbox, the regulator would not betray the firm's candour by blithely shutting down innovations. As one respondent said, because of 'how forward thinking the FCA was and hopefully still is' his firm 'wouldn't really have a hesitation' in applying for the sandbox (SB4). These kinds of comments are supported by more implicit interview analysis. Respondents who saw the regulator as facilitative of fintech were also more motivated.

Those few respondents who did not see the regulator as a facilitator were also those less motivated to apply. A cynical minority of interview respondents believe the FCA's stated, lofty goals are insincere: the sandbox is a cosmetic commitment to innovation from a regulator who actually intends to maintain the status quo. This belief undermines their motivation to apply for reasons of expedience. They do not believe the FCA will deliver on the supposed benefits of the sandbox. One respondent, for instance, was unmotivated because —through industry gossip — he formed the impression the FCA was not really trying to help businesses like his: 'people had gone into the sandbox and hadn't got the answers that they needed [so] I just don't think it's valuable' (NSB1). The belief the regulator is lying about the real goals of the sandbox, further, meant these firms were less motivated to apply to ensure compliance because they had become mistrustful and resentful. One respondent said he had become 'a lot more cynical' about the FCA's intentions to fintech, undermining his motivation to apply to the sandbox and even to comply with FCA rules in general (NSB3).

Procedural reputation

The questionnaire results show the FCA has a reputation for procedural correctness among firms in the sample (*M* =3.88*, Median* = 4, *SD* =0.24). The majority of interview respondents agree, describing the FCA as: 'objective…highly credible' (SB8), 'transparent' (NSB1), 'appropriate' (SB13), and not 'promoting specific' technologies or businesses (SB11). Questionnaire results suggest the FCA is typically seen by fintech firms as fairly inflexible on procedure *(M =3.85, Median* = 4, *SD* =0.66). Interview results show that similar beliefs: 1) are held by firms who have never participated in the sandbox before, and 2) were held by firms who have participated in the sandbox, prior to their first time participating. In other words, when firms have not participated in a sandbox, they usually see the regulator as procedurally inflexible.

The FCA's reputation for procedural correctness motivates firms to apply to boost their corporate reputation. The belief the FCA is procedurally correct is widely held by respondents who are motivated to apply. Several respondents said they wanted to apply because the FCA is seen as procedurally credible and reliable by their business partners and investors. 'The FCA carries a lot of credibility,' one respondent explained, 'so, if [partners/investors] look at us, they see the FCA sign and they go: 'okay there must be something to it' (SB8). Another similarly concluded: 'You cannot get a better reference [than the FCA's] in the market' (SB9). The sandbox 'stamp of approval' was a particularly powerful incentive for firms marketing products that do not require them to have an authorization (firms who are sell to corporate clients and not the general public, or whose products do not otherwise trigger regulatory requirements). Such firms wanted to prove the legality of their products but had no regulatory process to go through. As one respondent stated:

> "The goal was more reputational. Because when you are a small company, when you say something, it has a certain weight, which is very small. But if the same thing is said by somebody else it has a very different weight. It is a credibility issue. As a small and reasonably unproven start-up, you have a credibility issue in the regulated space [in regard to compliance]. In something that is as conservative and complex the world of banking and financial services" (SB11).

A couple of firms said business partners and potential investors pressured them to apply. Here, partners and investors appear motivated by the FCA's good procedural reputation. For some, the goal was for the firm to gain assumed credibility by association with a

respected regulator. Others wanted any regulatory kinks to be ironed out before they invest in the innovative product. The sandbox was a way to have the FCA — a regulator whose procedural excellence they trusted — do due diligence.

> "I think the challenge we had is that [business partners] tend to be quite risk averse. So actually, to getting a product live in the market, the fact that we were in the sandbox gave our very conservative [business partner] the comfort that they needed to ensure that everything from their side, they were also going to be protected" (SB10).

Respondents were quick to tell me everyone understands sandbox participation does not actually mean the FCA endorses them or the product. Yet, respondents imply participation operates as a *pseudo*-credentialization by a respected regulator, and this is an important motivation.

Some respondents, further, imply the FCA's procedural correctness made them more motivated to apply to ensure compliance with the law. Many firms remarked the point of the sandbox was to see if their products could function within existing regulatory frameworks. They wanted the FCA to be flexible only insofar as the agency would be open to considering whether innovative products might potentially comply.

One might expect that a reputation for procedural correctness would make firms less motivated to apply to the sandbox for reasons of expedience. Regulatory sandboxes are, after all, marketed as offering a flexible approach to facilitate experimentation. Interview analysis, however, showed no associations between a belief the regulator was procedurally flexible and a firm's motivation to apply. Explicitly, a few respondents (4/21) said they were dissuaded out of concerns about administrative costs. Respondents tend to imply, however, this was due to procedural strictures of sandboxes in general e.g., 'sandboxes always come with strings attached' (NSB6).

We see some different responses among firms who were going through, or had completed, the sandbox. These firms tend to report that, in the past, they saw the FCA as procedurally strict, but now perceive them as flexible. Yet, this change did not seem to be associated with a reduced motivation to apply for future cohorts. If anything, these firms tended to see more flexibility as positive. This implies motivations for applying to a sandbox, and their relationship to regulator reputation, may change once a firm has already graduated from its first cohort.

Technical reputation

Questionnaire results show most respondents believe the FCA has the technical expertise required to fulfil its role (*M* =3.84, *Median* = 4, *SD* =0.21). In interviews, it was somewhat difficult to separate technical reputation from performative and procedural. There is a degree of conceptual overlap between these reputations (Overman, Busuioc, and Wood 2020), particularly as they pertain to sandbox participation. The respondents who most explicitly discuss the FCA's technical reputation tend to discuss the ways the agency lacks expertise in regard to their technological sector (6/21).

There is some evidence a lacking technical reputation made some firms less motivated to apply because they thought either the sandbox would not be expedient and/or would not help them ensure their compliance. Several firms said they did not think the regulator could answer their questions, so the sandbox was not worth it. One respondent, for example, remarked his firm was so far ahead of the regulator in technical knowledge that there was no way the FCA could assist them.

> "To go into the sandbox seemed like a step backward … And what would we achieve except dialogue with the regulators?...We actually have a lot of people knocking on *our* door saying 'how did you do this, why did you do it, what's the process?" (NSB1)

Other firms, though, were willing to apply despite questioning the FCA's expertise. These latter respondents gave the impression either that they had faith they could teach the FCA what it needed to know in order to assist them, and/or they had other motivations, like boosting corporate reputation, unrelated to the regulator's technological expertise.

4.6. DISCUSSION

This article aimed to explore why stakeholders, specifically firms, are (un)motivated to participate in regulatory processes designed to identify and manage the risks of emerging technologies, and what role regulator reputation might play in motivating participation. A case study of the UK's regulatory sandbox for fintech finds firms have a range of practical, normative, and reputational motivations. The FCA's reputation for procedural correctness, moral commitment to innovation, and high performance made firms more motivated to apply. Distinct beliefs about the regulator had distinct relationships to different kinds of motivation. Centrally, the case study provides further empirical evidence supporting Carpenter's observation that, when regulators have a strong procedural reputation, firms become more motivated to engage constructively with them to enhance their own corporate reputation; to gain credibility by association (2010, 673–74; see also Gunningham, Thornton, and Kagan 2005; Flear 2019; van Erp 2011; Carter and Siddiki 2019).

This article, further, aimed to position sandboxes within existing bureaucratic reputation scholarship on participation in regulatory assessments, design, and implementation in a European context. Results further support that regulator reputation is an important factor explaining why some participation exercises succeed, and others fail (Busuioc and Rimkutė 2020b). Previous literature has focused on how regulator reputation influences agencies to invite certain kinds of participation (Rimkutė 2020; Fink and Ruffing 2020). With this study, I begin to expand the discussion to include a more nuanced account of why stakeholders might take up, or ignore, those invitations. Results imply that, when seeking to attract good quality, good faith participation from a stakeholder audience, a regulator's reputation will sometimes be an asset and, sometimes, a liability (Capelos et al. 2016).

Practically, case study results suggest simply transferring sandbox designs which were successful in certain national jurisdiction may not necessarily lead to similar success at the European level. EU regulators may not have the same reputation with their stakeholders that the FCA does, and they may need to consider how they might manage that image as part of sandbox implementation (Zetzsche et al. 2017). In regard to sandboxes targeting fintech specifically, regulator reputation may be particularly significant for attracting firms from outside the EU. Finance is a highly mobile global industry. Fintech firms can relatively easily choose where they will be based, and regulation is a key consideration (Ringe and Ruof 2020). Fintech firms find sandboxes appealing (Buckley et al. 2020). That said, today there are myriad international options from which to choose. The EU thus faces regulatory competition in attracting firms to their sandbox and, by extension, to Europe. Study findings imply that having a financial regulator (or regulators) with a good reputation with international fintech could be a competitive advantage. The UK experience, further, offers lessons about how to effectively market sandboxes to firms in high-technology sectors. Key is that respondents were very motivated to apply, even when they had no practical reasons to do so, because participation was seen as good for their corporate brand. The UK's sandbox is high-profile, selective, and repeats through regular cohort cycles. Firms see others make the cut and get valorised in the press, and this drives participation in ways a more low-profile, non-selective, or one-off process almost certainly would not.

Normatively, this study has implications for debates about the extent to which increased stakeholder regulatory participation, particularly by firms, facilitates capture (Busuioc and Jevnaker 2020). Where stakeholders participate in order to bias regulatory assessments or decision-making, this can undermine the quality and legitimacy of the process (Reichow 2016). Respondents in the case study, though, very rarely said they were motivated to participate for reasons associated with capture (influencing policy or improving their relationship with the regulator). This could be interpreted as a social desirability effect. Covert lobbying is stigmatized, and firms may not want to admit to it. From a reputational perspective, though, firms may be sincerely motivated to participate in regulatory assessment, design, and implementation to boost their corporate credibility rather than capture the process. This would help to explain why firms were more motivated to work with a regulator they saw as procedurally correct. From a reputational perspective, agencies and stakeholders are mutually dependent on one another for credibility and therefore have a vested interest in the other behaving in credible, legitimate, and un-biased ways.(Black 2001) This study thus reinforces stakeholders have complex, political as well as economic, motivations for regulatory participation.

4.6.1. Limitations and Future research

Moderate differences between interview and questionnaire implies results may be sensitive to method choice. Further, the sample size for this case study was small, likely explained by the population (disproportionately small, young, private companies) and research focus (on the sensitive topic of beliefs about the regulator). Some kinds of firms — notably big, well-established companies — are underrepresented. Others, notably ex-sandbox participants, are somewhat overrepresented. Further, regulated firms are a particular kind of stakeholder group. Reputational theory suggests different kinds of reputation will appeal to different kinds of stakeholder (e.g. researchers, civil society groups) (Rimkutė 2018). Finally, the UK's sandbox for fintech represents a specific context and one cannot necessarily generalize its results to represent all regulatory participation. To further build and validate theory, future research would be required to examine motivations of various kinds of stakeholder groups in a range of regulatory participation contexts. This study offers several findings which could be developed into hypotheses for, for instance, larger scale survey studies.

Chapter 5

Fostering regulator-innovator collaboration at the frontline: A case study of the UK's regulatory sandbox for fintech

This chapter is based on the following published article: Fahy, L. (2022). Fostering regulator-innovator collaboration at the frontline: A case study of the UK's regulatory sandbox for fintech. Law and Policy.

5.1. ABSTRACT

When supervising emerging technologies, regulators are more effective when they collaborate with business. Yet, innovative businesses are often small, inexperienced, and mistrustful. How can regulators motivate them to collaborate? This question is examined by applying responsive regulation theory to a case study of the UK's regulatory sandbox for financial technology. This study illustrates how frontline regulatory interactions foster regulator-innovator collaboration, but in somewhat different ways to the mature industries upon whose study responsive regulation is based. As one of the first academic studies to collect data from sandbox participants, this article offers unique insights about 'what works' about the UK's much-imitated model.

5.2. INTRODUCTION

When supervising emerging technologies, regulatory agencies are more likely to succeed if they collaborate with their stakeholders. This is the consensus emerging among innovation governance and law scholars (Mandel 2013; Malloy 2013; Kuzma 2013; Allen 2019; Marjosola 2019). Traditionally, stakeholder participation in the development and implementation of regulation has been relatively "passive" (Malloy 2013, 129). Opportunities for input are limited to review and comment procedures, legal challenges, and advisory panels (Kuzma 2013; Malloy 2013). Scholars increasingly argue such incidental, passive stakeholder participation is inadequate when developing regulatory responses to innovation (Mandel 2013). Effective innovation regulation requires continuous, active stakeholder collaboration for several reasons.

Innovation is hard to effectively regulate.[22] New products and services emerge and evolve rapidly. Innovations can be complex and highly uncertain (Mandel 2013, 254–55). An innovation's risks and benefits are rarely obvious and uncontroversial *ex ante* (Brownsword, Scotford, and Yeung 2017). To manage the risks innovations pose, regulatory agencies need to gather as much information as possible early in the innovation process. To mitigate uncertainty, they need to experiment with, and regularly adapt, their rules. To manage controversies, they need to gradually build consensus (Mandel 2013). Gathering information, experimenting, and building consensus necessitates active stakeholder collaboration beginning early and continuous throughout the innovation process; from research and development to commercialization and diffusion (Kuzma 2013, 195–96; Malloy 2013, 129).

Stakeholder collaboration is thus central, explicitly or implicitly, to many of the regulatory models innovation law and governance scholars advocate (Allen 2019; Zetzsche et al. 2017; Marjosola 2019; Huising and Silbey 2011). Yet, these scholars rarely address whether or under what conditions stakeholders will be *motivated* to collaborate (Abbott 2013, 11).

An exception is Mandel (2013). Regulators hoping to implement his 'new governance' model, he says, will need to proactively facilitate participation by new, start-up type firms, because they will otherwise lack the resources and knowledge to do so (2013, 60; see also Gray and Pelisse 2019, 7; Kuzma 2013, 196). In addition to lacking capac-

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[22] Innovation here refers to the process by which inventions are commercialized and diffused. Inventions are "the first occurrence(s) of an idea for a new product or practice" (Fagerberg 2009, 4). Regulation is "the intentional use of authority to affect behaviour of a different party according to set standards, involving instruments of information-gathering and behaviour modification" (Black 2001).

ity, anecdotal evidence suggests some firms may be unmotivated to collaborate for strategic or ideological reasons (e.g., Uber's aggressive, anti-regulation tactics). This argument is supported by regulatory scholarship, which has found small businesses are often underinformed of the regulatory regime in which they operate, lack capacity to engage with that regime, and are often unmotivated to do so (Gunningham and Sinclair 2002, 13–14). This article focuses on the young, innovative firms Mandel argues are least likely to participate in regulatory processes, and how regulators can motivate their collaboration.

This article draws on responsive regulation theory (Ayres and Braithwaite 1995; J. Braithwaite 2002; 2013). In this theory, collaboration between regulator and regulatee is often said to emerge from the frontline. Direct interactions between regulator and regulatee staff can motivate regulatees to collaborate with the agency in future (Braithwaite et al. 1994; van Erp, Wallenburg, and Bal 2020; Mascini and van Wijk 2009; Nielsen and Parker 2009; Loyens, Schott, and Steen 2019). Responsive regulation theory, however, was developed largely through studies of mature industries and has never before been applied to the context of innovation supervision. It has not been established that frontline interactions have the same effects on regulatee motivation, and in the same ways, when regulators are dealing with new, highly uncertain products whose legal status is unclear (Liu, Rooij, and Lo 2018). This study aims to begin to address this gap by asking: *How do frontline interactions build innovator firm motivation to collaborate with regulators*?

This study employs an explanatory, embedded, single case study (Yin 2014, 220–26) of the UK's Financial Conduct Authority's (FCA) regulatory sandbox for emerging financial technology. The sandbox represents a formal attempt by a regulatory agency to create a space for collaborative interactions between regulator staff and innovative firms. Data was collected through a document study, questionnaire, and qualitative interviews with 21 UK fintech firm senior managers. Analysis evaluates if interactions in the sandbox were indeed collaborative and whether they had the positive influence on firm motivation theory anticipates.

Study results build responsive regulation theory by demonstrating how frontline interactions may play a more foundational role in fostering future collaboration in an innovation context than they do for more mature industries. Innovative industries are characterized by new products, new firms, and new, inexperienced managers. In the case study, this newness meant regulatees were more dependent on regulator staff, but also more malleable to their influence. Frontline interactions could shape innovations and firm attitudes and behaviours — at a pre-commercial, pre-enforcement stage — in ways which might not be as feasible once products are mature and firms more established. These initial findings imply future theory-building research on interactions in innovation supervisory contexts is warranted.

The FCA's regulatory sandbox has now been imitated in nearly 50 jurisdictions. This is one of the first academic evaluation of a sandbox to collect data from participants, and the first to analyse the influence of sandbox participation on firm motivation to cooperate (Alaassar, Mention, and Aas 2021; 2020). Participants highlight certain features of the FCA's sandbox design — like having a dedicated case officer — as vital to motivating their future collaboration. Some of these features, however, appear absent from many imitator sandboxes.

5.3. THEORY

Responsive regulation theory argues that the way frontline regulatory staff treat regulatees affects regulatee compliance motivation. Regulator staff are ambassadors of their agency (J. Braithwaite and Hong 2015). How they treat regulatees in frontline interactions affects how regulatees think and feel about regulation and the regulator in general (Nielsen and Parker 2009, 380). In this way, the quality of frontline interactions affects how willing regulatees are to comply with regulation and cooperate with regulators in future (Ayres and Braithwaite 1995).

In presenting expectations as to how precisely how frontline interactions affect motivation, this study draws more specifically on the 'restorative justice' tradition of responsive regulation theory (Nielsen and Parker 2009, 381; J. Braithwaite 2002).[23] Further, this study is focused on initial frontline interactions between regulatory staff and innovative firms. I examine regulatory interactions in regard to the tasks of outreach, education, pre-licensing discussions, and the licensing process. In regard to enforcement, responsive regulation theory has additional prescriptions about when and how staff should apply sanctions given the characteristics and behaviour of the regulatee (Ayres and Braithwaite 1995). Given the focus of this study, I exclusively discuss the theory's prescriptions in regard to initial interactions and not interactions which may become necessary if regulatees later break the law.

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[23] There are prominent alterative perspectives on this question, notably the 'tit for tat' tradition. This study does not seek to compare the validity of restorative justice versus other perspectives. Rather, restorative justice is simply more suitable examining interactions in the case study.

According to responsive regulation theory, regulators should seek to ensure initial interactions with a regulatee are cooperative. Interactions should focus on education, persuasion, assistance, and problem solving over threats (J. Braithwaite 2002, 41). Staff should start from the assumption regulatees are willing to voluntarily act in ways compliant with regulation; meeting regulatees with trust and respect (J. Braithwaite 2002, 29). Regulatees treated in this manner, this theory anticipates, will more easily learn how to comply (J. Braithwaite 2002, 30) and feel more motivated to do so (Nielsen and Parker 2009, 382), compared to those regulatees treated with mistrust or threats.

In the following sections, I translate responsive regulation theory into an analytical framework for the case study. I lay out conceptual definitions, then theoretical expectations, and conclude by discussing how critiques of restorative justice responsive regulation are addressed in analysis.

5.3.1. Conceptualizing the nature of frontline regulatory interactions

Frontline regulatory interactions are instances of direct contact between regulator and regulatee staff members (e.g. meetings, calls, inspections) (Pautz and Wamsley 2012, 872). Cooperative interactions were traditionally defined by the behaviour of the regulatory staff member. Interactions were seen as cooperative when the staff member: proactively helps the regulatee come into compliance, forgives and de-escalates certain instances of non-compliance, listens and communicates positively, and is relatively informal, flexible, open-minded, fair, kind, and respectful (J. Braithwaite 2002, 41). Responsive regulation theory, though, has increasingly acknowledged ‘cooperation’ by regulator staff does not guarantee ‘collaboration’ by regulatees (Mascini and van Wijk 2009; see also: Gray and Pelisse 2019, 6).

Pautz and Wamsley (2012, 858) argue the quality of interactions should be defined based on how cooperatively the regulator *and* regulatee staff members behave. Cooperation, for Pautz and Wamsley, means sharing information, communicating extensively, demonstrating a high degree of respect, and proactively seeking assistance from the other (2012, 872). Their typology (see Table 5.1) uses the term ‘collaborative partnership’ to describe interactions in which both parties are “cooperating, sharing information, relying on each other’s expertise, displaying confidence in the other’s actions, expecting fair treatment, and being responsive to each other … [are] pleased with each other and see one another as partners, rather than adversaries, in achieving and sustaining […] compliance” (2012, 868). When regulatees do not reciprocate the regulatory staff member’s cooperative efforts, this is ‘cautious compliance’. ‘Cautious cooperation’ occurs when collaborative regulatees are confronted by uncooperative regulator staff. If neither cooperates the interaction is ‘adversarial’. Pautz and Wamsley’s typology, unlike some prominent alternatives (e.g. Gunningham, Thornton, and Kagan 2005), allows analysis of the quality of interactions independent of a firm’s substantive compliance with the law. The typology is thus useful for analysing interactions in regard to regulatory tasks surrounding innovation supervision — like education, outreach, and licensing — where no law has been violated and indeed often the purpose of the interaction is to establish what the law states and how compliance would be achieved.

Table 5.1 A typology of regulatory interactions

	Low regulator cooperation	High regulator cooperation
High firm cooperation	Cautious cooperation	Collaborative partnership
Low firm cooperation	Adversarial	Cautious compliance

Source: modified from Pautz & Wamsley (2012, 867)

Responsive regulation theory contends that when regulatory interactions involve high regulator cooperation (collaborative partnership or cautious compliance), the regulatee involved will become more motivated to comply than in interactions with lower cooperation.

This theory offers several expectations as to exactly how interactions are said to influence motivation to comply and cooperate.

5.3.2. How do frontline interactions affect regulatee compliance motivation?

Compliance motivation is the extent to which one feels driven to fulfil the letter or spirit of the law (Nielsen and Parker 2012). Responsive regulation theory distinguishes between a regulatee’s motivation to comply with regulation and their motivation to cooperate with regulators. Compliance with regulations refers to willingness to comply with, or go beyond, legal rules. Cooperation with regulators concerns how closely and constructively regulatees are willing to work with regulatory authorities (V. Braithwaite, Murphy, and Reinhart 2007, 138). Regulatees can be motivated to follow regulation while unmotivated to cooperate with the regulator i.e., preferring a distant, minimal relationship.

