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Theorizing Beyond "The Code of Capital": A Reply

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Abstract: In this reply, I respond to and elaborate on the critique of my book "The Code of Capital" published in this special issue. The common thread of the critiques is the call for more theorizing of the themes the book addresses, especially the conception of state power, of resources, social relations and questions of knowledge and access to knowledge about the law, or epistemology. This reply is only a first response to issues that do require further analysis and I am hoping to follow suit on at least some of them in the near future.

Keywords: Capitalism, state power, resources, social relations, legal knowledge

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1 Introduction

A common theme runs through the critiques of "The Code of Capital" that have been assembled for this special issue, and this is the call for greater, theoretical depth. Given its scope, the book touches on issues that have been the subject of major controversies in academia for decades: The meaning of capital, of social classes, the definition of property rights and markets; the conceptualization of the state and of state law; and questions about knowledge and the command of, or, control over knowledge. This reply will therefore make and attempt to offer perspectives for political, economic, and social theories from the vantage point of the analytical framework that I developed in the book. In the spirit of an inter-disciplinary discussion, I will focus on issues that cut across disciplinary boundaries and not organize my comments around political, economic, or social theories. As Simon Deakin wrote in a comment on earlier work of mine, we should strive towards a single integrated social theory, even as we explore it with the methodologies of different disciplines (Deakin, 2013).

2 Theorizing (State) Power

Power is an elusive concept. In the book, I reduce it to a single dimension: the prospect of enforceability, which stands for the ability to invoke a state's means of coercion for vindicating and enforcing claims against others. The threat of coercion, I argue, gives capital its comparative advantage over other objects, promises or ideas. In the absence of legal coding, these assets might be respected or admired by others, and in relatively small social settings this is usually enough. However, little will stop actors who do not respond to social sanctions from breaching these norms. Relying on the coercive power of one or more states ensures that economic and social relations become scalable.

In focusing on coercion, I am subscribing to a Weberian conception of the state as the monopolization of the means of coercion. I do not further differentiate state power and how it affects different aspects of law or social life, most importantly private vs. public law, as several contributors have noted with respect to antitrust law or financial regulation as an antidote to the abuse of contract law, as suggested by Matthias Thiemann and Dan Awrey respectively. In effect, Thiemann and Awrey are arguing that there is a state that has the capacity to regulate private activities, including legal coding strategies found in private contracts and assets. The task is to explain when the state chooses to invoke public law to curtail private activities, or not.

I do not dispute the evidence of regulatory activities, or more generally of "the rise of the regulatory state" (Moran, 2001). However, I would depict this as part of a further differentiation of state power. Public and private law are different strategies for accessing and employing the means of coercion as a collective resource. This resource has been institutionalized differently, and critically, without adding up to a complete or coherent system. State power can be institutionalized in a more or less centralized fashion (unitary vs. federal states), and it can afford greater access to different agents, including attorneys, courts, regulators, etc. Power is not a zero-sum game. By strengthening central power, the forces that used to rely on decentralized access to power are not necessarily weakened, but instead might find different access points or channels through which to contest and exert new forms of power. In a similar vein, public law or regulatory constraints do not necessarily curtail private power and its use of private law; often it only channels it into different directions – with the result of an ever more complex, perhaps even ungovernable system.

In short, as many political theorists have pointed out, power is a relational concept (a feature it shares not only with capital but with every social institution). It is never unilaterally invoked, but constantly contested and reconstituted, domestically as well as globally. Constitutions seek to constrain *public* power by elevating individual and collective aspirations to constitutional rights, or by dividing power amongst different branches of government or between a federation's center and its constituent parts. Further, international law holds that the lawful exercise of this public power is confined to the territorial boundaries of nation states (notwithstanding the extra-territorial character of some domestic law). In contrast, private law is border-less in the sense that private parties can carry it with them and seek to convince agents of other countries, such as courts, to recognize and enforce rules that are foreign to them. This has made private power, and indeed capital, more akin to "roving" than to "stationary" bandits, to invoke Mancur Olson's metaphor (Olson, 1993).