The extent to which regulatees are motivated to comply and cooperate, and why, is complex, idiosyncratic, and changeable (Nielsen and Parker 2012, 378). Different regulatees can be motivated for different kinds of reasons: economic (to avoid sanctions); social (to build and maintain respect and approval from others); and normative (to fulfil moral duty) (Nielsen and Parker 2012, 431). The same person will probably be motivated for a mixture of reasons (J. Braithwaite 2002, 41). As regulatees are motivated for a number of different reasons, cooperative and/or collaborative regulatory interactions affect motivation in a number of different ways (for a summary, see Table 2).

Cooperative interactions build firm capacity to comply and cooperate

In more cooperative interactions, staff build regulatee capacity by, first, helping them to *reduce barriers to compliance* and cooperation e.g. helping regulatees to solve the practical problems preventing them from following the law (J. Braithwaite 2002, 24). Second, cooperative staff *facilitate formal and informal learning* by firms. Formally, staff educate regulatees on what regulation is and how to comply (Liu, Rooij, and Lo 2018). Informally, cooperative regulatory staff explain the 'unwritten rules' of a regime. Regulatees gradually learn what is socially desirable in their regulatory context (Huising and Silbey 2011; Black 2002b, 20). Third, and relatedly, cooperative interactions build capacity by *normalizing compliance and cooperation* (Ayres and Braithwaite 1995, 93).

Firms have their own norms of regulatory conduct, which individual employees carry into day-to-day behaviour (Huising and Silbey 2011). In frontline interactions, cooperative regulatory staff can shift these norms. In constructive, one-on-one conversations regulatory staff explicitly teach firms about how regulatees are expected to behave (Black 2002b; Ayres and Braithwaite 1995, 27; Gray and Silbey 2014). Further, the regulatory staff member's behaviour in the interaction implicitly signals how regulatees are to behave (and what behaviour they can expect from the regulator). Cooperative interactions signal future interactions will probably be cooperative, coercive interactions signal they will be adversarial (Ayres and Braithwaite 1995, 20; Etienne 2013). Once firm staff understand what is expected, they can intentionally internalize these norms e.g., rewriting standard operating procedures (Huising and Silbey 2011). Firm staff may also unintentionally internalize the regulator's norms of conduct and spread these norms to others in their firm (Ayres and Braithwaite 1995, 27; Heimer and Gazley 2012; Carpenter 2010).

Cooperative interactions improve firm attitudes to regulators and regulation, increasing motivation

Cooperative interactions can improve firm attitudes, first, by helping to *legitimize regulation* with firms. Cooperative staff take more time to explain regulation, assisting firms to understand how and why it applies to them (J. Braithwaite 2002, 33–35). As a result, firms are more likely to come to accept regulation on the basis that it is "desirable, proper, or appropriate" (Suchman 1995, 574). Where regulation and its enforcement is legitimate, regulatees are generally more motivated to comply (Braun and Busuioc 2020).

Second, cooperative interactions improve *the regulatory agency's reputation*[24] with firms (Huising and Silbey 2011; Heimer and Gazley 2012; May and Wood 2003; May and Winter 1999). When interactions with regulatory staff are cooperative, firms form more positive perceptions of the agency (Nielsen and Parker 2009, 383). Where regulatees view the agency positively, this typically increases their willingness to collaborate (Capelos et al. 2016; Carpenter 2010; V. Braithwaite et al. 1994; J. Braithwaite 2002, 41).

Third, and relatedly, cooperative frontline interactions *build trust* (Six and Verhoest 2017). Regulatees, particularly when inexperienced, often initially mistrust regulators. A lack of trust undermines motivation to comply and cooperate. For example: mistrustful regulatees may be less willing to share information out of fear the regulator will use it to punish them (Pautz and Rinfret 2013; Huising and Silbey 2011; J. Braithwaite 2002, 18). When frontline staff behave in trusting and trustworthy ways i.e. more cooperatively, regulatees are more likely to trust them, increasing motivation (J. Braithwaite 2002, 34).

Collaborative interactions, to a greater extent than cooperative ones, build firm capacity and improve firm attitudes toward regulators and regulation

Logic dictates collaborative interactions, where regulatees reciprocate the cooperation they receive from regulator staff, may *deepen capacity-building and drive motivation further* via aforementioned mechanisms (Nielsen and Parker 2009, 379; Ford 2008). Collaborative interactions, further, may drive compliance because *regulation improves*. When regulatees collaborate with regulators at the frontline, this can act as a valuable channel of information (Allen 2019; Huising and Silbey 2011). This feedback can be used to refine enforcement strategies. Frontline collaboration can also facilitate regulators and regulatees co-constructing what rules will be or how they will be interpreted (Gray and Pelisse 2019). Better informed, or co-constructed, regulation should increase motivation by being more feasible for regulatees to comply with, as well as being more legitimate with regulatees (Pautz and Wamsley 2012, 686; Black 2002b).

5.3.3. Conceptualizing changes in regulatee compliance motivation

The case study captures changes to regulatee motivation to comply with regulation and to cooperate with regulators. I conceptualize a regulatee's motivation to comply with regulation as a spectrum. Regulatees can be unmotivated to comply, motivated to comply, or motivated to 'beyond' comply (Nielsen and Parker 2012, 444; Gunningham, Thornton, and Kagan 2005; V. Braithwaite 2003). I conceptualize motivation to cooperate as the regulatees' willingness to interact with the regulator in cooperative ways in future. That is, the extent to which the regulatee says they want to share information with, communicate with, demonstrate respect toward, and seek and offer assistance to the regulatory agency (Pautz and Wamsley 2012, 872). Again, this is treated as a spectrum from not at all willing to very willing to cooperate.

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[24] Reputation here refers to "a set of symbolic beliefs about the unique or separable capacities, roles, and obligations of an organization where those beliefs are embedded in audience networks..." (Carpenter 2010, 45).

In analysing interview transcripts, I examine whether the regulatee's motivation to comply and cooperate change before and after their licensing process (sandbox or non-sandbox), and whether changes in motivation arose specifically from regulatory interactions during licensing. I examine this through analysing reported behaviour and attitudes toward compliance and cooperation. I also consider explicit statements by regulatees as to whether their motivation has changed, and why. These conceptualizations are further detailed in Methodology and Findings.

Risks and trade-offs of cooperative interactions

Regulatory 'techniques' which encourage cooperative and collaborative interactions have been argued to present risks or trade-offs for effective supervision (Black 2012).

First, it has been argued that firms are less motivated to comply with regulation than theories like responsive regulation purport. The Global Financial Crisis challenged the idea, for example, that financial institutions are necessarily incentivized to manage risks to protect their long-term survival (Black 2012). This raises questions about whether it is rational for regulatory staff to approach regulatees cooperatively; on the basis that voluntary compliance is possible or common. Such a stance might be naïve, and fail to adequately intimidate those who would circumvent the law (Ford 2017, 43–44).

Second, cooperative interactions create conditions for regulatory capture. Repeated, trusting, and even friendly interactions make regulatory staff identify with regulatees and their perspectives. In an innovation governance context, Martin & Balestra (2019, 82) and Allen (2019, 632) agree intensive innovator-regulator cooperation can lead to inappropriate social bonds with, and biases toward, regulatees. Regulatory capture in this sense is not a binary state. Regulatees and regulators are interdependent, and some degree of influence is inevitable. Influence becomes harmful capture where it makes regulators – consciously or not - prioritize the views and interests of regulatees over the public interest (Kwak 2013). Ford (2017) argues this kind of unchecked firm influence allowed the previous era of financial innovations of the 1980 and 90s to go under-supervised. Firms used their access to regulators to influence the policy agenda and framing of regulatory risks and compliance standards. This contributed to a financial regulatory regime (in the US and Canada at least) "insulated from interrogation...contestation and inquiry" by other stakeholders (45).

Finally, and further to these critiques, responsive regulatory techniques can only be effective when enacted by highly trained and experienced staff members who can make nuanced judgements about a regulatee's motivations. Thus, these techniques are risky for staff or agencies with limited capacity (Black 2012, 1048).

In analysis, I was sensitive to these critiques. I remained open to the possibility that cooperative interactions may undermine motivation. I analysed the possibility cooperative interactions might lead to trade-offs, for example motivating collaboration but undermining compliance of facilitating harmful capture. Thus, I considered whether cooperative interactions might support certain innovation supervision tasks (education, outreach, consultation, and licensing) but undermine others (enforcement).

5.3.4. Theoretical contribution: Frontline interactions with private, innovative firms

Responsive regulation theory was mostly developed through studies of interactions involved in inspections or sanctions of mature products and services. The validity of this theory in the context of innovative products and services has not been empirically established. Regulatory interactions may have different kinds of effects when regulators are dealing with regulatees dealing in new, highly uncertain products often whose legal status is not yet clear. Interactions here may function very differently and, if so, theory should account for these differences (Liu, Rooij, and Lo 2018). This study aims to begin to address this gap through applying responsive regulation theory to a case study of collaborative regulatory interactions between a regulator and innovative firms.

Table 5.2. Summary of theoretical expectations

I. Cooperative interactions build firm capacity to comply and cooperate	Through cooperative interactions: i. Barriers to compliance are reduced. Regulatees receive assistance with addressing barriers to compliance ii. Formal and informal learning is facilitated. Regulatees come to better understand the formal and informal requirements of regulatory compliance. iii.a Compliance and cooperation become the norm. Regulatees intentionally internalize regulator expectations of their conduct through capacity-building efforts in the firm designed to increase compliance and cooperation
II. Cooperative interactions improve firm attitudes to regulators and regulation, increasing motivation	Through cooperative interactions: iii.b Compliance and cooperation become the norm. Regulatees unconsciously internalize regulator expectations of their conduct through unintentional changes in attitude and behaviour. iv. Regulation is legitimized. Regulatees come to see regulation as more legitimate. v. Regulator reputation improves. Regulatees develop more positive perceptions of the regulatory agency. vi. Trust is built. Regulatees becomes more trusting of either regulatory staff members or the agency as a whole.
III. *Collaborative* interactions, to a greater extent than cooperative ones, build firm capacity and improve firm attitudes toward regulators and regulation	vii. Collaboration deepens capacity-building and drives motivation further. Where regulatees proactively collaborate in regulatory interactions, effects on learning, reputation, legitimacy, trust, and norms may be more profound than simply passively receiving help from a cooperative regulatory staff member. viii. Regulation improves. Where regulatees collaborate, there is greater potential for quality of regulation to improve.

5.4. EMPIRICAL SETTING: THE FCA'S FINTECH SANDBOX

The post-Global Financial Crisis period was one of notable innovation in global finance, and especially so for the UK. 'Fintech' became increasingly prominent. Fintech refers to financial products and services utilizing 21st century information technology, such as digital currencies and crowdfunding (Arner, Barberis, and Buckley 2015). While finance has long been intertwined with information technology, fintech specifically refers to technologies which first emerged in the 21st century like smart phones, high-speed internet, Wi-Fi, platforms, artificial intelligence, algorithms, blockchain, and biometrics. Fintech is distinguished not only by prominent technologies associated with this latest wave of but also by who is at the forefront of delivering these products. In this wave, technology companies have increasingly moved into the financial sector. More acutely than in previous eras, fintech products and services are delivered not by established players but new entrants and start-ups (Arner, Barberis, and Buckley 2015, 44).

The FCA — the UK's financial conduct regulator — wanted to promote the safe and legal commercialization of fintech. Yet, the agency observed firms often struggled at the licensing stage. Firms could be mistrustful of regulators and reluctant to contact them for assistance. Firms feared being told their ideas were illegal or so heavily regulated as to be impossible for a new company to manage (Barefoot 2016).

To address these issues, in 2014 the FCA launched 'Project Innovative'. Project Innovate would "engage with the ecosystem and encourage firms to embrace new ways of doing things in the interests of consumers"(UK FCA 2015a, 3). The sandbox would be part of this initiative, running out of 'FCA Innovate': a separate, dedicated unit. In the sandbox, firms could test the performance of innovative product, services, or models in live markets without automatically incurring the full gamut of regulation (UK FCA 2015a). The instrument was designed to promote innovation and competition by making the licensing process easier for new, innovative firms through providing direct support from regulator staff and reducing unnecessary regulatory barriers (UK FCA 2015b).

The FCA has described the sandbox as regulators and regulatees "engaging constructively" (UK FCA 2015a, 2), working closely/being in close contact (UK FCA 2017f, 4), in "dialogue", through an "open channel of communication" (Woolard 2016c). Anecdotally, ex-participants have suggested it is a "collaborative endeavour" (EY 2019, 2) and a "mutual learning experience" (BBVA 2017). This does not imply that collaboration was the only goal of the sandbox. Rather, these statements imply that regardless of the goals of the instrument, the FCA saw interactions within it as collaborative rather than merely cooperative or adversarial.

Innovation law and governance scholars concur that the sandbox is an example of a space for innovator-regulator collaboration. Allen (2019) argues the FCA's sandbox is "participatory" and "cooperative"; involving "ongoing deliberation" and "structured dialogue" between regulators and regulatees (Allen 2019, 28). Other authors have described the sandbox as: "inclusive" (Fenwick, McCahery, and Vermeulen 2018, 172); built on mutual trust and respect (Marjosola 2019, 12; Tsai and Peng 2017, 126); and involving cooperative conversations about the meaning and application of rules, to develop a shared understanding of what regulation will involve (Mangano 2018, 730; Fenwick, Vermeulen, and Corrales 2018, 92; Tsai 2018, 1114)

The FCA's sandbox then, appears to be designed to encourage the kind of collaborative frontline regulatory interactions described by responsive regulation theory. Thus, it is a useful case study to seek to confirm and build upon theory as to the influence of such collaborative regulatory interactions on regulatee compliance motivation in an innovation context.

To assist in understanding the analysis, a few practical points about frontline interactions in FCA's sandbox must be outlined. The sandbox caters to the early stages of product commercialization and firms who need support (i.e., young and/or small firms).[25] For most respondents their interactions in the sandbox were some of the first they had with the regulator as senior managers of a fintech firm. Most respondents had, however, interacted with the regulator somewhat before, either by calling an advisory unit or previously seeking a license for a different product or as an employee of another firm.

Respondents said interactions in the sandbox were different, on a purely practical level, to both those with advisory units and in traditional licensing. In contrast to advisory units, the sandbox provided firms with a dedicated case officer. The sandbox differs from traditional licensing in that it is voluntary and selective. Firms must apply and will not necessarily be accepted. If successful, they join a cohort of firms going through the sandbox at the same time. Further, the sandbox adds a 'testing' phase'. Similar to a clinical drug trial, firms in the sandbox test their products in a controlled environment before being licensed to sell them commercially. Firm and regulator agree upon a testing plan, which includes test limits, goals, and metrics. Firms earn any necessary temporary licenses, with lower regulatory requirements, to use during the test. In testing, firms sell or otherwise apply products on the real market (EY 2019, 11) and provide regular reports to the regulator. Testing helps establish whether products can be viably and legally commercialized. Afterward, firm and regulator define precise regulatory conditions which would apply were the firm to sell the product on a commercial scale (Barefoot 2017).

5.5. METHODOLOGY AND DATA COLLECTION

This study uses an explanatory, embedded, single case study design (Yin 2014, 220–26) to examine how frontline interactions with regulator staff effect innovator firms motivation to collaborate with the regulator in future. I selected the FCA's sandbox because it is a critical case (Yin 2014, 229). A critical case study does not aim to definitively prove a theory valid. Rather, to select a case where theoretical expectations – if they are valid for a given context – are very likely to be fulfilled. The sandbox appears to provide a textbook example of collaborative frontline regulatory interactions as described by theory. As evidenced in the preceding discussion, the FCA intended the sandbox to be collaborative and believes that it has succeed in that goal, firms and industry groups describe the sandbox as involving collaborative interactions, and scholars writing on sandboxes cite the FCA's as being collaborative. Interactions in the sandbox should, thus, drive compliance motivation via the explanations theory expects. If theoretical expectations are not confirmed, this would raise questions about whether there is something about innovation supervision which operates differently in ways for which responsive regulation theory should account.

This case study draws on: exploratory interviews with FCA staff and industry stakeholders; a document study; a small-scale questionnaire; and – primarily – qualitative interviews with fintech firms (see detailed methodology in Appendix 1: Chapter 5). I developed a population frame of 520 fintech firms in the UK.[26] All were invited to interview. I also engaged in snowball sampling. Thirty-six respondents answered the questionnaire and 21 were interviewed.[27]

Fifteen of the interview respondents were current or ex-sandbox, and six were seeking or had sought licensing through traditional channels. The non-sandbox firms were included to provide some indication of whether sandbox interactions were substantially different to other kinds of interactions with the FCA a fintech might experience.

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[25] There are exceptions. A few well-established companies have taken part (e.g., Barclays). A few firms have gone through multiple 'cohorts'.

[26] The frame was developed through a systematic search of LinkedIn, cross-referenced with Companies House data. A detailed explanation is provided in Author forthcoming.

[27] As some respondents both answered the questionnaire and were interviewed, I gathered data from a total of 52 unique firms.

Fifteen respondents from the sandbox represents approximately 10% of all current and former participants at the time of data collection. This sample size is small, likely explained by the nature of the population. These are private companies, the majority of whom are young (*Mean* = 7.4 years) and small (71% have fewer than 50 staff, and one-third have fewer than 11). Fintech firms have very rarely been approached as respondents for research. As this study confirms, they are a hard-to-reach population. The study also concerns the sensitive topic of regulatory compliance, likely further deterring responses. Thus, while the sample size is small, it offers a rare empirical insight into the sandbox from a fintech firm perspective. The sample is somewhat diverse in that respondents come from different sandbox cohorts, technology and financial sectors, and countries in the UK.

Interviews were semi-structured, conducted in person or online. Recordings were transcribed, then analysed in NVIVO, using qualitative, directed content analysis (Hsieh and Shannon 2005). Each respondent was categorized as experiencing one of the four types of interactions: adversarial, cautious cooperation, cautious compliance, or collaborative partnership. Each respondent's transcript was also analysed to establish how motivated they were to comply with regulation and cooperate with the regulator before and after their licensing process. Analysis drew out both explicit statements about how motivated they felt and more implicit statements to do with their willingness to do certain activities (e.g., share information with the regulator).

The goals of analysis were to determine if: 1) there were patterned links between the kinds of interactions firms experienced and changes in motivation and 2) these changes were brought about in the ways theory predicts (e.g., learning, trust), or for other reasons. To analyse interactions in the sandbox and whether the sandbox influenced motivation, I drew exclusively on interview data. To interpret the possible reasons why sandbox interactions may have influenced motivation, I additionally drew on questionnaire data.

5.6. FINDINGS

This section, first, describes the nature of frontline regulatory interactions experienced by fintech firms in the FCA's sandbox for fintech. Second, I analyse how interactions in the sandbox impact fintech firms. Here, I evaluate the extent to which interactions in the sandbox impacted firms in the ways theory anticipates (Table 5.2, above): learning, norms of regulatory behaviour, perceptions of regulation and regulators, trust-building, and improved regulation. Finally, I address the extent to which sandbox interactions left participants motivated to collaborate with the regulatory agency in future.

5.6.1. The nature of frontline regulatory interactions in the sandbox

The most common type of interactions experienced by respondents who went through the sandbox (11/15) was 'collaborative partnership'. Respondents say their case officers "helped" them (SB6, SB7, SB15) and were "friendly" (SB10), "nice…open" (SB4), creating a "relaxing atmosphere" (SB9). Many describe regulator staff as going above and beyond to help them. Interactions were not just "needs-based conversation[s] (SB10) but represented an "added-on service" (SB6). Conversely, firms were given a proactive role in interactions. Respondents describe interactions as "collaborative"; "genuinely a regulatory exploration" (SB11), putting firms in a "position of dialogue" (SB15) where they are "involved in the decisions" (SB1). Four sandbox respondents, however, report different kinds of interactions. Two sandbox respondents describe 'cautious cooperation' type interactions. Regulator staff were not adversarial but also not particularly helpful nor open to discussing regulation (SB2, SB3). The other two sandbox respondents describe 'cautious compliance' type interactions. Respondents characterize interactions as respectful and professional, but also that their firm preferred to keep interactions relatively formal, distant, and transactional (SB12, SB14). In sum: sandbox interactions were typically collaborative, and only very rarely (two respondents) did interactions involve low cooperation by the regulatory staff member.

5.6.2. How did frontline interactions in the sandbox affect regulatee compliance motivation?

The case study shows experiencing cooperative regulatory interactions in the sandbox impacted innovative firms in ways theory argues will drive motivation. When regulator staff were cooperative, this built: 1) firm capacity through facilitating learning and reducing barriers to compliance, 2) trust, 3) the regulator's reputation, and 4) positive regulatee norms of regulatory behaviour. Analysis further shows some differences between the impact of interactions which are merely cooperative versus collaborative.

Facilitating formal and informal learning

Innovations in the sandbox are typically not yet well-defined by regulation. Time, effort, and expertise are required to establish what kinds of licenses and conditions may be required to commercialize the innovation. For most sandbox firms, a cooperative case officer was critical in learning what formal regulatory rules existed and how they might apply. Officers acted as a "shepherd" (SB7), "navigat[or]" (SB13), and "translator" (SB7). They took the time to understand the nuances of innovative products and explain how it interacted with the law. Respondents often highlighted officers would discuss the licensing of products through conversations (SB10) rather than formal email exchange. Some officers met with firm staff so firms could demonstrate a product prototype (SB15) or "walkthrough" (SB10). Such longer, personalized conversations were very useful (SB3) and a "great learning experience for us and for the FCA" (SB13).

Respondents also describe how a cooperative case officer helped them learn unofficial aspects of regulatory rules. They learnt how, in practice, the FCA interprets rules as written and which rules are malleable. Through conversations (SB13, SB14) with regulator staff, firms came to "understand the [regulatory] framework" and "how it is supervised" (SB9) in "reality" (SB15). Only through these conversations could firms understand regulation in meaningful detail (SB14), to truly appreciate what the FCA wants and "wouldn't want" (SB6), what they "were looking for", "what their requirements are" (SB13). In particular, several firms said they now better understand the FCA's 'principles-based' approach (SB1, SB4, SB8, SB10). They learnt, they said, that the FCA is focused on how well firms fulfil the spirit of regulation and there is leeway about how that can be achieved. By the same token, firms come to understand leeway was limited. While one can sometimes "push back at certain areas" (SB10) some issues or proposed solutions will "scare" (SB14) the FCA. Further, that the FCA does not, formally, give advice nor endorse firm activities (SB1, SB3, SB 4, SB6). They learnt, rather, to interpret what they saw as the FCA's use of "code" (SB4) to unofficially signal their level of agreement with a firm's activities (for example, that the questions FCA asked them about their compliance processes were carefully chosen to give implicit advice).

While most respondents discuss formal and informal learning, these effects were particularly pronounced among those whose interactions were collaborative and not just cooperative. Firms more engaged in dialogue and negotiation had more opportunity to demonstrate how they fit into the FCA's approach for a given product or service. Discussions gave some respondents a legal "framework to translate my thoughts through" (SB15) where they can "bat things off them" as a "sounding board" (SB6). In these respondents' opinions, greater communication and information sharing on their part helped the FCA to "really understand what they were taking on" (SB7). Thus, cooperative and collaborative sandbox interactions facilitated informal and formal learning for firms, and in some cases, the FCA.

Reducing barriers to compliance

Most respondents said having a cooperative case officer helped them to address the barriers which could have prevented them from earning a license to operate legally. In discussions about such barriers, the case officer is often characterized as "pragmatic" (SB4), "open minded" (SB11), and "flexible" (SB7, SB10, SB11). Three respondents describe, for instance, officers giving them extra time or choosing to interpret rules in ways which facilitated their test. Had their officer more strictly applied the rules, these firms would have failed out of the sandbox (SB10, SB4, SB8). Case officers also offered bespoke support and resources to overcome regulatory barriers. Critically, case officers connected firm staff to FCA experts in legal and policy areas. Indeed, the large majority of sandbox respondents said that case officers acted as a "liaison" (SB11), "go-between" (SB1), and an "access point" (SB8) for the rest of the organization. This direct contact helped regulatees clarify their legal position, and sometimes challenge that position through "access to decision makers" (SB10). This benefit extended even post- sandbox because participating firms now had a network of professional contacts within the regulator they could contact relatively informally.

Cooperative case officers also helped many sandbox participants to address the barriers to legal market entry typically faced by small, innovative firms. For example, several respondents describe a "chicken and egg" (SB11, SB8, SB4) dilemma whereby they could not be licensed until they had an institutional partner (e.g., banks, insurers) and partners were reluctant to work with an unlicensed firm selling an untested innovation. Respondents gave examples where their case officer reassured potential partner organizations the FCA considered their innovation acceptable, and therefore this should be no barrier to the partnership (SB4, SB5, SB9, SB10, SB13). In short, collaborative and cooperative frontline interactions removed barriers to operating in a manner compliant with regulation.

Normalizing compliance and cooperation

Through cooperative and collaborative interactions, some respondents report their time in the sandbox impacted day-to-day norms of regulatory behaviour within their firm. For some respondents, working with their case officer helped them to "translate" (SB15) and "formalize…on paper" (SB2) how their products would operate in compliant ways. For others, frontline interactions helped them "take a more proportionate" (SB10) and "feasible" (SB15) approach to compliance and prove to their partners and compliance staff this was legal and appropriate. Several firms said these interactions affected their norms of behaviour not just on a technical but also on a moral level, with one respondent saying the sandbox helped firm staff to internalize regulatory principles "in our bone marrow" (SB9).

More striking, though, is that cooperative or collaborative interactions affected norms of regulatory behaviour in terms of how staff interact with the FCA. Regulatee staff, a number of respondents stated, became "a lot more confident in dealing with the regulator [now that they have] dealt with the regulator" (SB12). Most sandbox respondents said that, far more than in their previous regulatory encounters, sandbox staff were "open-minded" and "flexible" (SB11), "willing to listen and try…foster[ing] an environment of experimentation critical to unleashing innovative businesses" (SB7). Staff were helpful and kind, showing "empathy" (SB1) and applying more "handholding" (SB2). These interactions changed firm expectations about what regulatory interactions could and should be like. Some respondents said they had come from different regulatory cultures (e.g., North America), and this experience showed them regulation could be more cooperative than adversarial. Others, from the UK, said the sandbox offered a more constructive model than previous interactions with the FCA (e.g., enforcement actions). For many respondents, then, collaborative or cooperative interactions positively shifted what was considered normal and desirable behaviour when interacting with regulation and regulators.

Building trust

Respondents who experienced cooperative or collaborative interactions commonly report the experience built trust between their firm and the regulator. Several respondents explicitly state they felt trusted by their case officer in ways they had not previously experienced. Firms tended to favourably compare their sandbox case officer's trust to the scepticism of people they had cold called in the advice or enforcement unit whose "default stance is defensive and that really influences the relationship" (SB1); "cops" who take a "stance" that all financial services firms are untrustworthy (SB9). Firms typically reciprocated the trust they received from their case officer. For example, one respondent remarked their officer's flexibility and kindness "gave that confidence you could be open with them and not feel that they were going to mark you down for saying the wrong thing" (SB7). Another said, without his consistent and trustworthy case officer "I wouldn't have spoken to the FCA half as many times as I have done over the last six months" (SB6).

In some cases, building interpersonal trust with the case officer translated to greater trust in the agency as a whole (for example, one respondent said these interactions restored his "faith" in the FCA (SB7). Several respondents say that, due to the sandbox, they built a relationship with the FCA (SB4, SB7, SB10) with one even saying they became "almost old friends with the FCA" (SB11). For others, the sandbox only emphasized other areas of the agency could not be trusted, an attitude summarized in one respondent's remark that: "there's the innovation team and everyone else, as far as I'm concerned" (SB1).

I interpret these remarks, and those earlier about receiving practical help from their case officer, as reflecting that trust is deepened when interactions are collaborative rather than merely cooperative. The sandbox puts innovative firms in a vulnerable position. The regulator scrutinizes the fine details of products whose legality is questionable. Where regulatees collaborated, they *chose* to put themselves in a vulnerable position. Reading how pleased they were with how well their case officer treated them in response, my interpretation is that collaboration – in which vulnerability is rewarded - may have been essential to building trust.

Improving regulator reputation

Pre-sandbox, many respondents held perceptions of the FCA gleaned not from their own contact with the agency but from "stereotypical" views expressed by peers (SB6) or the media (SB3, SB13, SB14). Most respondents saw the FCA as a basically good financial regulator. Yet, the FCA was still a regulator and regulators – among fintech firms - have a somewhat negative reputation. Any financial regulator is, and thus the FCA was seen as: a "faceless organization[n]" (SB6), "people in a castle…intimidating" (SB8), "bureaucratic and cold" (SB15), "rigid" (SB11), and "difficult to deal with, difficult to please" (SB13).

Cooperative and collaborative frontline interactions seem to have dispelled some of these stereotypes. Firms were generally surprised by how helpful, open, and flexible the FCA proved to be. Many firms unexpectedly found the FCA to be an advocate. One respondent said that, when he and his partner had been fund managers in the past, "it didn't really occur to us that the FCA could be a driver for innovation. We never really thought that we should be talking to them. In our old business you talk to the FCA when you have a problem so you want to avoid it as much as you can" (SB11). Another said his impressions of the FCA changed "100 percent [in part due to] the fact that they have got smart people, some newer blood, there were a lot of young kids [who] knew exactly what was going on, they were very switched on" (SB7). Several respondents explicitly attributed this change to interactions with a cooperative case officer. One respondent said "the sandbox put a face to [the FCA] which is my [case officer]. That point of contact [has disrupted] the stereotypical view of any regulator, which is: 'oh you know, regulators, who wants to deal with them…" (SB6).

To further examine the impact of interactions on regulator reputation, I drew on the questionnaire data. I systematically examined differences between perceptions of the FCA held by sandbox and non-sandbox respondents. I looked, first, to results of a questionnaire from 36 fintech firms, of whom 33 were non-sandbox firms (for methodological details, see Appendix 1: Chapter Five). The most striking difference is that, on average, questionnaire respondents are more likely to perceive the regulator as formal; rules-oriented, inflexible, and bureaucratic.[28] These differences are reflected in the interview study. The six non-sandbox interview respondents. were more likely to continue to see the FCA as "another thing that hinders [start-ups] ... [and] could kill them" (NSB4); "bureaucratic" (NSB3; 6), "difficult to make an appointment" (NSB5) and interacting with them as "hanging by paper weight [i.e., being buried in red tape]" (NSB1). As reflected in the comments above, it was these kinds of perceptions which tended to change during licensing for the sandbox participants. This comparison is obviously too small-scale to be definitive. Yet, differences support that experiencing collaborative or cooperative interactions in the sandbox improves the FCA's reputation with firms.

Legitimizing regulation

When asked directly whether their attitudes toward regulation have changed, the majority of respondents said no. Some did say closer involvement in the regulatory process had shown them 'how the sausage is made', in ways which made them "more cynical" (SB3) about regulation (SB2, SB10). Others say they previously thought regulation was needlessly burdensome and prescriptive (SB12, SB15), but the sandbox showed them this is not the case. A few firms imply they came to see regulation, and the regulatory process, as more legitimate because they now understand why the FCA is sometimes slow and bureaucratic; with one respondent saying he now recognizes the FCA "cannot act overnight or in a heartbeat because [regulation] has wide-reaching implications" (SB8). It is, thus, possible but not clear that frontline interactions affected firm perceptions of regulation.

Improving regulation

Finally, we can address the question of whether regulation improved through collaborative frontline interaction. In regard to whether regulation changed at all, only a minority of sandbox firms say they engaged in meaningful negotiation on regulatory rules. The FCA "don't tend to accept compromises" on actual rules (SB10), a fintech firm's "arguments don't matter" (SB2), and it is futile for firms to "try to change the regulation" (SB9). Yet, there was some benefit to collaborative dialogue when it came refining how, precisely rules would be applied to innovative technologies. One firm, for instance, said they "proved to [the FCA] that the legal framework, regulatory framework, does not need to change but best practices can change and is safe to change them and they accepted that argument" and "you can now do [that practice] with any major UK institution" (SB9). Interviews showed many similar examples where collaboration at the frontline led to a positive "shared understanding" (SB13) and "compromise" (SB10) on specific license conditions.

An unexpected finding was that collaborative interactions facilitated negotiations over the nature of the innovative product being licensed. During testing, the majority of firms took insights from their case officer to adjust the product they were offering e.g., "we convinced the insurer [business partner] to change [the product] to fit what the regs looked like [to reduce the risk of] gaming the product" (SB4). Upon learning how strict some regulatory requirements were, some firms simplified products so that they did not trigger regulation, avoiding burdensome requirements the firm could not yet handle. One respondent recalled realizing "if we tweak our business model slightly then we're not going to fall under that [and therefore] avoid being hit with a capital adequacy of x" (SB3).

Most respondents, then, said the sandbox led to a better set of regulatory requirements from the firm's perspective. Either regulations came to be interpreted and applied in ways which were more appropriate to the product, or the firm changed the product after they learnt from the regulator what rules would otherwise apply. This, of course, does not necessarily mean regulation 'improved' in an objective, public interest sense. What this finding does imply is that interacting with the regulator in the sandbox contributed to firms facing regulatory requirements with which they felt they could realistically comply.

Thus, analysis of the case study finds cooperative and collaborative frontline interactions in the FCA's sandbox had many of the impacts anticipated by theory: learning, reducing barriers to compliance, shifting firm norms of behaviour around compliance, building trust, and improving perceptions of regulators and regulation. The next section will discuss whether these impacts affected firm motivation to collaborate with the FCA post-sandbox. I will also discuss the minority of sandbox participants who did not experience cooperative and collaborative interactions, and how their interactions affected their motivation.

5.6.3. Changes in regulatee compliance motivation post-sandbox

Motivation to cooperate with regulators

Consistent with expectations, collaborative and cooperative regulatory interactions drove firm motivation to cooperate with the regulator in future. The two respondents who experienced cautious compliance-type interactions – where their case officer cooperated but they did little to collaborate - were either as or more motivated to cooperate. All but one firm who experienced collaborative interactions demonstrated higher motivation to cooperate once the sandbox was complete.

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[28] The questionnaire included items measuring perceived regulator formalism drawing on conceptualizations from May and Winter (1999), May and Wood (2003), and Nielsen and Parker (2009). Questionnaire respondents tended to agree the FCA "applies rules rigidly" (M=3.85, Median =4, SD= 0.651), "is very bureaucratic" (M=3.440, Median =3, SD=0.821), and "is more likely to send a letter or email than talk things over" (M=3.215, Median =3, SD=1.03).

Among respondents who experienced cooperative or collaborative partnership type interactions, several explicitly state they are more motivated to collaborate on – for example – regulatory policy than they were before their licensing process. Respondents say they now want to "get more involved in conversations" (SB6), and "debates" (SB10). They hope to "bring knowledge" of their sector and how new regulation can be "interpreted to *our* world" versus that of incumbents (SB10); "helping [the FCA] to understand just what to do next, not keeping this constant and static, but understanding if there is something we can improve, are they tacking the right issues, is the model right, how do start-ups feel" (SB11).

More implicitly, respondents generally express a greater willingness to engage in cooperative behaviours with interacting with the regulator post-sandbox. Respondents say they are now willing to communicate regularly and voluntarily (SB6, SB9, SB13, SB15). Some respondents cite an increased willingness to share sensitive information with the regulator in general (e.g., "we're very open to sharing things with them…the more knowledge sharing the better" (SB13), in regard to regulatory non-compliance in their technology sector, or even in regard to their own possible non-compliance. One respondent said he "would be much more open to going to them ahead of time rather than sort of waiting for it to become an issue and I think that is what a lot of people do (SB4). Finally, several respondents gave examples where they went out of their way to assist the regulator by, for instance, "writing internal papers" (SB13), inviting FCA staff to industry events (SB7), "working with them" (SB11) on specific projects, and even being guest speakers on the FCA and sandbox at international fintech events (SB1, SB7).

The two firms in the cautious cooperation category demonstrated either the same or reduced motivation to cooperate with the regulator. They explicitly describe their current relationships as "cold, transactional" (SB3) and that they only contact the FCA "if there's a bill to pay" (SB2). In their interviews, both respondents imply their lack of a helpful frontline regulatory staff member undermined motivation to cooperate in future. Both respondents said, during their sandbox, FCA staff lacked the resources to help any one individual "start-up" because they "were overwhelmed with the number of start-ups and fintech companies they were dealing with" (SB3). Both of these firms had case officers who changed several times during testing. Contact was "peaky" (SB3); they would hear "nothing" (SB3) from their officer for a time, then "had to repeat again… all of the paperwork and where we stood" (SB2). At least one of their case officers was "junior" (SB2, SB3), inadequately skilled, did not know the "system" (SB2) worked, and lacked autonomy, "clout", and "authority" (SB3); making them a poor firm advocate. My interpretation is their time with each case officer, further, was too short for a personal, trusting connection to develop. On the organizational level, because their case officer kept changing (and to more junior people) this signalled their firms were "obviously not a priority for [the FCA]" (SB2). The FCA did not respect them or take them seriously, they thought, fermenting lingering mistrust and negative perceptions of the regulator. These two respondents also said they had little opportunity to discuss and negotiate regulation with their case officer. One respondent said his arguments did not "matter" because his case officer was not open to them, "effectively pushing us in [a] direction" the firm thought was a legal misinterpretation (SB2).

We see similar patterns with the non-sandbox respondents, all of whom were either in the cautious compliance or cautious collaboration categories. As they are often dealing with a different staff member for each interaction, some feel "disenfranchised" and unable to "have a human and honest conversation" (NSB3), "scared that if you say something to a regulator then it's written down in a record and there it is used against you in the future" (NSB3) or "they might take [information we share with them] they'll come to your office and investigate something" (NSB1). There is some indication non-sandbox respondents have not experienced the same quality of informal learning, with one respondent saying he does not voluntarily share information with the FCA simply because "I don't know what they would be looking for" (NSB1). While these comparisons are too small-scale to be definitive, they do support theoretical expectations about the relationship between cooperative interactions and motivation to cooperate with the regulator in future.

Motivation to comply with regulation

Finally, and contrary to expectations, respondents in this study do not appear to have become more or less motivated to comply with regulation based on the kind of frontline interactions they experience at the licensing stage. When asked directly, respondents tend to say their attitude and approach to complying with regulation has not changed. The most common answer is that they were always, and remain, motivated to comply: "I don't think [my already high motivation has] changed dramatically" (SB4), "I've always operated compliantly" (SB8), "we will always find a way to make sure we comply" (SB10), "I've always had the motto of taking it more seriously than the regulator" (SB14). An analysis of the more implicit compliance motivation they demonstrate before and after their licensing process supports this, as there is no patterned difference arising from the kinds of interactions firms experienced. This finding is supported by the questionnaire data. There, non-sandbox participating firms also demonstrated a similarly, generally high degree of willingness to comply with regulation.[29]

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[29] The questionnaire included items taken from V. Braithwaite (2003). These were ***reverse*** coded as measures of willingness to follow the law, and all showed that – on average – respondents were motivated to follow the law: "We don't care if we're doing the right thing by the FCA" (*M =4.66, Median* = 5, *SD* =0.483), "we don't really know what the FCA expects of us, and we're not about to ask" (*M =4.31, Median* = 4, *SD* =0.644). See Author forthcoming for methodological details on the questionnaire.

The implications of these findings for responsive regulation theory, and innovation governance practice, will now be discussed.

5.7. DISCUSSION

In this article, I examine the role of frontline regulatory interactions in motivating innovative firms to collaborate with regulatory agencies. This study is the first to evaluate how well responsive regulation theory describes and explains outcomes in a previously unexamined context: the supervision of innovative private firms. This study offers two key theoretical contributions to responsive regulation.

First, this study provides empirical evidence suggesting responsive regulation does indeed describe and explain outcomes in the supervision of innovative firms (J. Braithwaite 2002; Nielsen and Parker 2009). The case study finds firms who experience cooperative or collaborative interactions are more motivated to cooperate with the regulator in future than those who experience non-cooperative interactions. Cooperative and collaborative interactions motivate firms to collaborate in future for several reasons theory predicts e.g., learning, trust building, shifting norms of regulatory behaviour. More fundamentally, findings reaffirm cooperative or collaborative frontline interactions foster future collaboration by increasing the regulatee's normative motivations to cooperate (Gunningham, Thornton, and Kagan 2005; Nielsen and Parker 2012). Firms in the case study became more motivated to cooperate when they came to see cooperation with regulators as both morally good and socially expected, 'normal' behaviour (March and Olsen 1989). Frontline interactions shaped firm attitudes about how one should interact with a regulator, through explicit regulatory conversations (Black 2002b; Heimer and Gazley 2012) and implicitly, where preferred behaviour was modelled through the interaction (Etienne 2013).

This case study provides further evidence, more specifically, that regulators should behave in cooperative ways toward regulatees in frontline interactions (J. Braithwaite 2002). Cooperative regulatory staff foster collaboration for technical reasons. Educating and assisting regulatees helps to overcome practical barriers to compliance and cooperation (J. Braithwaite 2002, 20). Cooperative regulatory staff also foster collaboration for relational reasons. Such behaviour shapes regulatee attitudes to, and perceptions, of regulators in ways which drive more constructive future encounters (J. Braithwaite 2002, 33–35). While largely conforming with responsive regulation theoretical expectations, the case study also finds some dynamics which may be unique to the supervision of innovative private firms.

The second contribution of the case study is that it builds theory by illustrating how frontline interactions may play some different or additional roles in motivating firm cooperation than responsive regulation currently describes. In the case study, young, innovative firms faced acute technical barriers to compliance with the law, collaboration with the regulator, and even market participation. Firms often had few resources, inexperienced senior managers, unproven products, and no industry partnerships. Firms were thus acutely reliant on cooperative regulatory staff to assist them in addressing these barriers. Regulator staff assisted firms in ways not reported in earlier responsive regulation research e.g., by acting as an advocate for firms within the FCA and with incumbent institutions. This newness, however, also provided greater malleability. On a technical level, products and how they were regulated were still malleable. Cooperative and collaborative interactions were vital for regulator and firm to agree how products could be adjusted to be safely and legally commercialized. On a relational level, interactions shaped how firm senior managers perceived regulation, the regulator, and what kind of relationship with the regulator was possible and desirable. Thus, this case study implies frontline interactions may play a more foundational role in fostering future collaboration with innovative firms than they do for more mature industries. Frontline interactions have the potential to shape innovations and innovative firms at a pre-commercial, pre-enforcement stage in ways which create the conditions for cooperative regulator-innovator relationships (J. Braithwaite 2002, 33–35).

In regard to innovation governance and law scholarship, the case study findings reflect Mandel's (2013) argument that dialogue, negotiation, and 'soft' law early in the innovation process is a key strategy of effective governance. As Mandel writes: "[t]he emergent stage in particular, with a high degree of uncertainty and a low degree of attachment to any status quo, can present a unique opportunity [to] produce a collaborative governance process rather than a resource-draining adversarial battle" (2013, 45)

Findings have practical implications for sandbox design and innovation governance more broadly. Since the FCA invented the regulatory sandbox, more than 50 programs called sandboxes have been established around the world. Their designs vary greatly. Some 'sandboxes' are essentially a dedicated advice phoneline. Some offer blanket regulatory relief for innovative firms meeting certain pre-determined conditions (Zetzsche et al. 2017). These sandboxes may be well designed to address the technical barriers to compliance and cooperation. Yet, they exclude parts of the FCA's sandbox design which encourage frontline collaboration. Responsive regulation theory implies, and this study supports, it is the relational character of the FCA's sandbox which may be most critical to motivating future regulatee collaboration. Further, because the motivational benefits arise from this relational character, sandboxes and similar interventions need to be well-resourced with enough skilled staff for benefits to arise and endure (J. Braithwaite 2013, 137).

While this study finds cooperative or collaborative frontline interactions drive motivation to cooperate with the regulator, they were not found to have a discernible effect on motivation to comply with regulation. This finding could have arisen from limitations in study design, discussed below. Alternatively, this result could be said to indicate cooperative frontline interactions foster harmful regulatory capture. Firms are left motivated to continue their cosy relationship with the FCA, but not any more motivated to comply. One could further critique 'dialogue' and 'negotiation' in sandbox interactions as indicative firms capturing the process of defining compliance standards for new products (Edelman and Talesh 2011).

The case study certainly supports that, through cooperative interactions, firms were able to (for example) exhibit some influence on the regulator's interpretation of compliance standards. Yet, results do not support this influence led to harmful capture (Kwak 2013). Most firms reported high compliance motivation and most report improvements in their level of trust in, and positive perceptions of, regulators in ways prior theory states are associated with higher compliance. Firms do not express a belief that its possible or desirable to change the FCA's position on substantive rules. Respondents, of course, may misrepresent their true intentions and future research should seek to gather further data to question these accounts. This study, additionally, only examines initial interactions in regard to the regulatory tasks of education, outreach, and licensing. Different dynamics may emerge in regard to subsequent inspection and enforcement tasks, a limitation of this study which could be addressed in future research.