This relative autonomy from a single source of power has given private power wielders a central role in forging legal rights and privileges that benefit them. In the evolution of property rights it is difficult to find a case where the dispossessed were the primary beneficiaries of zoning and titling programs (the land reforms in Taiwan and Japan after World War II being one of a few examples); in the majority of cases, legal title is instead granted to the *de facto* controllers (Upham, 2018). For every enclosure movement, of land, knowhow and most recently of data, we find the same pattern: First movers with the goal of monetizing assets secure *de facto* control rights and then the power of legal ordering for themselves, and in so doing they curtail the possibility of a different order for one simple reason. Any alternative would have to wrestle control rights away from them before starting from scratch. Once private legal rights are recognized, this restricts the scope of private law to modifying and restricting, but leaves little room for re-ordering.

Even data fits this bill, contrary to Shoshana Zuboff, whom Lisa Herzog references when suggesting that "the appropriation of data often does not even seem to require the kind of legal codification as capital that Pistor describes: data are often not held as property, *even though the control rights of companies are comparable*" (p. 5). Yet, in all of these cases, denying property rights to the obvious contenders, to the commoners, indigenous peoples or the data producers, has been critical for granting secure legal title for the landlords, the settlors, as well as for Big Tech. Data producers who sued tech companies in the US for violating their property rights or tort were denied protection, because they could not show that these data were of any *economic value* to them. Once they had grabbed and aggregated the data from thousands if not millions of producers, Big Tech companies received legal protection against hackers and copycats with the help of specific legislation (Pistor, 2020). Zuboff misses this point by describing surveillance capitalism as a lawless zone (Zuboff, 2019), when in fact it would have been entirely possible to grant data producers a property right in their own data, just as it was eventually possible to protect the collective use rights of land of the Maya in Belize through property rights protection (as I discuss in the book); not to monetize their data, but to prevent others from doing so. The fact that this was not done at the outset and has been only partly rectified after the fact[1] speaks volumes about the power of private agents. It also means that prospects of a data commons, or public trust in data, have vanished. Legally protected private power is difficult to dislodge, because it is protected against state intervention (expropriation remedies!), it can rove, and it can morph.

The deeper point is that there is no entity that designs a social order and freely chooses between public and private law. Access to the centralized means of coercion is and has always been diffused, although today it is possibly more so than it has ever been. Not all power is centralized and vested with public agents. In fact, the differentiation between public and private law may be less important than trying to understand the access points that different constituencies have to either. The masters of the code of capital, that is, the private attorneys who fashion different assets as capital mostly in private law also tend to have privileged access to regulators and tax authorities and often vet their coding strategies with them before applying them. Their ability to do so depends in no small measure on the economic power of the clients they represent, which in turn results from the success of earlier coding strategies.

By way of illustration, consider the response to the Sherman Act, the antitrust statute the US adopted in 1890, the example Matthias Thiemann referenced to illustrate the power of public over private law (p. 7). No doubt, adopting this

1 By the EU's General Data Protection Regulation (GDPR, 2018), for example.

federal law was a bold move aimed at reigning in the big sugar and grain trusts that had gained market control through price fixing arrangements and cartels (Fligstein, 1990). Within a few years, however, the original purpose of this Act was largely neutered by state law. With powerful private interests pushing for legal change, New Jersey enacted a new corporate law in 1898 that allowed corporations for the first time to hold shares in other corporations (Pistor, Keinan, Kleinheisterkamp, & West, 2002). This created a backdoor for price-fixing trusts to reconstitute themselves as holding companies, or to transform the external market that was now subject to antitrust oversight into an internal market beyond the reach of antitrust law. True, this was not the end of the story. Further legal interventions followed, but each was followed by countervailing moves that mobilized private law and/or law of different jurisdictions. Public law as a means for controlling private activities rarely settles a matter in favor of public interests; it typically only sets in motion an iterative process whereby different actors use different access points of power to foster their own ends. This is why in the book I focused on the creation of wealth, on pre-distribution, not re-distribution, as Herzog notes in her comments.