Future research should consider the capture risk of collaborative instruments like the sandbox alongside the accountability structures surrounding those instruments. As Allen (2019, 632) argues, "the awkward reality is that many of the potential benefits" of collaboration, "can only be realized if such a close relationship exists". Close and collaborative interactions may well be a valuable part of innovation supervision. Yet, avoiding harmful captures means that collaboration must occur within strong institutional structures and norms of regulator transparency and accountability. As Ford argues, firms need to be included in regulatory governance of financial innovations, but accompanied by "a new kind of state action that locates deliberation, polycentricity, and anti-domination sentiment at its core..." (2017, 128).

5.7.1. Study limitations and future research

The FCA's regulatory sandbox for fintech is a critical case study to begin to evaluate the validity of responsive regulation theory for the context of innovation. While results support the theory is valid, the study does not – nor was it intended to – definitively prove its validity. Data was only collected from respondents at one point in time, and changes to compliance motivation may well take many years to manifest. Due to the nature of the study and respondents, interviews rarely addressed the question of how interactions in the sandbox influenced behaviour in future interaction in regard to very different regulatory tasks, notably inspections and enforcement. The sample of respondents is small and may not be perfectly representative of the population. Study respondents also likely have higher compliance motivation than the general fintech firm population because they were willing to respond to such a research request (Nielsen & Parker 2009, 396). Further, without interviewing a broader range of stakeholders this study can only make conclusions from the firm perspective. Finally, UK fintech represents a specific context and one cannot necessarily generalize its results to represent all 'innovation supervision'. To further build and validate responsive regulation theory in the innovation context, future research is required.

Studies could evaluate responsive regulation theory as an explanation for the outcomes of innovation supervision efforts in various geographic, technological, and regulatory contexts. There would be particular value in comparative studies describing differences in the nature of frontline interactions in various contexts and examining impacts on innovative firm compliance motivation. This study, further, reaffirms the empirical value of examining regulatee, and not just regulator, perspectives on interactions (Mascini and van Wijk 2009; Gray and Silbey 2014). Future research could continue to build on this by capturing the perspectives of regulated organizations and individuals on regulator-innovator interactions in diverse contexts. However, future studies could also seek to interrogate firm accounts through the use of ethnography or other methods to examine actual compliance behaviour over time (e.g. Gunningham, Kagan, and Thornton 2003).

Analytically, these findings support Black's (2002b) argument that frontline regulatory conversations are not just an instrument to enforce regulation, but are a kind of regulatory governance in themselves. In an innovation context, regulatory interactions are part of the day-to-day negotiations over which new technologies are permissible and valuable, what rules exist, and what constitutes compliance. This political dimension of regulatory interactions raises important normative questions about democratic legitimacy and equity: whether instruments like the sandbox privilege business over other potential stakeholder voices in innovation policy. A productive avenue for future scholarship could be to consider how normative regulatory theoretical prescriptions for avoiding capture and broadening stakeholder input (e.g. Ayres and Braithwaite 1995 on tripartism) might be applied in innovation supervision.

Chapter 6

Conclusion: The role regulator reputation plays in governing emerging innovations

When innovation emerges, regulatory agencies are frequently called upon to intervene. Agencies are expected to impose regulatory governance over innovations. They must find ways to manage risks, facilitate ‘good’ innovations, and guard against ‘bad’. Governance is a legal and administrative challenge, but also a stakeholder management one (Whitford and Anderson 2021). Regulators need to find ways to manage stakeholder expectations and engender their support for regulatory intervention over the innovation process. Here, extant literature suggests regulatory agency reputation and reputation management are key (Maor 2015; Carpenter 2001; 2010). Yet, theory and research on their role in innovation governance is limited. This dissertation seeks to begin to address this surfeit.

This final chapter presents this dissertation’s main conclusions, summarizing the various roles of regulatory agency reputation was found to play in the regulatory governance of fintech. Implications for theory and practice are discussed, alongside limitations and future directions for research. This chapter is presented in three sections. First, research sub-questions are answered and contributions to the literature discussed. Second, limitations and future opportunities for research are presented. The third section provides Implications for Practice.

6.1. ANSWERS TO THE RESEARCH QUESTIONS, AND CONTRIBUTIONS TO LITERATURE

This dissertation sought to answer the question: ***What role does regulatory agency reputation play in the regulatory governance of emerging innovations in finance?***

This dissertation explored the role of reputation in several different ways. The first was investigating the role of reputation in shaping agency decision-making about whether and how to govern financial innovations when they emerge through *RQ1: What role do reputational considerations play in whether, and how, financial regulators choose to govern emerging innovations?*

The second was to examine the role of reputation once agencies have committed to governing emerging innovations. That is: to build and begin to evaluate theory on how agency reputation may contribute to, or undermine, the successful implementation of agency policies, instruments etc. toward emerging innovations. To do so, a supposed success case (the UK’s regulatory sandbox for fintech) was subjected to a critical evaluation. In the initial stage of analysis, the outcomes of this case were examined, and potential roles of reputation in its 'success' explored through *RQ2: To what extent and how, in practice, do sandboxes fulfil their potential to facilitate innovation?*

The next stage of analysis further investigated some of the roles of reputation RQ2 suggested. Specifically, the roles agency reputation plays in how innovative firms react to the imposition of regulatory authority over an innovation. These were examined through *RQ3: What role does regulator reputation play in innovative firm compliance with, and cooperation in, the regulatory governance of emerging innovations?* This question was examined in two chapters. The first examines the role of regulatory reputation early in the relationship between firm and regulator; assessing how reputation influences firm motivation to first begin to collaborate with regulators on the governance of innovation. The second analyses the role of reputation in driving longer-term regulatory compliance and cooperation from firms. It evaluates theoretical expectations that positive early interactions between innovative firms and regulator staff will build regulator reputation and, through reputation-building and other mechanisms, strengthen firm motivation to comply with new regulations and cooperate with regulatory authorities.

6.2 RQ1. WHAT ROLE DO REPUTATIONAL CONSIDERATIONS PLAY IN WHETHER, AND HOW, FINANCIAL REGULATORS CHOOSE TO GOVERN EMERGING INNOVATIONS?

This question was explored through a comparative case study examining the emergence of cryptocurrencies and the initial responses of three financial regulators in Australia (ASIC), the UK (FCA), and New York state (NYDFS) (Chapter 2). Consistent with the one previous systematic, empirical study on the role of reputational considerations in responding to emerging innovations (Maor 2010), this study suggests that agency decisions to govern are influenced by concerns about building and maintaining their reputation. Reputational considerations can certainly deter regulators from intervening to govern radical innovations. Analysis, however, suggests regulators in this case did not purely see cryptocurrencies as a threat. Rather, they saw opportunities to bolster their reputation in the wake of the Global Financial Crisis. Analysis further supports that regulators do not simply *react* to public demands about innovation supervision, but seek to *shape* those demands. Regulators are independent political actors who use discourse and rhetoric to shape how we see new technologies. All three agencies managed their reputation through a high-profile communications strategy where they discussed their response to cryptocurrency often and in very public fora. Through this symbolic reputation management (discourse, rhetoric etc.), they posed the agencies as vital players in the supervision of emerging financial technologies. Finally, the analysis supports that how agencies choose to respond to innovations – both substantively and symbolically – is influenced by their pre-established reputation. The New York regulator had established a reputation for being 'tough on crime', the Australian for being procedurally rigorous, and the UK regulator for being cutting-edge in its supervision. In addition to these differences in their pre-established reputations, the agencies have somewhat different histories, political standings, and legal bases. These differences help to explain variation in how they perceive reputational threats and opportunities from an innovation like cryptocurrencies and thus how they choose to govern. In sum: adherent reputational threats *and opportunities* influence how regulators respond both substantively *and symbolically* to emerging innovations.

6.3. RQ2. TO WHAT EXTENT, IN PRACTICE, DO SANDBOXES FULFIL THEIR POTENTIAL TO FACILITATE INNOVATION?

The initial case analysis of the UK's regulatory sandbox for fintech presented key findings about how successful this governance instrument was, and suggested several possible roles the Financial Conduct Authority's reputation played (Chapter 3).

Analysis generally finds the UK sandbox has been effective in balancing the promotion of innovation with the management of risks. Findings indicate sandboxes can play multifaceted roles in safely facilitating innovation. Far from its popular image as a mere 'safe space' from regulatory interference, the sandbox is better understood as an active regulatory intervention bringing innovator firms into the supervised, mainstream market through a combination of legal dispensations, support, and experimental, iterative, adaptable supervision. A major conclusion of the study is that sandboxes can allow regulators to govern the innovation process in a 'soft', informal, introductory manner, in the absence of *sui generis* rules or policies (Mandel 2013). The sandbox allows regulators to intervene proactively. No rules need have been broken for regulators to begin to have collaborative conversations with innovators (as anticipated by Gromova and Ivanc 2020, among other scholars writing on sandboxes). These conversations help to develop a shared understanding how their specific innovation can be safely developed. The sandbox allows for informal experimentation not just for the regulator but also for participating firms. The regulator uses sandbox test cases to inform their eventual formal policies on certain innovations. Firms use the sandbox as a way to test various regulatory strategies with the agency. Rather than having perhaps one or two chances to apply for the right authorization the right way, firms are able to explore their options in more informal conversation with regulatory staff.

This does not imply the sandbox is an unproblematic success story. Findings made in the case study lend yet greater weight to normative concerns about potentially unsustainable financial costs, pseudo-experimentation, 'riskwashing', and capture endemic to sandboxes and many other experimental, adaptable, and proactive innovation governance approaches (for e.g., Omarova 2020). Further, the success of the sandbox appears to be contingent on not only regulator reputation and reputation management but a range of other contextual factors which may not be replicable in other jurisdictions. These issues are discussed further in Implications for Practice.

The first two studies (RQs1 and 2) were exploratory, descriptive, and analytical. Their findings led the author to a better understanding of the dynamics of reputation in fintech governance specifically. The cryptocurrency study made clear that financial regulators appear to believe that reputation matters in the successful governance of emerging innovation. Their responses to cryptocurrency, though, implied that they were not just courting the support of politicians and the general public, but were sensitive too to the views of innovative firms themselves. Even the most adversarial of the regulators, the New York Department of Financial Services, came to take a more conciliatory line on cryptocurrency after many companies objected to proposed rules and left the state. The second study (RQ2) affirms that reputation is indeed an important factor in regulatory success, and plays several roles in practice. A regulator's reputation appears to influence how willing innovation stakeholders — especially start-ups — are to collaborate with the regulator on the governance of innovation. The second implied role regulator reputation played was in the agency's capacity to drive broader market support for innovation. For innovations to be commercialised and diffused requires the cooperation of a range of market actors beyond the innovative start-up: customers, investors, insurers, banks, data providers, and others. The case study suggests regulator reputation can play a role here. In effect, regulators can lend their credibility to innovations and the firms developing them. These two studies led the author to focus on the role of reputation in driving innovative firm compliance and cooperation in the regulatory governance of emerging innovations. Further, to gather data from firms directly to investigate how their managers actually thought, felt, and reacted to regulatory efforts to govern.

6.4. RQ3. WHAT ROLE DOES REGULATOR REPUTATION PLAY IN INNOVATIVE FIRM COMPLIANCE WITH, AND COOPERATION IN, THE REGULATORY GOVERNANCE OF EMERGING INNOVATIONS?

This question was addressed through two further sub-studies of the overarching case study of the UK FCA's regulatory sandbox for fintech (Chapters 4 and 5).

The first of these sub-studies, presented in Chapter 4, examined what role regulatory agency reputation plays in motivating fintech firms to apply for the sandbox. Applying to the sandbox is indicative of a willingness to begin to collaborate the regulator, by participating voluntarily in the regulatory process. This study found that the regulator's reputation influenced firm motivation to apply. The Financial Conduct Authority's reputation with the sector as procedurally correct, high-performing, and morally committed to facilitating innovation drove applications. Different firms had different kinds of motivations to apply, prominently to ensure compliance with regulatory requirements and to boost corporate reputation. Distinct kinds of beliefs about the regulator had distinct relationships with different kinds of motivation. Centrally, a strong regulator reputation for procedural correctness made firms more motivated to engage constructively with the agency in order to enhance their own corporate reputation. The Financial Conduct Authority had a great deal of credibility with the financial sector, and firms hoped participation in the sandbox would therefore lend them credibility.

The second of the sub-studies, presented in Chapter 5, examines reputational dynamics later in the relationship once firms and regulator have begun to routinely interact with one another. Whereas the first sub-study examined motivations to apply to the sandbox, the second examined the effects of sandbox participation on those firms who went through it. The second sub-study analysed how and why sandbox participation influenced subsequent motivation to comply with regulation and cooperate with the regulator. 'Frontline' interactions between innovative firms and regulatory staff in the sandbox are found to be more collaborative compared to standard authorization procedures or advice provision. This collaborative quality is self-reinforcing. Firms who participate come out of the sandbox generally more motivated to collaborate with the regulator on the governance of innovation in future. Regulator reputation is one of the mechanisms through which this occurs. Where early interactions with regulatory staff are positive, innovative firms form a more positive impression of the regulator. Specifically, participants see the regulator as less formal, less bureaucratic, and more flexible than they did pre-sandbox, and in comparison to non-participant firms. Analysis suggests these beliefs motivate future collaboration because firms anticipated collaboration was possible and likely to lead to constructive outcomes. Results further suggest that the kinds of reputational beliefs which motivate collaboration may differ according to firm maturity. For example, results imply that less mature firms want to work with more procedurally rigorous regulators because they want to prove their innovation stands up to even the most stringent standards. More mature firms, however, seem to value a regulator who is more flexible. Having experienced the complexities of authorization for an innovative product, they prefer a regulator willing to take a pragmatic stance on the rules. These results also have implications for RQ2. They expand upon the analysis in that chapter by examining how the sandbox operates as an instrument to manage risks and facilitate innovation.

More critical interpretations of these results are possible depending on one's methodological stance and normative positions in regard to the appropriate role of semi-autonomous regulatory agencies in the governance of emerging innovations. Notably, the study did not find an association between sandbox participant and improvements to compliance motivation. Alternative readings are discussed in both Implications for Practice and Limitations.

6.5 SUMMARY OF THEORETICAL CONTRIBUTIONS: THE ROLE OF REGULATOR REPUTATION IN THE GOVERNANCE OF INNOVATION

The central contribution of this dissertation is developing and beginning to evaluate theory on the mechanisms through which regulator reputation influences innovation governance. As one of the first studies to evaluate the role of regulator reputation in innovation governance, collecting data from innovative firms, this dissertation offers unique and rich insights into 'what works' in practice and why. This dissertation bridges bureaucratic reputation and regulatory governance scholarship. Insights from both have been integrated into novel, documented methodological tools and theoretical and analytical frameworks. Findings contribute to addressing gaps in extant theory and literature on the topic. This section will present those findings which represent the most significant contributions to theory, then bring these findings together to reflect on implications for successful innovation governance as a whole.

6.6. 'REPUTATION MANAGEMENT' DOES NOT NECESSARILY MEAN REGULATORS DODGING THEIR RESPONSIBILITY TO GOVERN EMERGING INNOVATIONS

A common theoretical argument holds that public organizations, including regulatory agencies, see emerging issues purely or primarily in terms of their reputational threats. Public organizations are risk averse and blame avoidant (for e.g., Krause and Corder 2007; Maor and Sulitzeanu-Kenan 2013; Hood 2011; Weaver 1986). The focus of their reputation management will inevitably be on avoiding real or perceived responsibility over difficult, controversial, and wicked issues (Hawkins 1984). Innovations, especially more radical innovations, are typically difficult, controversial, and wicked issues to govern (Maor 2010). By extension: reputational considerations should — in the absence of substantial counter-pressures —drive regulatory agencies to dodge their responsibilities to govern emerging innovations. These assumptions are intrinsic to the most comprehensive bureaucratic reputation theoretical account to date (Maor 2010).

Maor's account, though, has several limitations to which the framework presented in this dissertation responds. Maor's framework assumes (rather than empirically assesses) that regulators perceive emerging innovation purely in terms of reputational threats. It treats regulator reputation management as purely reactive; a post-hoc response to the emergence of threats (2010, 139–40). This dissertation presents an expanded, nuanced framework to describe the role of reputational considerations in regulator responses to emerging innovation. In this framework, regulators are rather theorized to potentially perceive innovations as reputational threats and/or opportunities, which they may seek to proactively address (Carpenter 2001, 44; 234–4; 310).

The study presented in Chapter 2 begins to evaluate the validity of this framework. While it will require refinement and further empirical evaluation (see Limitations), the framework does appear to provide a more holistic and realistic approach to the reputation motivations of regulatory agencies. Study results imply reputational impacts can be a valuable and legitimate consideration in regulatory decision-making about emerging innovations. Regulator reputation is a crucial asset. When innovations emerge, regulators are subjected to more intense stakeholder scrutiny (Asquer and Krachkovskaya 2021). Regulators need to be strategic in how their actions may influence stakeholder perceptions, especially those groups most involved in the innovation process. A regulator protecting its reputation does not necessarily translate to rejecting the agency's responsibility to govern innovations, nor pandering to stakeholders (Carpenter 2010, 74). Indeed, reputational considerations may drive regulators to involve themselves in the governance of even very challenging innovations. Further, a regulator's capacity to manage stakeholder perceptions and expectations could make governance efforts more effective and durable (Schmidt 2008).

6.6.1. Regulators govern emerging innovations not only through substantive decisions, but symbolic reputation management

Another limitation of Maor's framework is that it exclusively examines how reputational considerations shape substantive agency decisions of whether or not to seek to govern. This disregards the potential for regulators to govern through symbolic means (i.e., communications, discourse, rhetoric, and symbolism). Indeed, in bureaucratic reputation theory there is often a disconnect between substantive and symbolic reputation management research. One body of research has focused on reputational threats (i.e., emerging issues and stakeholder demands) and their effects on substantive agency reactions (for e.g., Krause and Corder 2007). The other has described and analysed how agencies use symbolic means to manage their reputations, like discourse, rhetoric, and imagery (Wæraas and Byrkjeflot 2012; Alon-Barkat and Gilad 2017; Gilad, Alon-Barkat, and Braverman 2016; Rimkutė 2020; Alon-Barkat 2020). This theoretical division leaves several questions unanswered. How do regulators use symbolic reputation management to respond to specific kinds of emerging issues and demands? Do regulators merely react to 'threats', or do they rather seek to proactively shape how emerging issues are perceived by stakeholders? These gaps are particularly relevant to the study of innovation governance. Unlike more commonly studied scandals, crises, or stakeholder complaints (Maor and Sulitzeanu-Kenan 2013), innovations are not inherently or purely reputational threats for regulators. By their nature, emerging innovations are characterized by uncertainty. Cultural narratives about innovations, their risks and value, and what kind of regulatory governance would be appropriate are still evolving (Jones and Millar 2017).

Responding to these issues, the theoretical framework in Chapter 2 integrates Maor's account with reputational theory about regulators' use of symbolic reputation management. Prior literature on symbolic reputation management was used to develop a codebook. The codebook allows qualitative analysis of what kind of image regulatory agencies are signalling through their communications. Findings of the study suggest symbolic reputation management is a tool regulators use when responding to emerging innovations. Analysis implies regulators seek to influence cultural narratives around cryptocurrencies and their role in governing the technology. Thus, reputation management includes both substantive and symbolic responses to emerging innovation. Further, regulators are not merely reacting to the reputational risks of innovation, but rather shaping how those risks are perceived by stakeholders proactively through symbolic techniques.

6.6.2. Innovative firms have material, social, and moral reasons to collaborate with regulators in the governance of emerging innovations, and all of these motivations are influenced by firm beliefs about the regulator

Prior studies have examined how regulator reputation influences stakeholder collaboration in participatory regulatory governance processes (Braun and Busuioc 2020; Busuioc and Rimkutė 2020b; Fink and Ruffing 2020). These studies, and indeed theory on regulatory participation in general, tends to posit private firms are only motivated to take part in order to influence regulation in their favour (Arras and Braun 2018). This leaves open the question of whether regulatory collaboration might arise from other kinds of motivations (Carpenter 2010; Carter and Siddiki 2019; Potoski and Prakash 2005; Nielsen and Parker 2009). Further, bureaucratic reputation scholars have thus far focused on the behaviour of regulatory agencies. They examine how reputational considerations influence what kind of opportunities for collaboration regulators offer. Left unexamined is how regulator reputation may encourage or dissuade stakeholders from taking up their invitations. This is a notable gap. Regulatory agencies are increasingly seeking to involve stakeholders in processes like consultations (Haber and Heims 2020). In the regulatory governance of private innovation, innovative firm involvement is especially salient (Mandel 2013).

This dissertation provides a more complete theoretical account of regulatee motivations to begin to collaborate with regulators in governance processes like consultations. The sub-study presented in Chapter 4 includes a novel analytical framework which systematizes Carpenter's (2010) findings about the role of different dimensions of regulator reputation which play a role in motivating firm compliance and cooperation. The framework, further, begins to integrate bureaucratic reputation theory more closely with regulatory governance scholarship. It does so by examining how different dimensions of reputation may influence different kinds of motivation. Nielsen and Parker's (2012) typology of economic, social, and normative motivation is employed in conjunction with Carpenter's dimensions to find connections between the two.

Results reveal that firm motivations to collaborate with regulators are more complex and multifaceted than prior literature implies (consistent with prior scholarship for e.g., Edelman and Talesh 2011). Firms have economic, social, and normative motivations to participate. Economically, firms hope to gain access to regulator insight and support. Socially, they hope to improve their standing with the regulator and with other financial sector players. Normatively, many report to want to improve the quality of regulatory governance over fintech. Different motivations can be driven, or impeded, by beliefs about different dimensions of reputation (for e.g., Murphy, Tyler, and Curtis 2009). This study presents several pathways through which each reputational dimension influences each kind of motivation, well-suited to act as hypotheses for future studies (see Implications for future research). For example, a strong performative reputation was associated with the economic motivation to participate to gain access to support while a strong moral reputation was associated with normative motivation to help the regulatory process along. Interestingly, many of Carpenter's (2010) findings from the very different setting of pharmaceuticals regulation also arise in the governance of fintech. This may suggest reputation could play similar roles, across sectors, in motivating firms to collaborate in the governance of innovation.

6.6.3. Positive, early interactions with innovative firms can help to challenge negative stereotypes about regulatory agencies; an important factor in subsequent compliance and collaboration

In extant bureaucratic reputation scholarship, scant attention has been paid to how direct, frontline interactions between regulator and regulatee staff influence agency reputation. The focus has instead been on substantive regulator actions and mass communications (for e.g., Alon-Barkat and Gilad 2017). In regulatory governance scholarship, studies of enforcement style, inspector style, and motivational posture have addressed the reputational impacts of frontline interactions (Ayres and Braithwaite 1995; J. Braithwaite and Hong 2015; Winter and May 2001; May 2005; May and Wood 2003; van Erp, Wallenburg, and Bal 2020; Mascini and van Wijk 2009; Loyens, Schott, and Steen 2019). Research from regulatory governance, further, examines the influence of frontline interactions on subsequent regulatee motivations to comply and cooperate. Literature demonstrates how the quality of early interactions shapes regulatee motivations through reputation-building, among other mechanisms (for e.g., J. Braithwaite 2002). By contrast, bureaucratic reputation scholarship has rarely empirically evaluated the impact of reputation on regulatee motivations to comply and cooperate in regulatory governance (Capelos et al. 2016; Carpenter 2010). Regulatory governance scholarship, however, examines reputation and its role in less systematic and nuanced terms than provided by bureaucratic reputation theory (for example: only discussing reputation in uni-dimensional terms). Further, this research has typically focused on mature industries with established regulatory regimes. There has been little scholarship on the role of reputation in the governance of emerging innovations, where regimes are non-existent, ambiguous, or contested (Baldwin and Black 2008). The same critique can be levied at bureaucratic reputation scholarship. This literature has rarely examined innovation governance and never outside the context of US pharmaceuticals regulation.

The study presented in Chapter 5 bridges these two areas of scholarship, and begins to address some of their gaps. This study applies a novel analytical framework which draws on both reputational and regulatory governance literatures (most directly, responsive regulation theory). This framework is used to evaluate the mechanisms by which regulatory interactions may reshape regulator reputation and drive compliance and cooperation motivation. Findings suggest that early, positive interactions with regulator staff can help to puncture negative stereotypes about regulators which often pervade their popular reputation among innovative firms (consistent with Heimer and Gazley 2012; and Etienne 2013). This improved reputation made firms more motivated to collaborate with the regulator in future. Collectively, results from Chapters 4 and 5 imply a positive, cyclical relationship between regulatory agency reputation with the financial sector and the motivation of innovative firms to collaborate in the governance of innovation. Agencies with a stronger reputation should be better able to attract firms to engage voluntarily and collaboratively. Through collaborative early interactions with agency staff, firms form a more positive beliefs about the agency. These beliefs, in turns, help to motivate yet more future collaboration.

More broadly, findings from Chapter 5 imply that the dynamics of frontline interactions in an innovation context are somewhat different to those of mature industries typically studied in bureaucratic reputation and regulatory governance scholarship. Interactions with new, innovative firms shape firm attitudes, reputational beliefs, and behaviours — at an emergent pre-commercial, pre-enforcement stage — in ways which might not be as feasible once products are mature and firms more established (J. Braithwaite 2002; Heimer and Gazley 2012). A notable mechanism here is re-orienting the course of private innovations. At early stages, innovations can be developed and commercialized in many different forms. In collaborating with firms, regulators can influence what form innovations take. This allows regulators to steer private firms away from highly risky or legally untenable products. By avoiding regulatory ‘traps’, firms find compliance easier. Similar findings arose in the study presented in Chapter 3.

6.6.4. Regulator reputation affects how well regulators can manage the risks of innovations, in the absence of formal law to coerce innovative firms

The Chapter 3 study evaluates the UK’s regulatory sandbox for fintech; a much ‘hyped’ implementation of the experimental, adaptable, and proactive governance approaches often advocated by scholars (ECOMP 2020). Academically, novel innovation governance instruments of the past decade have typically been studied with a focus on describing instruments, placing them in theoretical taxonomies, and evaluating their likely success in a prima facie, normative manner (for e.g., Philipsen, Stamhuis, and de Jong 2021). Only very recently have studies begun to turn to describing their day-to-day governance, evaluating their success in practice, and seeking to explain what factors underlie successful implementation (for e.g., Alaassar, Mention, and Aas 2020). Evaluating the sandbox in practice reveals that its performative success arises from intense regulator-firm collaboration early in the governance process (Choi and Lee 2020; Butor-Keler and Polasik 2020; Alaassar, Mention, and Aas 2020; 2021; van der Waal, Das, and van der Schoor 2020). Through this collaboration, regulators can exert influence over firms and the course of their innovation even in the absence of clear, definitive regulatory rules for a given innovation (Ranchordas 2021a, 10). An additional benefit is potentially preventing adversarial legal battles between innovators and regulators down the line (Mandel 2013).

The value of instruments which facilitate collaborative frontline interactions in innovation, then, goes beyond motivating compliance. There is a potential for regulators to influence the nature of products themselves. By extension, to potentially steer private innovation away from risky, harmful propositions and toward those with greater collective or societal benefit (Bromberg, Godwin, and Ramsay 2017). (A more negative interpretation — that this constitutes illegitimate state control of innovation — is discussed in Implications for Practice.) Yet, the studies in chapters 3-5 imply this is not necessarily something all regulatory agencies can simply decide to do. Firms must believe that regulators are committed to innovation, procedurally credible, and performatively capable of working with them constructively. Introducing policies and instruments which invite cooperative participation from innovative firms appears to be important to successful governance. Yet, strategic reputation management via communications, and positive direct interactions, also appear critical in building and maintaining a reputation as a regulator worth working with.

6.6.5. Regulators facilitate innovation in part through their reputation with the wider regulated sector

Finally, this dissertation develops theory on how regulator reputation can build support for governance with stakeholder audiences beyond innovative firms. Most theoretically interesting is the role reputation plays in driving market support for innovative products, services, and the firms who develop them. Innovation relies on an ecosystem of supportive actors (Alaassar, Mention, and Aas 2021). This ecosystem includes consumers willing to test and later buy products, investors to fund the development process, banks to provide accounts and loans, data-providers to sell financial information, agencies willing to insure the company, and many more. Regulators are often popularly presented as barriers keeping innovators from the mainstream market. In these studies, the regulator more commonly helps to bring them into the market. Regulators advocating for innovation appears to be an important part of successful governance (although it may also undermine legitimacy, discussed in Implications for Practice).

Again, however, regulatory agencies do not necessarily have this kind of ‘pull’ with the wider regulated sector. Such influence is contingent on their reputation. The wider sector must believe the regulator is — above all — procedurally credible and morally sound. There is little value to an endorsement from a regulator seen as unreliable in its risk assessments, inconsistent in its treatment of different firms, or corruptible. Similar findings about a regulator’s popular reputation with a sector have been made in a few earlier studies. Studies of pharmaceutical regulation show that endorsement from a credible regulator is a prerequisite for commercializing new drugs (Carpenter 2010; Mandel 2009). Studies of voluntary certification schemes show that firms are willing to be subjected to higher standards (e.g., environmental performance) when the scheme is run by an organization respected by the wider market (Carter and Siddiki 2019; Potoski and Prakash 2005). These studies, and research here, reinforce the importance of future research studying both popular regulator reputation alongside reputational beliefs of individual firms. Both appear significant to the success of regulatory governance, especially in an innovation context.

6.6.6. What does this mean for ‘successful’ innovation governance?

This dissertation focuses on examining the role of reputation in innovation governance, but also aims to contribute to the scholarly tradition of success-focused policy and organizational studies, and positive public administration (Moore 1995; Douglas, ‘t Hart, and van Erp 2022; Douglas et al. 2021). At the outset of this dissertation successful regulatory governance over innovation was defined as agencies effectively managing the risks, and facilitating the benefits, of innovation; in a manner which is consistent with the law and societal ethical standards; and reasonably durable. Reputation was posited to play several roles in these various dimensions of regulatory success. Yet, there are significant gaps in theoretical explanations of how these roles function. Further, empirical literature evaluating theory is quite limited.

The findings provide greater support that regulator reputation is an antecedent of successful innovation governance. Reputation plays several, multi-faceted roles: influencing regulatory decisions about how to govern innovations; encouraging or dissuading firms from beginning to collaborate in the regulatory governance of innovations; motivating longer-term compliance and collaboration from firms as governance develops; driving wider market acceptance of innovation; and granting regulators greater capacity to steer the course of private innovation in the absence of formal law. The studies reveal multiple, specific mechanisms through which reputation is likely linked to the performance, legitimacy, and durability of innovation governance. This dissertation suggests that theoretical models of successful regulatory governance of innovation should include regulator reputation as a factor. Further, that practitioners should reflect on the role of their agency’s reputation with innovators (see Implications for Practice). A strong regulator reputation, however, is demonstrated in the empirical studies to be a necessary but not sufficient condition for successful innovation governance. Regulatory success is also highly determined by formal mandate, administrative capacity, and (as will be further discussed) organizational rules and culture related to ensure high procedural and ethical standards are maintained. Further, more research will be required to examine the generalizability of these findings, and to further explore the mechanisms implied by this study (see Implications for Research).

6.7. LIMITATIONS, RELIABILITY, AND VALIDITY

In conducting the research, several methodological challenges had to be addressed. These were to do with how to evaluate 'successful' regulatory governance, (securely) collect reliable data from innovative firms, and operationalize regulator reputation and reputation management. This section reflects on how these challenges were addressed, adherent limitations, and implications for reliability and validity.

6.7.1. Choosing and analysing 'success' cases

To examine success, this dissertation intentionally selected a high-profile supposed success case: the UK's regulatory sandbox for fintech. One issue with selecting this case is that anecdotal success does not necessarily equate to actual success. Novel governance instruments are prone to hype. To address this, the second strategy to analysing success was to use primary documents and questionnaire and interview data from fintech firms to assess the sandbox's performance on facilitating innovation, managing risks, its legitimacy, and its durability. This multi-method analysis helped to confirm that the sandbox was generally successful, but still had its weaknesses and its critics. This approach to analysis, though, is largely qualitative. While it includes some quantitative measures of success e.g., application and graduation rates, these do not directly measure the 'outcomes' of successful innovation governance. Instead, here the dissertation critically reflects the views of the regulator and its various stakeholder audiences. Another limitation is that durability is hard to assess, given that the sandbox was only introduced in 2015. Durability was, however, indirectly analysed on the basis of whether the sandbox was generally accepted by stakeholders and represented a sustainable expenditure for the regulator.

Even though analysis suggests the sandbox is a broadly genuine success case, its selection does raise concerns about external validity. Selecting the sandbox can be seen as selecting on the 'dependent variable' (Seawright and Gerring 2008). The sandbox case is, by its nature, likely not representative of the 'average' case of innovation governance. Therefore, we should question whether reputation plays the same — or any — role in most cases. Indeed, generalizability is an issue with any case-based research. One response to this critique is that there is pragmatic value in trying to 'learn from success' (McConnell 2010; Compton and 't Hart 2019; Boin, 't Hart, and Fahy 2020; Douglas et al. 2021). More substantively, the methodological risks of intentionally selecting for success are justified by research goals and scope. As existing literature on this question is limited, the focus was not on definitively validating the role of reputation. Rather, on establishing whether reputation was likely to play any role and deeply analysing the range of mechanisms through which these roles might function. In this context, there is value to selecting critical and extreme cases (Yin 2014). It is in such cases where possible relationships between reputation and success should be easiest to detect and analyse. In other words, in theory-building internal validity is more critical than external. That said, this does not eliminate the need for researchers to be critical and conservative about what lessons they draw from such cases.

In this vein, the third strategy for examining success was critical reflection on findings in light of extant literature. In each chapter, findings on specific cases are discussed in terms of possible implications for regulatory governance performance, lawfulness and ethical considerations, and durability. Reflection is 'critical' in that various possible 'readings' of findings are discussed, including those which are most negative about the success of regulators, and those which directly contradict the author's own conclusions. Reflection intentionally situates findings within existing literature to assess potential generalizability. These strategies do not guarantee that conclusions about success are definitively valid or necessarily generalizable to all settings. As will be discussed, further research will be required to validate findings. However, all efforts were made to ensure the robustness of results and to be entirely transparent about how success was defined and analysed methodologically.

6.7.2. (Securely) collecting reliable data from innovative firms

The first issue to be addressed here was in defining the population. This required systematically creating a frame through a combination of UK government and LinkedIn data. A central question was when a firm could be considered to be involved enough in innovation to be classed as an 'innovative firm'. The solution chosen was to select firms which described themselves as innovative, 'fintechs', or as dealing in a pre-determined list of technologies. This population frame approach likely does capture all firms who would define themselves as involved in private innovation, but excludes those more marginally involved.

A second issue was recruitment and sample representativeness. The overall population is not large (UK fintech firms numbered less than 600 at time of data collection). This population are notoriously hard to recruit: private companies from a high-tech sector who are mostly small and young. Further, the research concerns the sensitive topic of compliance and perceptions of a financial regulator. To attempt to address these problems, the researcher employed the Total Design Method (Dillman 1978) of survey administration. This included making responding as easy as possible and calling respondents three times to try to follow up on invitations to participate. Despite these efforts, the response rate was low. Responses were supplemented via snowball sampling through informal meet ups and LinkedIn. The final sample, though, is relatively small.

Efforts were made to increase sample diversity and report on its representativeness (see appendices of Chapters 4 and 5). Some kinds of firms – notably big, established companies – are underrepresented. Others – notably ex-sandbox participants – are overrepresented. Opt-in bias is likely an issue. Firms willing to respond to a request from a researcher may well also be more compliant in general (Nielsen & Parker 2009, 396). While small, this represents the largest academic study on regulatory governance collecting data from this population of which the author is aware.

A third issue was ensuring that the sensitive data collected from respondents would be securely managed. This dissertation was conducted as the General Data Protection Regulation was first being applied to academic researchers. This significantly delayed research. Questions had to be resolved as to what kind of data from firms was considered legally protected private data under GDPR. Ultimately, the research was able to be carried out in accordance with GDPR. Data was securely stored on Utrecht University's YODA repository. Publications were entirely pseudonymised.

A final risk arising from firm interviews is the risk that respondents may not be reporting their experiences and opinions honestly. Social desirability is a major issue in research into firm compliance motivation (Carter and Siddiki 2019, 12). A critic could interpret interview responses as indicating firms are canny enough to recognise non-compliance or efforts to manipulate the regulatory process are socially undesirable and could, theoretically, 'get back to' the Financial Conduct Authority. Therefore, firms may give untrue but socially desirable responses. Were that consistently the case, findings from the interviews would be highly internally invalid. Efforts were made to counter this. Respondents were informed about all mechanisms put in place to protect their anonymity and data. The question wordings from previous studies on regulatory compliance, designed to reduce social stigma, were replicated. Responses from interviews were compared with those from the self-administered, online questionnaire. While social desirability cannot be eliminated from interviews, it is noteworthy that there was a great deal of consistency between questionnaire and interview responses (for example, there was no notable difference in reported on the level of compliance motivation between methods). Anecdotally, the firm quotes presented in this dissertation indicate a general willingness to criticise regulation and the Financial Conduct Authority with a great deal of candour.

Overall, the author has high confidence in the reliability of information provided by respondents. The questionnaire and then interviews provided rich, insider insights into innovation governance from a business perspective. However, the generalizability might be questionable given the nature and size of the sample. Future research could seek to test generalizability by studies with, for example, larger groups of fintech firms in other jurisdictions.

6.7.3. Operationalizing regulator reputation and reputation management

In empirical bureaucratic reputation research, regulator reputation and reputation management has largely been measured quantitatively (Busuioc and Rimkutė 2020a; Gilad, Alon-Barkat, and Braverman 2016). For interviews and qualitative content analysis, it was necessary to translate these conceptualisations into novel codebooks. These codebooks had to be comparable with the quantitative content analysis and the questionnaire. Yet, they were also designed to be abductive in order that unexpected kinds of reputation or reputational beliefs were accurately captured. This required careful design, detailed in the appendices of chapters 2, 4, and 5.

Another issue was that prior operationalizations were not ideally suited to capturing reputational beliefs and reputational 'signals' in the context of governing private innovation. One particularly prominent issue concerned beliefs relevant to compliance motivation. Prior research from regulatory governance scholarship have established that particular kinds of reputational beliefs about regulatory authorities held by regulatees influence compliance motivation. Yet, these beliefs are not always included in instruments used in bureaucratic reputation scholarship. The solution developed for the dissertation was integration. Significant beliefs identified in regulatory governance scholarship were analytically incorporated into bureaucratic reputation conceptualizations. For example, Lee and van Ryzin's Bureaucratic Reputation Scale includes questions does not include questions about how 'tough' regulators are as enforcers. Toughness is a belief shown to be significant to compliance motivation, so it was included as one of the questions about performative reputation (see Appendix 1: Chapter 4 for more detail and further examples).

Measures were taken to increase confidence in the internal validity of tools to measure reputation. The questionnaire and interview schedule were piloted with academic colleagues, and with fintech firms in the Netherlands. Intercoder reliability was tested for the qualitative content analysis codebook. All instruments were refined on the basis of these tests.

In analysis, some problems arose in comparing findings from the interviews and questionnaire. Moderate differences between the interview and questionnaire imply results may be sensitive to method choice (see appendices of chapters 3 and 4). Further, some aspects of the conceptualizations were hard to compare. For example, many statements about regulator moral and procedural reputation made in interviews did not directly align with the precise measures used in Lee and van Ryzin's Scale. A notable exclusion from the Scale, for instance, are beliefs about whether the regulator tries to help regulatees (see Appendix 1: Chapter 4). Ultimately, it was more internally valid to take a broader approach to coding reputational beliefs in the interviews than in the questionnaire. In recent years, survey instruments better tailored for measuring regulatee perceptions of regulatory agencies have been developed (Overman, Busuioc, and Wood 2020).

Relatedly, as in prior studies (Overman, Busuioc, and Wood 2020), there were difficulties in distinguishing statements about different dimensions of reputation. In particular: distinguishing between technical and performative reputation. Especially in an innovation context, it is hard to disentangle which statements concern expertise and knowledge and which are about outputs and efficiency. One approach prior scholars have taken are seeking to either further refine the concepts or simply remove technical reputation from analysis. While this is valuable for quantitative research, this disregards that organizational reputation is often ambiguous. Carpenter argues dimensions are not entirely distinct and regularly overlap in the imagination of audiences (2010, 69). Regulators specifically rely on an ambiguous reputation to govern effectively (2010, 69). Ideally, regulated subjects should have a somewhat logically inconsistent view of the regulator; the agency is both tough and forgiving, both procedurally strict and flexible. From this perspective, abductive, qualitative approaches to measuring reputation are particularly valuable. These methods can allow researchers to identify ambiguities which may be important to governance success.

Overall, this dissertation demonstrates that reputation management can be analysed in all its complexities, and that mixed-methods studies are valuable in this regard. Measuring reputation is inherently challenging. Care needs to be taken in conceptualizations which can be used in both qualitative and quantitative research.

6.8. IMPLICATIONS FOR FUTURE RESEARCH

This dissertation offers: 1) findings about the likely role of reputation in the governance of emerging innovations in finance and specific mechanisms thereof, which could easily become formal hypotheses and, 2) documented frameworks by which to collect and analyse reputational beliefs about regulators and reputation management by regulators. Both could be leveraged in future research to build and evaluate bureaucratic reputation theory in an innovation context.

In regard to RQ1 (Chapter 2), there is further research work required to develop a theoretical understanding of the role of reputational considerations in shaping regulator responses to emerging innovations. Further studies could seek to apply the theoretical framework of Chapter 2, and the expectations it implies, to the study of reputation management by other regulators responding to emerging innovation in other sectors (beyond finance). A central question for future research is the extent to which regulatory agencies manage reputation reactively (in response to audience demands) or proactively (attempting to shape audience demands).

RQ 3 (Chapters 3-5) begins to address the role of reputation in motivating firm compliance and collaboration in the governance of innovation in finance. Future studies could take a similar approach to evaluate agency reputation as an explanation for the outcomes of innovation supervision efforts in various geographic, technological, and regulatory contexts. The study presented in Chapter 4, in particular, offers several hypotheses about links between specific kinds of reputational beliefs and forms of compliance motivation. These would be well-suited to further evaluation through larger-scale survey or comparative case studies (similar to, for example, Capelos et. al. 2016). More broadly, these studies reaffirm the empirical value of examining both regulator and regulatee perspectives on regulatory governance (Mascini and van Wijk 2009; Gray and Silbey 2014). Future research could continue to build on this by capturing the perspectives of regulated organizations and individuals on the governance of emerging innovation in diverse contexts. Future studies could also seek to interrogate and validate firm accounts through the use of ethnography or other methods to examine actual compliance behaviour over time (e.g. Gunningham, Kagan, and Thornton 2003). A final productive avenue for future scholarship could be to more systematically consider how normative regulatory theoretical prescriptions for increasing regulatory legitimacy, avoiding capture, and broadening stakeholder input (e.g. Ayres and Braithwaite 1995 on tripartism) might be applied in innovation supervision.

6.96. IMPLICATIONS FOR PRACTICE

6.9.1. Reputation and governing emerging innovation in finance: What lessons do these cases offer?

The studies of this dissertation offer dozens of pragmatic insights which may be useful for regulatory practitioners to consider. The following are key lessons derived from the research.

Regulatory agencies should embrace, but be transparent about, the role of reputation, and reputation management, in their efforts to govern emerging innovations

Reputation management should be front and centre when regulatory agencies plan to impose or alter governance over an emerging innovation. Regulatory governance cannot be sustainably, meaningfully imposed against widespread stakeholder resistance. This is doubly true in the context of innovation, where regulators are so dependent on the private sector for information about the nature of new technologies. At times, financial regulatory agencies often have to overcome their somewhat intimidating reputation. At others, agencies may need to build or repair an authoritative reputation with the sector. Less intuitive, but also important, is the role agency reputation plays in facilitating innovation. Findings from this dissertation suggest formal regulatory barriers to innovation in finance are exaggerated, and the informal, commercial, and market institutional barriers are under-recognized. For many firms, far more problematic than regulatory rules is gaining access to the mainstream market. Established players are often nervous about competition, risk averse, and suspicious of the legality and viability of innovative firms and their products. Reputable agencies can facilitate access, and thus innovation. Among other means, they can do so by lending their credibility to innovations and innovative firms. For example, reputable agencies can use their influence to convince banks that certain classes of fintech firms are likely to be deemed to be operating within the law in near future, and should therefore be eligible to hold an account.

Managing agency reputation with the sector and especially innovative firms is therefore a potentially legitimate and valuable strategy for regulators seeking to govern emerging innovations. However, a focus on reputational considerations could also undermine successful governance. For instance, reputational considerations could lead to reflexive, un-strategic decisions about innovation out of a fear of reputational fallout or to chase fleeting positive publicity. Making reputational considerations transparently part of the regulatory decision-making about innovation governance could help to address these issues.

Governance instruments, policies etc. which work for a high-reputation regulator may not work as well for other regulators

A further implication of the discussion thus far is that agencies should be cautious in adopting policies and instruments from other jurisdictions. Some kinds of instruments are highly reliant on innovative firm collaboration. This collaboration may not be forthcoming if regulators are still developing their reputation with the sector. Agencies may want to consider conducting 'market research' into their reputation with their various audiences before embarking on substantial new policies etc. In the period this dissertation was written, several survey instruments for this purpose have been developed and validated (for e.g., Overman, Busuioc, and Wood 2020).

Agencies hoping to collaborate with the private sector on the governance of innovation should seek to develop a reputation for openness, procedural correctness, and competence

Findings of the research suggest these three kinds of beliefs are especially important to attracting good-quality, good-faith collaboration from innovative firms. Agency reputation is particularly important for attracting collaboration from start-up firms and especially start-ups headed by first-time senior managers. The less direct experience firm management have had with the regulator, the more their beliefs about the regulator are shaped by its popular reputation (in the media, with other firms). Often, the popular reputation of regulators is plagued by stereotypes that they are anti-innovation, bureaucratic, and inflexible. Regulators should expect to have to overcome such beliefs through reputation management. Regulators should seek to cultivate this reputation directly with innovative firms. Yet, incumbent players should not be excluded. The desire for mainstream market credibility among innovative firm may be one of the biggest informal 'levers' agencies can use to influence their behaviour. This includes encouraging them to collaborate in the governance of innovation at various stages. That lever, however, can only be pulled by a regulator with established procedural legitimacy with the market.

Regulatory reputation is managed not just through mass communications, but also through direct interactions between stakeholders and regulator staff

Regulators should approach mass communications on emerging innovation strategically. Innovation supervision is a distinct task with distinct audiences. Regulators should not assume the kind of communications practices which worked with mature firms, for example, will work with emerging ones. Regulators could consider tailoring language in their communications in order to signal, for example, openness or procedural correctness (Rimkutė 2020). Another consideration is the potential use of mass communications to valorise those innovative firms who are regulatory exemplars. A major incentive for innovative firms to collaborate with regulators is to gain positive publicity.

Also highly important is the nature of direct interactions between regulator staff and, in particular, innovative firms. Regulatory agencies should seek to create opportunities for early, positive direct interactions with innovative firms. This dissertation's findings suggest that this can be achieved through regulator 'road shows', informal introductory meetings, innovation hubs, and advice units. Regulatory sandboxes, though, are especially effective. Sandboxes can provide greater opportunity for face-to-face interactions in which regulatory issues surrounding innovation can be discussed in depth. Not all sandbox designs, however, will fulfil this function. Some instruments currently referred to as 'sandboxes' are essentially a dedicated advice phoneline. Some offer blanket regulatory relief for innovative firms meeting certain pre-determined conditions (Zetzsche et al. 2017). These sandboxes may be well designed to address formal regulatory barriers to innovation. Yet, they remove the months of direct interaction between regulatory staff and innovative firm managers which characterize the UK's regulatory sandbox for fintech.

One implication of these lessons is that successful regulatory governance of emerging innovation is almost certainly resource-intensive. At minimum, having dedicated innovation staff with adequate expertise and experience is costly (J. Braithwaite 2013, 137). This may be hard to justify given many innovative firms are small and the scale of their risks negligible. Further, regulators may be criticised for their staff acting as taxpayer-subsidised pseudo-consultants for private firms (Black 2012). However, a central insight of contemporary innovation governance scholarship is the need to recognise and engage with private innovation early (Mandel 2017; Ford 2017). In early stages, innovations are protean; having the capacity to be refined and commercialized in many different final forms. Studies in this dissertation illustrate how regulators can govern formally and informally at these early stages. They can govern in ways which steer innovators away from highly dangerous and legally untenable directions; help innovators bring new, competing products into a potentially hostile established market; and build more collaborative rather than adversarial relationships to the private sector. When regulators only seek to impose governance at later stages, these opportunities can be lost. Innovative firms and products can go from too small to matter to too big to manage very quickly (Brownsword, Scotford, and Yeung 2017, 6). Thus, regulators could justify dedicated innovation units etc. as relatively affordable investments in risk prevention.

6.9.2. Normative considerations for innovation governance

Thus far the discussion has focussed on regulatory governance success in a primarily performative sense. The studies, however, also highlight a number of potential ethical issues surrounding the legitimacy of regulatory governance of emerging innovation.

The most obvious objection to this dissertation is that its conclusions ignore, and its recommendations will foster, regulatory capture. Regulators making decisions on a reputational basis will choose innovation governance approaches that appeal to their most powerful stakeholders (like big business) instead of choosing those which appropriately managing risks. Regulators seeking to collaborate with innovative firms will end up — consciously or unconsciously — prioritising business views and preferences over the public interest (Edelman and Talesh 2011). Developing a reputation for openness will undermine the agency's reputation for tough enforcement, reducing deterrence and increasing non-compliance (Apel 2021). Indeed, results from the study presented in Chapter 5 show no increased compliance motivation among firms who enjoy collaborative, frontline interactions with regulatory staff.

Study results in and of themselves, though, do not support that this kind of capture is a major problem in the cases analysed. While the study in Chapter 5 does not show an immediate increase in compliance motivation following collaboration, this may be a product of methodological limitations. Further, fintech firm senior managers report consistently high compliance motivation and most report improvements in their level of trust in, and positive perceptions of, regulators in ways prior theory and research indicates are associated with higher compliance (Six and Verhoest 2017; Nielsen and Parker 2009, 383). Firms do not express a belief that it is possible or desirable to meaningfully influence the regulator's decisions about an innovation's legal status. This could, as discussed, be a social desirability effect. Results, however, also show firms are more motivated to collaborate with a highly procedurally correct regulator than one which could be open to particularism; a finding inconsistent with a motivation to manipulate the governance process. Overall, the irreverent, disruptive fintech entrepreneur often imagined in the media was rarely found in this study. Rather, fintech firm managers were generally trying hard to correctly navigate the regulatory process. This does not mean that such firms do not exist. Rather, that the assumption that firms would only collaborate in regulatory governance to capture the process is reductionist and unrealistic (c.f. Braun 2012).

Regardless, capture is a perpetual regulatory risk. Part of the justification for making regulatory agencies semi-autonomous is that insultation from political considerations will avoid capture and increase the chance that regulatory decisions are based purely on what is technically and legally 'correct'. Contemporary scholars, however, recognise that regulatory capture is not a binary state (Kwak 2013). Regulatees and regulators are interdependent. Some degree of influence is inevitable. Influence can become harmful capture where it makes regulators – consciously or not - prioritize the views and interests of regulatees over the public interest. Yet influence and inter-dependency alone does not mean regulators are captured. It is simply a feature of contemporary regulatory governance and its decentring of regulatory power and authority (Black 2002). In an innovation context, Allen describes this as an "awkward reality" (2019, 632): successful regulatory governance is only likely to be achieved through close relationships with the targets of regulatory authority.

Beyond capture, the studies raise a number of other ethical considerations. There is much to praise about the experimental and informal manner in which the UK's Financial Conduct Authority governs emerging fintech. Yet its approach has been widely criticised. Most relevant here are critiques that the FCA's governance cultivates complacency about the risks of innovations and is insufficiently transparent about how those risks are being managed (Philipsen, Stamhuis, and de Jong 2021; Omarova 2020; Kelly 2018). Complacency about innovation is said to arise due to 'riskwashing' and 'pseudo-experimentation'.

Riskwashing refers to making products appear low-risk through "superficial or narrow", ingenuine risk assessment processes (Brown and Piroska 2021, 2). Scholars have argued that, if improperly implemented, experimental instruments for emerging innovation like sandboxes can fall into the trap of falsely simplifying its governance down to technical questions about individual cases. Such a shallow, casuistic approach ignores systemic risk and obscures political and moral dimensions innovation and its regulation (Omarova 2020, 41). Study results from this dissertation show that, indeed, reducing the perception of risks is a conscious strategy by the FCA to promote innovation. There was no indication from analysis that the FCA risk assessment processes for fintech, though, were more superficial than other procedures. However, the quality of assessment processes themselves were not necessarily significant in shaping risk perceptions of market shareholders. For example, firms report sometimes mere acceptance into a sandbox, even before a test, can be enough for stakeholders to see a product as having a manageable risk profile. Even unintentionally, by collaborating with innovative firms the agency lent its endorsement to those firms and their products.

Pseudo-experimentation refers to regulation which has some of the trappings of experimental regulation but lacks the rigour true experiments require (Philipsen, Stamhuis, and de Jong 2021). Tests in the FCA's fintech sandbox are not scientific. They are not necessarily representative of an emerging innovation, its market applications, or its risk profile. Regardless, regulators may consciously or unconsciously treat sandbox test results as if they were scientific, rigorous, and representative. Regulators might, for example, use them to justify sector-wide reforms (Ranchordas 2021b). Results in this dissertation illustrate this precise issue, and demonstrate that similar issues also arise among private firms. For instance, firms share 'lessons' from their sandbox test with peers and stakeholders, potentially shaping business perceptions on the basis of one, perhaps unrepresentative, case.

Relatedly, the lack of transparency about the inner workings of sandboxes is ethically questionable for a number of reasons. These issues are not limited to sandboxes, but are relevant to experimental, adaptable, proactive, and informal forms of innovation governance in general. If the governance of innovation is to be informed by direct, often informal, regulatory conversations with firms, it follows that political leaders, the general public etc. have a right to know what those conversations involved (Ranchordas 2021b, 20; Philipsen, Stamhuis, and de Jong 2021, 9). Regulatory agencies are not democratically elected. Their legitimacy derives, in part, by being accountable for the decisions they reach in collaboration with firms. Further, there would be a great deal of benefit to other stakeholders being able to read about the internal conditions applied to sandbox tests, and the outcomes of tests; both those which succeed and those which 'fail'. This information could prevent firms from trying to pursue innovations which do not work with regulatory frameworks. This could also help firms to develop better internal risk management frameworks. Ethically, it would help to rebalance the unequal benefits provided to sandbox versus non-sandbox firms (Philipsen, Stamhuis, and de Jong 2021, 9). Greater transparency could also be useful for other stakeholders to learn about innovation, its risks, and how they can be managed, notably regulators in other jurisdictions.

These ethical considerations do not contradict the earlier conclusions of this dissertation. Rather, recommendations about reputation management and collaboration need to be implemented alongside institutions to manage risks. Regulatory governance of innovation is a political process. Rather than seeking to remove politics from regulatory governance, institutions need to be in place to make that political process more transparent, rigorous, inclusive, and fair.

Most directly, regulators should be required to transparently report on all aspects of regulatory governance over private innovation relevant to the public interest. This could be reported in an anonymised fashion in order to protect the commercial and private information of individual firms and managers (Philipsen, Stamhuis, and de Jong 2021, 14). Regulators should have an overt policy about how information from informal stakeholder conversations and consultations, and test cases, will be used in the development of future rules and guidance (and be transparent about the limitations of information gleaned from tests). Proactive, informal, and experimental instruments should not replace eventual, formal policies, rules etc. Once the risks and applications of an innovation are better understood, legitimacy, equity, and transparency demand a considered, formal regulatory response. These eventual policies should seek to learn from test cases and experiments, but must also holistically evaluate the political, legal, and moral questions innovation raises via "normatively thick analysis" (Omarova 2020, 41). Stakeholder reference groups representing consumers, investors, and other interests could provide essential oversight and accountability (Brown and Piroska 2021, 13). By bringing a broader range of societal interests into the regulatory governance process, agencies deepen democratic deliberation over the course of private innovation. By extension, sandboxes should not be implemented where agencies are unwilling and unable to adequately fund their implementation, including allocating experienced personnel. Certain instruments for innovation governance are only likely to succeed with substantial, ongoing funding.

6.10 CONCLUDING REMARKS

Contemporary innovation governance is messy. It involves trial and error; false starts, mistakes, educated guesses, adaptation, and muddling-through. Experimental, adaptable, and proactive governance offer the potential for a more realistic and balanced approach to innovation. This dissertation provides further evidence that this kind of governance holds many advantages over traditional approaches. As Ford argues:

> "The 1970s-era complaints about bureaucratization, interest group influence in regulation, and ineffectiveness were not completely unfounded. For these reasons, the way forward is not through a nostalgic turn back … it is through a new kind of state action that locates deliberation, polycentricity, and anti-domination sentiment at its core…" (2017, 128).

To govern in proactive, experimental, adaptable ways, regulators must appeal to, and collaborate with, the stakeholders invested in regulation, including its subjects. Regulators must thus be sensitive to their reputation with stakeholders. They must be willing to manage their reputation and therefore — by necessity — enter the arena of interests, power, values, ideology, rhetoric, and persuasion. Yet they must enter this arena unassailably committed, not to technocracy or private profits, but to democracy and the public interest.

Appendix 1

Detailed methodologies

7.1 CHAPTER 2. DETAILED METHODOLOGY AND RESULTS OF CODING

In this study we compare reputation management responses of three financial regulators (NY DFS, UK FCA, and AUS ASIC). We examined which communicate strategy each agency chose and whether, and how, they engaged in image management. Image management was determined through comparing the image they presented in their communications about cryptocurrency to their image in the period immediately prior, then comparing between cases.

The study used three methods: 1) qualitative document review of the agency's pre-existing image and 2) quantitative and 3) qualitative content analysis of cryptocurrency communications. The quantitative analysis determined communications strategy. The document analysis, with the qualitative content analysis, analysed image management.

For the document analysis, we searched Google Scholar, Westlaw, and Lexis Nexis with agency titles, acronyms, and 'reputation'. Documents were included if they were published in the three years prior to the agency's first communication about cryptocurrency. Documents included the agency's own statements, academic literature, and authoritative media and expert judgements. To determine the nature of the agency's pre-existing image, documents were interpreted using the coding schema described below.

For the quantitative content analysis, we collected all agency communications published after 2008 and before March 2018 about cryptocurrency or closely related topics like general statements about fintech (where cryptocurrency was a technology under that label). We searched agency websites and official Twitter account(s)[30] with the word cryptocurrency and closely associated terms. We collected 538 individual texts. These were imported into NVIVO and analysed to determine text type (e.g. speech, tweet) and audience (e.g. mass, private) (Moschella and Pinto 2019, 520). Agencies were considered to have chosen low- or high- profile strategy based on number of texts, frequency of publishing, and high- versus low- profile fora (e.g., targeted, private speeches versus media appearances).

A stratified (by type) random sample of 351 texts were then subjected to qualitative content analysis to determine what kind of image each agency presented. We developed a coding schema using Carpenter's framework of reputational competencies and informed by previous analyses using that framework (e.g. Rimkutė 2018). This is summarized in Table 2.2. After coding we conducted a summative analysis of the documents.

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[30] @DFS, @TheFCA, @ASICMedia, @ASIC_Connect, @MoneySmartTeam

We determined roughly which kinds of competencies and aspects agencies raised most often. These aspects were then interpreted qualitatively to determine the overall image the agency was constructing.(Hsieh and Shannon 2005, 124–25) This was then compared with the competencies and aspects presented by the other two agencies, and compared to its pre-existing image. Summary results by agency are presented in Tables 2.3-2.5.

Table 2.2 Coding schema

	Description	Agency examples	'Action' examples	'Goal' examples
Performative	Phrase refers to capacity of the agency to achieve desired outputs and outcomes; the extent to which it is substantively successful – including efficiency.	We are an effective and efficient market regulator.	Improvements to the regulatory framework has attracted foreign investment. By updating our procedures, we have reduced financial licensing fees by 10%.	Increasing market competition is our central goal. We will publish regulatory guidance in the next quarter.
Technical	Phrase refers to the expertise of the agency relevant to its capacity to perform its role; examples: "scientific accuracy, methodological prowess, and analytical capacity".	The staff of our innovation unit are experts in fintech. The agency is still learning about fintech.	The current policy is based on a quantitative analysis of market trends in 8 jurisdictions. We are implementing a sandbox to gather evidence about regulatory effectiveness.	The agency aims to increase its analytical capacity by establishing a specialist 'market scanning' unit.
Procedural	Phrase refers to the use of correct procedures associated with decision making: Procedural fairness Adequate evidence collection and provision Decisions based on evidence Meeting consultation requirements The thoroughness of procedures.	The agency acts in accordance with the requirements of the Administrative Proceedings Act 1959.	Our enforcement decision against [company X] was made in accordance with Guidelines v3.1.	The agency will increase consultation periods from 2 to 4 weeks.

Table 2.2 *(Continued)*

	Description	Agency examples	'Action' examples	'Goal' examples
Moral	Phrase refers to the ethics or morality of the agency's goals or means, including: Protecting the interests of stakeholders Honesty Kindness Compassion 'Humanity'.	We consider ourselves a guardian of competitive markets. The agency considers itself a partner to industry, helping firms to comply.	We have published the risk analytics to enable transparent debate about the risks of [policy X].	We are committed to maintaining an even playing field for all firms. Our goal is to protect consumers.

Table 2.3 Image signalled by NY DFS in cryptocurrency communications

	Aspects from pre-existing image	Additional aspects
Performative	• Is tough, stringent, and comprehensive in market supervision; gets results • Is more effective than federal regulators	• Performs well in regulating cryptocurrency/financial innovation • Implements unique and novel regulatory solutions • Regulation not hindering (indirectly helps) facilitate business development • Regulation not hindering (indirectly helps) facilitate financial innovation
Moral	• Primarily aims to protect consumers of financial products from fraud and other harm • Aims to combat illegal activity in New York, the US, and internationally (money laundering and terrorism) • Promotes fairness in financial markets; setting appropriate and consistent regulatory standards	• Aims to protect consumers/ combat illegal activity in regard to cryptocurrency • Aims to facilitate financial innovation
Procedural		• Makes decisions based on rigorous fact finding and inquiry
Technical	[Not emphasized, rarely discussed]	[Not emphasized, rarely discussed]

Table 2.4 Image signalled by UK FCA in cryptocurrency communications

	Aspects from pre-existing image	Additional aspects
Performative	• Employs principles/outcomes-based regulation; flexible and adaptable • Regulates in ways which promote competition in financial markets, but also protect consumers • Supervises proactively, addressing new regulatory issues early • Leads the world in creative regulatory solutions	• Directly facilitates business development • Performs well in regulating cryptocurrency/financial innovation • Regulator directly facilitates financial innovation
Moral	• Has a role in promoting market integrity and consumer protection • Has a central role in promoting competition, which is balanced with protecting consumers	• Aims to facilitate financial innovation
Procedural	• Not rigidly rule bound • Coordinates their actions with other regulators/agencies	
Technical	[Not emphasized, rarely discussed]	[Not emphasized, rarely discussed]

Table 2.5 Image signalled by AUS ASIC in cryptocurrency communications

	Aspects from pre-existing image	Additional aspects
Performative	• Supervises proactively, addressing new regulatory issues early through legal procedures • Provides high quality ‘customer’ service to individuals and businesses it regulates or advises	• Performs well in regulating cryptocurrency/financial innovation • Regulator indirectly facilitates business development • Regulator indirectly facilitates innovation • Implements unique and novel regulatory solutions • Leads the world in inter-regulator coordination on fintech
Moral	• Aims to promote the interests of shareholders/other investors • Aims to promote fairness in financial markets; setting appropriate and consistent regulatory standards	• Aims to facilitate innovation
Procedural	• Coordinates appropriately with other regulators • Facilitates stakeholder deliberation where issues not resolved in law	
Technical	[Not emphasized, rarely discussed]	[Not emphasized, rarely discussed]

7.2. CHAPTER 4. DETAILED METHODOLOGY

7.2.1. Questionnaire

Questionnaire design

Initial exploratory interviews were first conducted with UK industry and regulatory experts. Informed by these interviews, and literature, the questionnaire was designed. The questionnaire and schedule for the interviews addressed the same topics: reputational beliefs about the FCA, motivations to apply (or not) to the sandbox program, and contextual, control questions.

Questions on reputational beliefs about the regulator were based on Lee and van Ryzin’s (2019) Bureaucratic Reputation Scale survey instrument. The Scale conceptualizes reputation as made up of five dimensions: performative, moral, technical, procedural, and ‘general esteem’. More specific questions on beliefs of reputation relevant to regulatory authorities were wherever possible taken directly or adapted from previous studies on beliefs about regulatory agencies (see Table 4.2).

Table 4.2 Variable operationalization (Question wording)

Variable	• Question wording	Source
Motivation to apply to the regulatory sandbox (level)	• Assuming your company was eligible, and had the capacity to apply and participate, how likely would it be to apply for the sandbox in future? (Almost certain would not – Almost certainly would)	NA
Motivation to apply to the regulatory sandbox (type)	• Why does your company want to apply for the sandbox? Please select the most relevant reasons (up to three) from the list: • To make the authorization process cheaper, easier, and/or quicker (EXPEDIENCE). • To improve our public image with investors, customers etc (CORPORATE REPUTATION). • To improve our relationship with the FCA (INFLUENCE). • To influence fintech regulation so it doesn't disadvantage us (INFLUENCE). • To minimize risks to our customers and investors (COMPLY WITH LAW). • To learn more about financial laws and how they apply to us (COMPLY WITH LAW). • To make sure we're compliant with the law (COMPLY WITH LAW). • Other [specify]	Adapted from Nielsen & Parker.(Nielsen and Parker 2009)

Table 4.2*(Continued)*

Variable	• Question wording	Source
Reputational beliefs		
Performative – Agency is a tough regulatory enforcer	• If my company did not follow financial regulations, the FCA would probably catch us.	Adapted from Peace, Galletta, and Thong. (Peace, Galletta, and Thong 2003)
Performative - Agency can help firms achieve their goals	• The FCA is capable of assisting companies like mine to achieve our goals.	Questions original, but adapted from dimensions of perception that regulators are 'facilitative' derived from May and Wood.(May and Wood 2003)
Moral – Agency generally aims to help firms achieve their goals	• The FCA aims to help companies like mine achieve our goals.	As above.
Procedural – Agency is procedurally correct	• The FCA treats people fairly. • The FCA is politically neutral.	Lee & van Ryzin.(D. Lee and Ryzin 2019)
Procedural – Agency is procedurally flexible	• The FCA applies rules rigidly.	Questions original, but adapted from dimensions of perception that regulators are 'formal' from May and Wood.(May and Wood 2003)
Technical – Agency is an expert on a given sector	• The FCA bases its decisions on evidence. • The FCA has the skill to deal with complex situations.	Lee & van Ryzin.(D. Lee and Ryzin 2019)

Notes: With the exception about the motivation (type), all questions were measured using a 5-Point Likert scale. All reputation belief questions ranged from Strongly Disagree – Strongly Agree with a 'don't know' option.

Motivation to apply for the sandbox was measured in regard to 1) the extent to which firm were motivated to apply, and 2) the nature of that motivation. In interviews, additional, open questions and probes were used to identify whether, and through what mechanisms, these motivations were linked to beliefs about the regulator. Questions operationalizing kinds of motivation were adapted from Nielsen and Parker's 2012 study.

Controls and dependencies were identified through literature review. Due to the design of this study, some categories of variables do not need to be included. All firm responses are collected at roughly the same point in time, all firms are in the UK, and all are in the fintech sector. Therefore, variables related to formal and informal institutions at the national or sectoral level are controlled, as are the effects (broadly) of events or trends. Prior research has found myriad factors which affect willingness to (beyond) comply with the law and authorities. Many of these, however, are captured by reputational beliefs e.g., many studies are about perceptions of procedural correctness. Further, many studies are strictly about individual level factors e.g., race. These are not considered relevant here, as the unit of analysis is the firm. Relevant controls are presented in Table 4.3.

The questionnaire was piloted by a dozen academics in multiple rounds. It was then sent to several volunteer fintech company employees in the Netherlands who were then interviewed for their feedback.

Table 4.3 Controls for motivation to apply to the sandbox

Control	Explanation
Head office location (UK/non-UK) Head office location (EU/non-EU)	While only firms in the UK will be included in this study, there may be differences arising from companies which are not originally from the UK or from within the EU e.g., influence of different national/regional cultures of compliance.
Company city (Edinburgh or London/other)	Being geographically further from cities where regulators are based reduces perceived likelihood of detection, influencing motivations to comply and cooperate with regulators (Yan, Rooij, and Heijden 2015).
Firm size and age	Research suggests both affect motivation to comply and cooperate with regulators, though the direction of the relationship varies between studies (Ko, Mendeloff, and Gray 2010; Gunningham, Thornton, and Kagan 2005; Corneliussen 2004).
Firm autonomy	Not all firms have equal autonomy to make decisions, for instance due to their ownership structure (Yan, Rooij, and Heijden 2015; Weaver 2015) This might lead to differences in motivation to cooperate with regulators. For example, in questions about firm willingness to – say – participate in the sandbox it may be that it is not that the firm is unmotivated, but that such a move would not be allowed by their parent company.
Firm financial sub-sector Firm technological sub-sector	While the firms in this study would experience broadly similar regimes, there will be differences based on firm financial sub-sector (e.g., insurance versus advice) and firm technological sub-sector. That is, the regime for insuretech is different to biometrics and therefore some differences in motivation to comply and cooperate are probably thereby explained (Yan, Rooij, and Heijden 2015).
(Subjectively reported) good knowledge of regulation	Knowledge of regulation has been correlated with motivation to comply and cooperate with regulators (Kirchler et al. 2007; L. M. Tan and Braithwaite 2018; May 2005). There is evidence from experiments that having more information about a policy increases motivation to voluntarily cooperate (Porumbescu et al. 2017).
Hearing about or experiencing inspection, audit, or sanctions	Whether firms have heard about or experienced inspections, audits, or sanctions recently effects their motivation (Gunningham, Thornton, and Kagan 2005).
Network participation	Greater 'network participation' (i.e., talking more to others about compliance) generally increases knowledge of new laws. The attitudes of those with whom you are in contact affects compliance attitudes e.g., guilt. Where you perceive others to have pro-compliance attitudes this increases the likelihood that you too will report such attitudes (Roch, Scholz, and McGraw 2000; Bottoms et al. 2004; Farral and Calverley 2005; Maruna 2007). Denser social connections generally facilitate information flows and enhance social control unless non-compliance is embedded in one's network (Burt 2000).

Table 4.3 *(Continued)*

Control	Explanation
Intrinsic motivation	Some firms (and some firms to some extent) are intrinsically motivated i.e., doing good out of a sense of duty. Intrinsic motivation is positively associated with having a greater level of motivation (May 2005; V. Braithwaite and Reinhart 2013; Kirchler et al. 2007). We would expect intrinsically motivated firms to have higher beyond compliance motivation, and therefore that some portion of beyond compliance motivation to be explained by intrinsic motivation (independent of perceptions of the regulator).
Belief that sanctions are reasonable	The belief that sanctions in a legal or regulatory regime are unreasonable has been widely found to reduce motivation (Kirchler et al. 2007; Corneliussen 2004; Siddiki, Basurto, and Weible 2012).
Belief that others following the law most of the time	A belief that others in a regime are breaking the law or 'getting away' with bad behaviour reduces motivation (May 2005).

Administration

Firms for the population frame were found using a key word search on LinkedIn company pages (Alaassar, Mention, and Aas 2020). Firms were included if they: described themselves as a fintech firm or as working extensively with a technology the FCA has included in its description of fintech; are registered with Companies House (the UK's business registry); are active i.e., not dormant or dissolved; are engaged in activities which would feasibly be subject to financial conduct regulation e.g., excluding software companies; and have a public email address.

The questionnaire was administered using the Total Design Method (Dillman 1978).[31] Despite these efforts, a low response rate (29) justified additional snowball sampling. At that point, I had begun the interview portion of the study. I would ask respondents from interviews to recommend other contacts, leading to the recruitment of eight more respondents (37). Two were from the same firm, thus the final number of firms was 36.

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[31] In addition to piloting the survey, recommended techniques were used to make the questionnaire easy to read and use. Firms were sent email reminders halfway through the survey period and again three days before it closed. Firms were also contacted over the phone, where possible, to follow up.

Data cleaning and analysis

There was some missing data on reputational questions. Three responses which were completely missing reputational data were excluded. Where respondents were missing one or two questions in the Bureaucratic Reputation Scale, multiple forms of imputation were tested. Analysis found no significant difference in means. Seven respondents did not answer the question about willingness to apply. These were excluded from analysis about potential effects of reputation on motivation (as it was deemed that no reasonable imputation could be conducted). An additional data cleaning step was to combine two responses from the same company, using an additive aggregation method.

I compared the makeup of the sample to the characteristics of the population frame. Not all details known about firms in the sample are publicly available and cannot be compared. Some characteristics are comparable between population and sample: firm age (*M* =7.4/7.1 years), ownership model (majority private limited companies), and location (majority English). The proportion of firms with fewer than 50 employees in the sample mirrors the proportion in the population. However, the sample slightly overrepresents very small firms (under 11 employees) and includes no large firms and few older firms (see Table 4.4). After producing descriptive statistics of all variables, I compared differences in willingness to apply among different groups in the sample (Table 4.5).

The sample size of the questionnaire, however, is too small to draw robust inferences. It does not provide adequate power for models with several controls. Survey results were, therefore, only used descriptively in reporting findings.

Table 4.4 Representativeness of sample

Firm staff	Sample	Population
0–50	71%	72%
50+	11%	28%
NA	17%	-
Firm country		
England	71%	96.9%
Scotland	6%	1.5%
Wales	0%	1.2%
Northern Ireland	0%	0.2%
Isle of Man	0%	0.2%
NA	23%	-

Table 4.4*(Continued)*

Located in city with FCA office (London or Edinburgh?)		
yes	66%	73.2%
no	11%	26.8%
NA	23%	-
Ownership model		
private	77%	92%
limited partnership	6%	3%
other	0%	2%
NA	22%	3%

Table 4.5 Differences in motivation to apply by sample characteristics

	N	%	Difference in DV mean by group
Current or former sandbox participant			
yes	6	17%	Welch Two Sample t-test
no	22	88%	p = .0012
NA	7	20%	
Firm turnover			
less than one million	20	57%	Welch Two Sample t-test
one million or more	8	23%	p=.08622
NA	7	20%	
Firm staff			
0-5	12	34%	One-way ANOVA p=.836
6-50	13	37%	
50+	4	11%	
NA	6	17%	
Firm country			
England	25	71%	
Scotland	2	6%	Welch Two Sample t-test
Wales	0	0%	p= .8694
Northern Ireland	0	0%	
NA	8	23%	
Located in city with FCA office			
yes	23	66%	Welch Two Sample t-test
no	4	11%	p= .47
NA	8	23%	

Table 4.5*(Continued)*

	N	%	Difference in DV mean by group
Ownership model			
private	27	77%	
limited partnership	2	6%	Welch Two Sample t-test p= < 0.0005
public but unlisted	0	0%	
publicly listed	0	0%	
other	0	0%	
NA	6	1%	
Financial sector			
banking or payments	9	26%	
investment	10	29%	One-way ANOVA
lending	3	9%	p=.555
other	6	17%	
NA	7	20%	
Technological sector			
online platforms	20	57%	Welch Two Sample t-test
other	9	26%	p= .7196
NA	6	17%	
Member of more than one professional network			Welch Two Sample t-test p= .044
yes	12	34%	
no	3	9%	
NA	20	57%	
Frequency of network participation			
1-4 times a year	5	14%	One-way ANOVA p=.562
5-9 times a year	5	14%	
10 or more times a year	5	14%	
NA	10	29%	
Frequency of political participation			
never	8	23%	One-way ANOVA p=.782
infrequently	16	46%	
three or more times a year	4	11%	
NA	7	20%	
N	35		

7.2.2. Interviews

Schedule

The interview schedule was developed to, as much as possible, replicate the questions from the questionnaire, while allowing respondents to provide more narrative explanation as to what motivated them to apply (or not) to the sandbox. Interviews were semi-structured. The same questions were asked, and similar probes used. Questions, however, were mostly open and prompts were improvised at times with the aim to get greater detail. Transcripts for both versions of the interview schedule are provided below.

Administration

Interview respondents were sought via the survey and through snowball sampling. Twenty-one senior managers agreed to be interviewed. The companies who agreed were typically seven years old or younger. The group likely overrepresents sandbox participants. Snowball sampling probably played a role here (where ex-sandbox participants sometimes knew one another through professional networks). The final group of respondents, however, is diverse in terms of technological and financial sector. There is a mix of companies from the UK and from abroad. Firms had different levels of prior experience with the FCA and were in different stages of business development and authorization. Interviews were, on average, 45 minutes long. Two-thirds were conducted in person, and one-third online. Audio was recorded and transcribed.

7.2.3. Codebook design

A detailed codebook was developed prior to interview. This is available on request, but I will summarize key points. Questions and answers from the survey regarding the sandbox and motivation to apply were able to be essentially recreated for the interview codebook. Additional codes were added to categorize different reasons raised by respondents explaining why they had or did not have certain kinds of motivation. In regard to reputation, questionnaire questions from the Bureaucratic Reputation Scale and specific beliefs were also recreated as codes. Some additional specific beliefs were added inductively to the codebook where unanticipated perceptions were repeatedly raised by multiple respondents.

In coding, any subjective, generalized statement about the regulator was considered to be reputational (e.g., The FCA is so helpful). Statements characterizing one-off, specific interactions with the regulator were coded as ‘interactions’ and not reputational beliefs (e.g., It was very helpful when the FCA gave us that contact at the SEC). Statements were initially coded according to which dimension of reputation they represented using Carpenter’s definitions (Carpenter 2010, 45). Carpenter’s definitions match – but are more encompassing - than the measures for dimensions used by Lee & van Ryzin (2019), a difference discussed further below.

The initial codebook was piloted on several interview transcripts to determine whether it was sufficient and parsimonious to reflect all relevant information from the interviews (Bazeley and Jackson 2013, 95). Interview transcripts did include some specific perceptions not originally anticipated by the codebook (e.g., negative characterizations of the regulator as bureaucratic). The codebook was revised to include all relevant codes, and all transcripts coded.

Table 4.6 Conceptualization of reputation dimensions in codebook, from Carpenter 2010

Performative	Statement refers to capacity of the agency to achieve desired outputs and outcomes; the extent to which it is substantively successful – including efficiency.
Technical	Statement refers to the expertise of the agency relevant to its capacity to perform its role; examples: “scientific accuracy, methodological prowess, and analytical capacity” (Carpenter 2010, 72).
Procedural	Statement refers to the use of correct procedures associated with decision making: • Procedural fairness • Adequate evidence collection and provision • Decisions based on evidence • Meeting consultation requirements • The thoroughness of procedures.
Moral	Statement refers to the ethics or morality of the agency’s goals or means, including: • Protecting the interests of stakeholders • Honesty • Kindness • Compassion • ‘Humanity’.

7.2.4. Coding and analysis

In analysis, I first checked transcripts against recordings to ensure quality, and removed personally identifying details. I then read through each transcript and recorded my initial thoughts as to how the respondent’s answered the research questions. I categorized each respondent according to whether they were sandbox participants or not, which cohort they were in, and how willing they were to apply to a future sandbox. I then used ‘bucket’ coding (Bazeley and Jackson 2013, 34), breaking up transcripts by topic and the time period being discussed (pre-authorization, post-authorization, and during authorization). From there, I qualitatively coded each topic using the codebook. Where respondents stated or implied a link between reputation and motivation to apply, and explained what these links were, these were coded separately (Bazeley and Jackson 2013, 108).

At each stage, validity was checked through reviewing and re-coding transcripts. For example, once all transcripts were coded, I would return to the code and ensure that all coded comments matched the description of a code (and thus concept). Some codes related to 'valence' (e.g., how likely firms were to apply, how positively they viewed the regulator). In that case, I would examine all coded comments at each level (most negative to most positive) to ensure that each comment was placed in the right category, and each firm was categorized at the right level overall.(Humble 2009)

For comparability with the survey, I originally attempted to create classifications using statements which exactly matched the questions from the survey (i.e., the Bureaucratic Reputation Scale). This was possible, but created misleading classifications. Many statements about FCA reputation were not counted toward the classification because they did not match Lee & van Ryzin's precise measures. The measures for performative and technical reputation worked well, but not those for moral and procedural. Lee & van Ryzin's questions regarding procedural reputation exclude perceptions to do with the potential downsides and trade-offs of procedural correctness (i.e., over rule-orientation; bureaucracy, inflexibility). Their measures capture the ethical and trustworthy aspects of moral reputation well but exclude perceptions to do with morally favourable characteristics i.e. being facilitative (Carpenter 2010, 45). Strictly recreating the Scale, thus, led to less accurate classifications of the actual valence of the regulator's reputation with respondents. This is not to critique Lee & van Ryzin's approach. I consider the problem to have arisen from applying a Scale developed for and tested with citizen perceptions of agencies to regulated firms. Regulated firms have a different relationship to regulators than citizens. This study provides yet more empirical support that firm perceptions and priorities of agencies are almost certainly different than other regulator audiences (e.g. Overman, Busuioc, and Wood 2020). Further, that bespoke instruments may be required in future to measure the strength of a regulator's reputations specifically with firms.

In my second attempt at classification, I took a broader approach. When classifying each dimension of reputation, I looked at all statements I had coded to that dimension. In effect: using Carpenter's wider conceptualization rather than Lee & van Ryzin's narrower operationalization. With this coding and classification, it is possible to examine links between reputation and motivation to apply. First, because one can compare differences in the nature and valence of perceptions between those firms which are motivated and those which are unmotivated and, second, because one can identify where firms state or imply that the regulator's reputation played a role.

To analyse potential links between perceptions and motivation, I compared the perceptions of firms who were motivated to apply to the sandbox to those who were less motivated. These were compared at two points in time: early impressions of the regulator and the extent and nature of motivation to apply in the past (T1), and current impressions of the regulator and motivation to apply today (T2). I looked for patterned differences in perceptions between these groups, and for outliers who did not fit the pattern. My assumption was an association between certain perceptions and more motivation might imply a link. I then analysed statements respondents had made about links between the regulator's reputation and their motivation to apply interpretatively, analysing what mechanisms were raised and whether they bore similarities to mechanisms previously described by theory.

7.2.5. Analysing differences in interview and survey responses from the same firm

Five firms in the sample were both interviewed and responded to the survey. Comparison between results from the same firm per method (Table 4.7) shows broadly similar results. Respondents tend to report the regulator has a somewhat stronger reputation in interviews than in the survey. Survey results show somewhat higher beyond compliance motivation for the same firms than was found in interviews. This implies results are somewhat sensitive to method (social desirability, self-selection bias, and the greater nuance allowed for in interviews being possible explanations).

Table 4.7 Comparison of questionnaire versus interview results from the same firms by variable

	Survey Result	Interview Result
Level of motivation to apply for the sandbox		
SB1	Probably would	Almost certainly would
SB5	Probably would	Might apply
SB9	Almost certainly would	Almost certainly would
NSB3	Almost certainly would	Might apply
NSB5	Almost certainly would	Probably would apply
Performative – Agency is tough regulatory enforcer		
SB1	Agree	Strongly agree
SB5	Agree	Strongly agree
SB9	Agree	Strongly agree
NSB3	Neutral	Neutral
NSB5	Strongly agree	Strongly agree

Table 4.7*(Continued)*

	Survey Result	Interview Result
Moral – Agency generally aims to help firms achieve their goals		
SB1	Neutral	Strongly agree
SB5	Agree	Agree
SB9	Strongly agree	Strongly agree
NSB3	Disagree	Disagree
NSB5	Strongly agree	No stated beliefs
Procedural – Agency is procedurally correct		
SB1	Agree	Strongly agree
SB5	Agree	Disagree
SB9	Strongly agree	No stated beliefs
NSB3	Neutral	Neutral
NSB5	Disagree	No stated beliefs
Procedural – Agency is procedurally flexible		
SB1	Neutral	Agree
SB5	Missing data	Agree
SB9	Disagree	No stated beliefs
NSB3	Disagree	No stated beliefs
NSB5	Neutral	No stated beliefs
Technical – Agency is an expert in a given sector		
SB1	Agree	No stated beliefs
SB5	Agree	No stated beliefs
SB9	Strongly agree	No stated beliefs
NSB3	Neutral	No stated beliefs
NSB5	Strongly agree	No stated beliefs

7.3. CHAPTER 5. DETAILED METHODOLOGY

7.3.1. Interviews

Administration

Initial exploratory interviews were first conducted with UK industry and regulatory experts. Informed by these interviews, and literature, I developed the interview schedule. The interview schedule addresses several topics. Relevant here are: compliance and cooperation motivation and changes thereto, early interactions with the regulator either in the sandbox or in the standard, non-sandbox (pre-) authorization process, and reputational beliefs about the FCA and changes thereto. Interviews were semi-structured. The interview schedule was semi-structured. Questions, however, were mostly open and some prompts were improvised with the aim to get greater detail. Transcripts for the two versions of the interview schedule (for sandbox and non-sandbox firms) are provided below.

I recruited interview respondents through the questionnaire process (via a final question about willingness to be approached for interview), and snowball sampling. Twenty-one senior managers agreed to be interviewed. The companies who agreed were typically seven years old or younger. The group likely overrepresents sandbox participants. Snowball sampling probably played a role here (where ex-sandbox participants sometimes knew one another through professional networks). The final group of respondents, however, is diverse in terms of technological and financial sector. There is a mix of companies from the UK and from abroad. Firms had different levels of prior experience with the FCA and were in different stages of business development and authorization. Interviews were, on average, 45 minutes long. Two-thirds were conducted in person, and one-third online. Audio was recorded and transcribed.

Coding

The codebook used is available on request, but I will summarize some key points. Prior to interviews, I developed a codebook informed by the literature and exploratory interviews. The initial codebook was piloted on several interview transcripts to determine whether it was sufficient and parsimonious to reflect all relevant information from the interviews (Bazeley and Jackson 2013, 95). Once complete, I conducted the final coding round and was the only coder. At each stage of coding, validity was checked through comparatively reviewing and re-coding transcripts (Humble 2009).

Regulatory interactions in the sandbox

To code regulatory interactions, I based my approach on Pautz and Wamsley's (2012, 858) conceptualization of kinds of regulatory interactions. Those authors argue the quality of regulatory interactions should be defined based on how cooperatively the regulator and regulatee staff members behave toward one another. Cooperation, for Pautz and Walmsley, means sharing information, communicating extensively, demonstrating a high degree of respect, and proactively seeking assistance from the other party (2012, 872). Their typology (see table 1) uses the term 'collaborative partnership' to describe interactions involving regulatee and regulator staff both "cooperating, sharing information, relying on each other's expertise, displaying confidence in the other's actions, expecting fair treatment, and being responsive to each other … [are] pleased with each other and see one another as partners, rather than adversaries, in achieving and sustaining […] compliance" (2012, 868). When regulatees do not reciprocate the regulatory staff member's cooperative efforts, this is 'cautious compliance'. 'Cautious cooperation' occurs when collaborative regulatees are confronted by uncooperative regulator staff. If neither cooperates the interaction is 'adversarial'.

For each transcript, then, I first coded these distinct dimensions of regulatory interactions (e.g., information sharing firm to regulator) and gave a 'valence' code from very low – to very high. Finally, based on the overall degree of cooperation shown by firm and regulator I organized each respondent case into one of the four types of regulatory interaction as per Table 5.

I also developed codes to capture *how* the nature of regulatory interactions may have influenced their subsequent motivation to comply or cooperate. Here, I analysed each transcript using the categories presented in Table 5.2 of the paper (representing theoretical expectations as to how interactions may influence motivation). These were: learning; reducing barriers to compliance; compliance and cooperation become the norm; trust is built; regulator reputation improves; regulation is legitimized; and regulation improves. I coded these expectations when they were raised and analysed whether the respondent's experiences fulfilled or did not fulfil the expectation.

In regard to regulator reputation, I drew on the conceptualization provided by Daniel Carpenter (2010). Reputation here refers to 'a set of symbolic beliefs about the unique or separable capacities, roles, and obligations of an organization where those beliefs are embedded in audience networks…' (Carpenter 2010, 45). Relevant to the current study, this conceptualization analyses how regulators are perceived on several dimensions, for example their procedural rigor versus their performative effectiveness. Further detail is provided in regard to the questionnaire. For the interviews, I took care in coding to separate statements characterizing interactions from those to do with regulator reputation. Any subjective, generalized statement about the regulator was considered to be reputational (e.g., The FCA is so helpful). Statements characterizing one-off, specific interactions with the regulator were coded as interactions and not reputational beliefs (e.g., It was very helpful when the FCA gave us that contact at the SEC).

Compliance and cooperation motivation

In regard to compliance motivation, I applied codes based on the conceptualizations used in responsive regulation research, specifically drawing on questionnaire items indicating compliance motivation used by Braithwaite (2003).

> I don't care if I'm doing the right thing by the [regulator]
> I don't really know what the [regulator] expects of me, and I'm not about to ask.

These statements clearly indicate a lack of motivation (and are negatively coded in those authors' studies). The opposite sentiment would indicate firms which are highly motivated to do what the law requires, and possibly go beyond those requirements. I coded compliance motivation from explicit statements (e.g., we didn't really care about regulation, but now we do) and from more implicit statements which demonstrate motivation or a lack thereof (e.g., I guess the reporting is due, but that's not a priority). Interpreting their transcripts, I gave firms a classification from highly unmotivated to highly motivated. Two further classifications were created. The first summarized motivation 'today' i.e., when the interview was conducted. The second was motivation when firms were first potentially considering authorization for new fintech products (typically 2-3 years in the past).

In regard to cooperation, I conceptualize motivation as the regulates' willingness to interact with the regulator in cooperative ways in future. That is, the extent to which the regulatee says they want to share information with, communicate with, demonstrate respect toward, and seek and offer assistance to the regulatory agency (Pautz and Wamsley 2012, 872). Again, this is treated as a spectrum from highly unwilling to highly willing. In practice, I coded each transcript where the respondent references their willingness to engage in each of these dimensions of cooperation. As with compliance motivation, I classify firms according to motivation to cooperate 'today' and in the recent past. I also coded this concept in a similar manner; drawing in explicit and implicit statements indicative of cooperation motivation.

Analysis

I first checked transcripts against recordings to ensure quality and removed personally identifying details. I then read through each transcript and recorded my initial thoughts as to how the respondent's answered the research questions. I categorized each respondent according to whether they were sandbox participants or not and which cohort they were in. I then used 'bucket' coding (Bazeley and Jackson 2013, 34), breaking up transcripts by topic and the time period being discussed (pre-authorization, post-authorization, and during authorization; application, testing plan, test, post-test). From there, I qualitatively coded each topic using the codebook.

Next, I analysed whether there were patterned links between the kinds of interactions firms experienced and changes in compliance or cooperation motivation. I also analysed the dominant ways firms explained how their interaction influenced their motivation. To answer this, I looked to explicit statements by firms where they directly stated that – say - learning about regulation had made them more motivated to follow the law. I also looked more implicitly, to analyse whether firms who mention – say – learning are also more commonly those who demonstrate a change in motivation.

7.3.2. Questionnaire

Design

Like the interview schedule, the questionnaire was informed by exploratory interviews and the literature. The questionnaire and schedule were designed to, as much as possible, allow for comparability between methods. The questionnaire, however, does not include questions about the respondents' interactions with the FCA. Further, questionnaire respondents are mostly not sandbox participants. As such, the questionnaire data is used as a counterpoint to interrogate potential interpretations of the data from the interviews. Most relevant here is data on compliance and cooperation motivation and reputational perceptions of the regulator (Table 5.1).

For compliance motivation, the questionnaire included items taken from Braithwaite (2003), which were reverse coded to indicate willingness to follow the law. Questions on reputational beliefs about the regulator were based on Lee and van Ryzin's (2019) Bureaucratic Reputation Scale survey instrument. The Scale conceptualizes reputation as made up of five dimensions: performative, moral, technical, procedural, and 'general esteem'. More specific questions on beliefs of reputation relevant to regulatory authorities were wherever possible taken directly or adapted from previous studies on beliefs about regulatory agencies (see Table 5.3).

Table 5.3 - Variable operationalization (Question wording)

Variable	Question wording	Source
Compliance motivation	We don't care if we're doing the right thing by the FCA We don't really know what the FCA expects of us, and we're not about to ask	V. Braithwaite (2003).
Reputational beliefs		
Performative – Agency is a tough regulatory enforcer	If my company did not follow financial regulations, the FCA would probably catch us.	Adapted from Peace, Galetta, and Thong (2003).
Performative - Agency can help firms achieve their goals	The FCA is capable of assisting companies like mine to achieve our goals.	Questions original, but adapted from dimensions of perception that regulators are 'facilitative' derived from May and Wood (2003).
Moral – Agency generally aims to help firms achieve their goals	The FCA aims to help companies like mine achieve our goals.	As above.
Procedural – Agency is procedurally correct	The FCA treats people fairly. The FCA is politically neutral.	Lee & van Ryzin (2019).
Procedural – Agency is procedurally flexible	The FCA applies rules rigidly.	Questions original, but adapted from dimensions of perception that regulators are 'formal' from May and Wood (2003).
Technical – Agency is an expert on a given sector	The FCA bases its decisions on evidence. The FCA has the skill to deal with complex situations.	Lee & van Ryzin (2019).

Notes: All questions were measured using a 5-Point Likert scale from Strongly Disagree – Strongly Agree with a 'don't know' option.

Controls and dependencies were identified through literature review. Due to the design of this study, some categories of variables do not need to be included. All firm responses are collected at roughly the same point in time, all firms are in the UK, and all are in the fintech sector. Therefore, variables related to formal and informal institutions at the national or sectoral level are controlled, as are the effects (broadly) of events or trends. Prior research has found myriad factors which affect motivation to comply and cooperate. Many of these, however, are captured by reputational beliefs e.g., many studies are about perceptions of procedural correctness. Further, many studies are strictly about individual level factors e.g., race. These are not considered relevant here, as the unit of analysis is the firm. Relevant controls are presented in Table 5.4.

The questionnaire was piloted by a dozen academics in multiple rounds. It was then sent to several volunteer fintech company employees in the Netherlands who were then interviewed for their feedback.

Table 5.4 - Controls for motivation to apply to the sandbox

Control	Explanation
Head office location (UK/non-UK) Head office location (EU/non-EU)	While only firms in the UK will be included in this study, there may be differences arising from companies which are not originally from the UK or from within the EU e.g., influence of different national/regional cultures of compliance.
Company city (Edinburgh or London/other)	Being geographically further from cities where regulators are based reduces perceived likelihood of detection, influencing motivations to comply and cooperate with regulators (Yan, Rooij, and Heijden 2015).
Firm size and age	Research suggests both affect motivation to comply and cooperate with regulators, though the direction of the relationship varies between studies (Ko, Mendeloff, and Gray 2010; Gunningham, Thornton, and Kagan 2005; Corneliussen 2004).
Firm autonomy	Not all firms have equal autonomy to make decisions, for instance due to their ownership structure (Yan, Rooij, and Heijden 2015; Weaver 2015). This might lead to differences in motivation to cooperate with regulators. For example, in questions about firm willingness to – say – participate in the sandbox it may be that it is not that the firm is unmotivated, but that such a move would not be allowed by their parent company.
Firm financial sub-sector Firm technological sub-sector	While the firms in this study would experience broadly similar regimes, there will be differences based on firm financial sub-sector (e.g., insurance versus advice) and firm technological sub-sector. That is, the regime for insuretech is different to biometrics and therefore some differences in motivation to comply and cooperate are probably thereby explained (Yan, Rooij, and Heijden 2015).
(Subjectively reported) good knowledge of regulation	Knowledge of regulation has been correlated with motivation to comply and cooperate with regulators. There is evidence from experiments that having more information about a policy increases motivation to voluntarily cooperate (L. M. Tan and Braithwaite 2018; Kirchler et al. 2007; May 2005).
Hearing about or experiencing inspection, audit, or sanctions	Whether firms have heard about or experienced inspections, audits, or sanctions recently effects their motivation (Gunningham, Thornton, and Kagan 2005).
Network participation	Greater 'network participation' (i.e., talking more to others about compliance) generally increases knowledge of new laws. The attitudes of those with whom you are in contact affects compliance attitudes e.g., guilt. Where you perceive others to have pro-compliance attitudes this increases the likelihood that you too will report such attitudes (Roch, Scholz, and McGraw 2000; Bottoms et al. 2004; Farral and Calverley 2005; Maruna 2007). Denser social connections generally facilitate information flows and enhance social control unless non-compliance is embedded in one's network (Burt 2000).
Intrinsic motivation	Some firms (and some firms to some extent) are intrinsically motivated i.e., doing good out of a sense of duty. Intrinsic motivation is positively associated with having a greater level of motivation (May 2005; V. Braithwaite and Reinhart 2013; Kirchler et al. 2007). We would expect intrinsically motivated firms to have higher beyond compliance motivation, and therefore that some portion of beyond compliance motivation to be explained by intrinsic motivation (independent of perceptions of the regulator).

Table 5.4 *(Continued)*

Control	Explanation
Belief that sanctions are reasonable	The belief that sanctions in a legal or regulatory regime are unreasonable has been widely found to reduce motivation (Kirchler et al. 2007; Corneliussen 2004; Siddiki, Basurto, and Weible 2012).
Belief that others following the law most of the time	A belief that others in a regime are breaking the law or 'getting away' with bad behaviour reduces motivation May 2005.

Administration

Firms for the population frame were found using a key word search on LinkedIn company pages Alaassar, Mention, and Aas 2020. Firms were included if they: described themselves as a fintech firm or as working extensively with a technology the FCA has included in its description of fintech; are registered with Companies House (the UK's business registry); are active i.e., not dormant or dissolved; are engaged in activities which would feasibly be subject to financial conduct regulation e.g., excluding software companies; and have a public email address.

The questionnaire was administered using the Total Design Method (Dillman 1978).[32] Despite these efforts, a low response rate (29) justified additional snowball sampling. At that point, I had begun the interview portion of the study. I would ask respondents from interviews to recommend other contacts, leading to the recruitment of eight more respondents (37). Two were from the same firm, thus the final number of firms was 36.

Data cleaning and analysis

There was some missing data on reputational questions. Three responses which were completely missing reputational data were excluded. Where respondents were missing one or two questions in the Bureaucratic Reputation Scale, multiple forms of imputation were tested. Analysis found no significant difference in means. Seven respondents did not answer the question about willingness to apply. These were excluded from analysis about potential effects of reputation on motivation (as it was deemed that no reasonable imputation could be conducted). An additional data cleaning step was to combine two responses from the same company, using an additive aggregation method.

I compared the makeup of the sample to the characteristics of the population frame. Not all details known about firms in the sample are publicly available and cannot be compared. Some characteristics are comparable between population and sample: firm age (M =7.4/7.1 years), ownership model (majority private limited companies), and location (majority English). The proportion of firms with fewer than 50 employees in the sample mirrors the proportion in the population. However, the sample slightly overrepresents very small firms (under 11 employees) and includes no large firms and few older firms (see Table 5.5). After producing descriptive statistics of all variables, I compared differences in willingness to apply among different groups in the sample (Table 5.5).

The sample size of the questionnaire, however, is too small to draw robust inferences. It does not provide adequate power for models with several controls. Survey results were, therefore, only used descriptively in reporting findings.

Table 5.5 – Representativeness of sample

Firm staff	Sample	Population
0–50	71%	72%
50+	11%	28%
NA	17%	-
Firm country		
England	71%	96.9%
Scotland	6%	1.5%
Wales	0%	1.2%
Northern Ireland	0%	0.2%
Isle of Man	0%	0.2%
NA	23%	-
Located in city with FCA office (London or Edinburgh?)		
yes	66%	73.2%
no	11%	26.8%
NA	23%	-
Ownership model		
private	77%	92%
limited partnership	6%	3%
other	0%	2%
NA	22%	3%

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[32] In addition to piloting the survey, recommended techniques were used to make the questionnaire easy to read and use. Firms were sent email reminders halfway through the survey period and again three days before it closed. Firms were also contacted over the phone, where possible, to follow up.

Table 5.6– Differences in motivation to apply by sample characteristics

	N	%	Difference in DV mean by group
Current or former sandbox participant			
yes	6	17%	Welch Two Sample t-test
no	22	88%	
NA	7	20%	p = .0012
Firm turnover			
less than one million	20	57%	
one million or more	8	23%	Welch Two Sample t-test
NA	7	20%	p=.08622
Firm staff			
0-5	12	34%	
6-50	13	37%	
50+	4	11%	One-way ANOVA
NA	6	17%	p=.836
Firm country			
England	25	71%	
Scotland	2	6%	
Wales	0	0%	
Northern Ireland	0	0%	Welch Two Sample t-test
NA	8	23%	p= .8694
Located in city with FCA office			
yes	23	66%	
no	4	11%	Welch Two Sample t-test
NA	8	23%	p= .47
Ownership model			
private	27	77%	
limited partnership	2	6%	
public but unlisted	0	0%	
publicly listed	0	0%	
other	0	0%	Welch Two Sample t-test
NA	6	1%	p= < 0.0005
Financial sector			
banking or payments	9	26%	
investment	10	29%	
lending	3	9%	
other	6	17%	One-way ANOVA
NA	7	20%	p=.555

Table 5.6– Differences in motivation to apply by sample characteristics *(Continued)*

	N	%	Difference in DV mean by group
Technological sector			
online platforms	20	57%	
other	9	26%	Welch Two Sample t-test
NA	6	17%	p= .7196
Member of more than one professional network			
yes	12	34%	
no	3	9%	Welch Two Sample t-test
NA	20	57%	p= .044
Frequency of network participation			
1-4 times a year	5	14%	
5-9 times a year	5	14%	
10 or more times a year	5	14%	One-way ANOVA
NA	10	29%	p=.562
Frequency of political participation			
never	8	23%	
infrequently	16	46%	
three or more times a year	4	11%	One-way ANOVA
NA	7	20%	p=.782
N	35		

7.4.1. Interview Schedules

UK FINTECH INTERVIEW TOPICS (version for ex-sandbox participants)

Introduction

Pre-sandbox

a. Getting started/expectations
b. Motivation to apply for sandbox
c. Impressions of the FCA
    i. Worked with before?

Sandbox

a. Process
b. Roles and responsibilities of company and regulator
c. Information sharing and communications
d. Nature of interactions
e. Case officer
f. How disagreements/issues were handled in testing
g. What you expected?

Post-sandbox

a. Attitudes to regulation
    i. Do you find it challenging to comply with the letter of the law?
b. Impressions of the FCA today
c. Relationship with FCA today
d. Willing to apply again?
e. Anything else to add?

UK FINTECH INTERVIEW TOPICS (version non- sandbox participants)

Introduction

Pre-authorization

a. Getting started/expectations
    i. Why did you choose this authorization path?
b. Impressions of the FCA
    i. Worked with before?

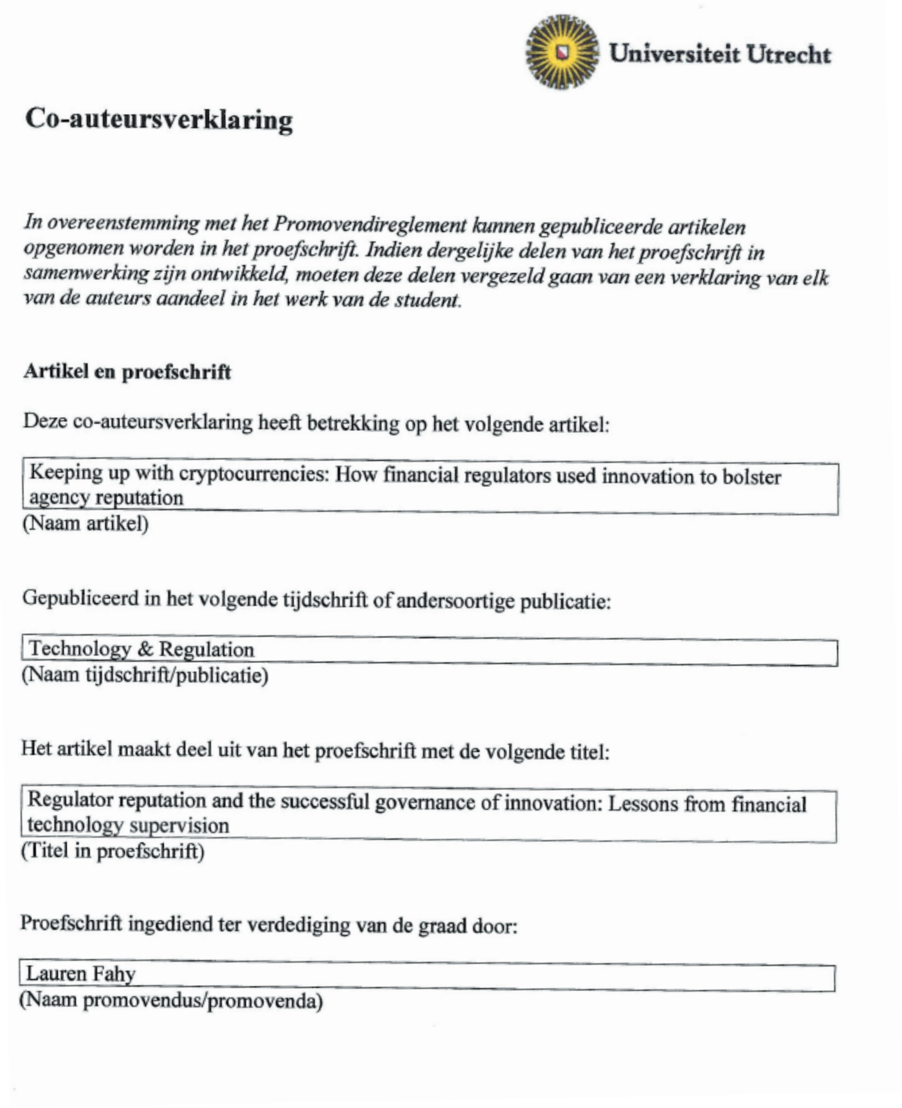
Authorization (if relevant)

a. Process
b. Roles and responsibilities of company and regulator
c. Information sharing and communications
d. Nature of interactions
e. How disagreements/issues were handled
f. What you expected?
g. Motivation to (not) apply for sandbox?

Post-authorization (if relevant)

a. Attitudes to regulation
    i.Do you find it challenging to comply with the letter of the law?
b. Impressions of the FCA today
c. Relationship with FCA today
d. Anything else to add?

7.5. APPENDIX 2. CO-AUTEURSVERKLARING HOOFDSTUK 2



Universiteit Utrecht

Co-auteursverklaring

In overeenstemming met het Promovendireglement kunnen gepubliceerde artikelen opgenomen worden in het proefschrift. Indien dergelijke delen van het proefschrift in samenwerking zijn ontwikkeld, moeten deze delen vergezeld gaan van een verklaring van elk van de auteurs aandeel in het werk van de student.

Artikel en proefschrift

Deze co-auteursverklaring heeft betrekking op het volgende artikel:

Keeping up with cryptocurrencies: How financial regulators used innovation to bolster agency reputation
(Naam artikel)

Gepubliceerd in het volgende tijdschrift of andersoortige publicatie:

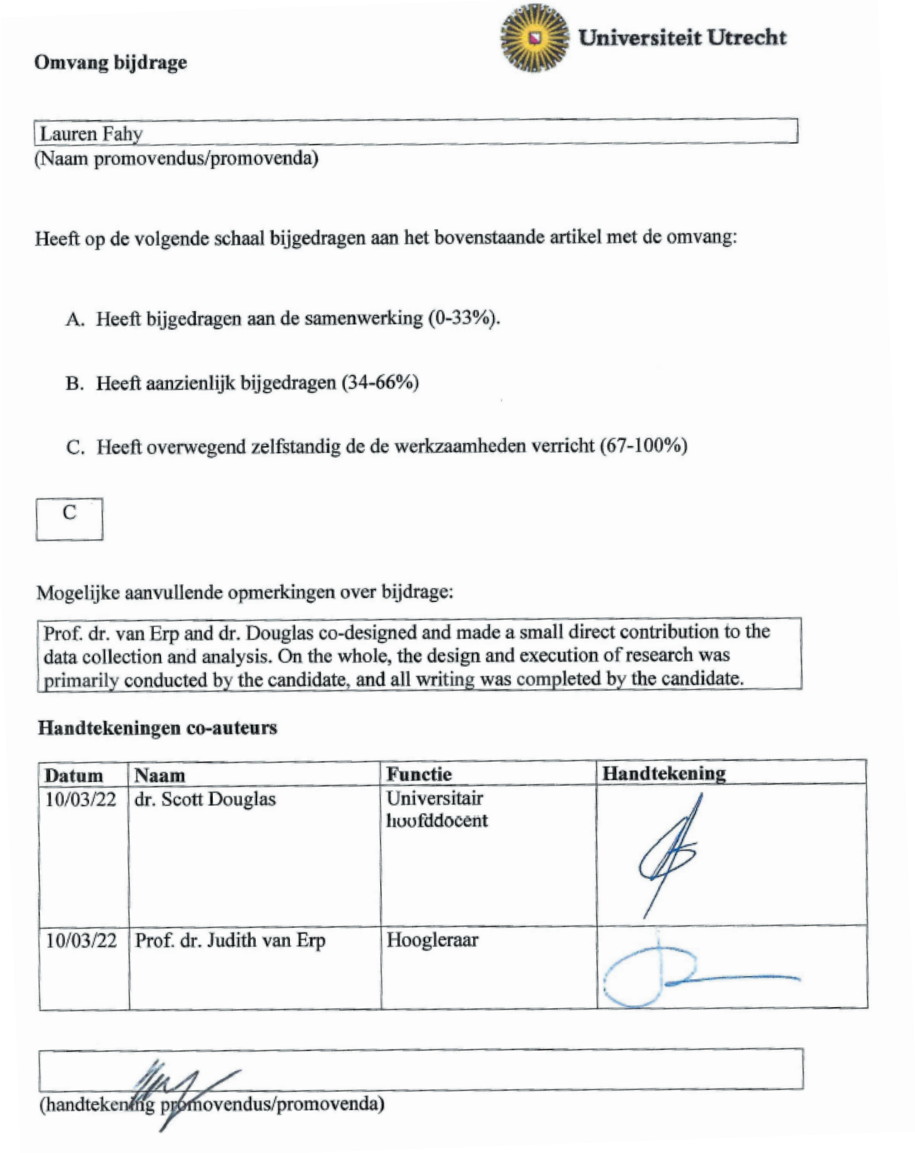
Technology & Regulation
(Naam tijdschrift/publicatie)

Het artikel maakt deel uit van het proefschrift met de volgende titel:

Regulator reputation and the successful governance of innovation: Lessons from financial technology supervision
(Titel in proefschrift)

Proefschrift ingediend ter verdediging van de graad door:

Lauren Fahy
(Naam promovendus/promovenda)



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Omvang bijdrage

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Heeft op de volgende schaal bijgedragen aan het bovenstaande artikel met de omvang:

A. Heeft bijgedragen aan de samenwerking (0-33%).

B. Heeft aanzienlijk bijgedragen (34-66%)

C. Heeft overwegend zelfstandig de de werkzaamheden verricht (67-100%)

C

Mogelijke aanvullende opmerkingen over bijdrage:

Prof. dr. van Erp and dr. Douglas co-designed and made a small direct contribution to the data collection and analysis. On the whole, the design and execution of research was primarily conducted by the candidate, and all writing was completed by the candidate.

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