A similar point can be made about the Dodd-Frank Act of 2010, a regulatory response to the coding strategies that were responsible for the 2008 crisis. As Dan Awrey notes, the Dodd-Frank Act adopted new regulations that forced the predominantly "over-the-counter" market in credit derivatives onto exchanges with regulated clearing houses with the goal of making these markets less prone to sudden collapse. Mandatory clearing "reduce(s) the prospect of large and sudden collateral calls" (Awrey. p. 10), calls to make payments in cash to account for differences in the market value of assets by placing a CCP between the parties to these transactions. He also points out that credit derivatives markets, measured by outstanding gross market value, have declined by 40 percent since its peak prior to the crisis.

I take the point that I could have said more about domestic regulatory reforms post 2008 (I discuss only the transnational attempt to roll back bankruptcy safe harbors in chapter 6); but I am not sure that this would have changed my story. Two points seem critical: First, without the massive liquidity interventions by the Fed, derivatives markets would most likely have crashed in 2008/9, not only declined by 40 percent. Further, contrary to Minsky's advice to offer liquidity in times of crisis and then quickly invalidate the legal structures that had been responsible for the crisis (Minsky, 1986), the Dodd-Frank Act (as most post crisis legislation) fell short on the invalidation part. Second, and relatedly, practices of structured finance that were at the core of securitized assets and their derivatives morphed post crisis to the balance sheets of non-financial entities; the structure of securitized debt can be found in collateral loan obligations (CLOs); and repos made a big resurgence, so much so that the Fed had to intervene twice in these markets – in September 2019 and again during the COVID crisis in 2019.[2] In summary, coding capital is not about a particular object, promise or idea (what I collectively call “assets” in the book), but about the coding techniques that are used to invoke state power in order to protect private interests. On that front, I would maintain, little has changed since 2008.

3 Theorizing Resources

Modern economics is commonly defined as the study of the optimal allocation of scarce resources. It assumes that economics in general and markets in particular are primarily about the allocation of tangible goods, or “stuff” that exists only in limited amounts. Yet, the key resources that fuel economies are money and capital, neither of which is scarce. States (at least states that are sovereign in the monetary sense) can issue fiat money literally without limitation. And capital is not about “stuff”, but about a legally enforceable claim to expected returns. The underlying good is secondary; what matters is the legal coding. Notably, the legal code, or rather the powers it conveys, is not scarce; it can be applied to different claims and be transposed from one asset to another. With respect to intangibles, the underlying “asset” is itself a product of the law. How many promises are turned into tradable assets or ideas into patents is a matter of choice and legal accommodation, not scarcity. Natural systems are bounded, but social systems (including economic systems) are not. This sets the two systems up for a clash with natural systems and this clash has manifested itself in “climate change”, a catch word for much deeper problem: the natural constraints on social systems that seem incapable of self-policing their limitations and their compatibility with the natural environment on which they depend.

It is not a new argument to say that there is more to the production of goods than just the combination of raw material. As Marx noted, surplus is created through a process that allows capital to expropriate value from labor. But this still assumes a zero-sum game. The “Code of Capital” tells a different story; not labor, but state power is the fountain of wealth; it can be retooled to produce and protect the wealth of only a few. The expropriation of surplus is not just from slaves, labor or other oppressed classes, although this is happening as well, but from a common social resource: from law, or government largess in the form of central bank support.

2 See Carolyn Sissoko’s blog on “Justmoney.org” from 27 March 2020. on the latter point.

The legal code is not the only code that configures wealth; accounting rules play a critical role as well. Financial assets are created at the intersection of legal, accounting, and tax rules. The double bookkeeping system, which originated in Italy, not in England (the origin of the common law) is key for the ability of banks' to create money out of thin air; not public but private money, with a call-option to convert this private money into public money. As is well understood, banks do not need depositors to lend them money to lend or invest it. A bank only needs to credit the account of the borrower, debiting its own balance sheet, and credit the bank with a claim against the borrower on its asset side. By the stroke of a pen the balance sheet of the bank was expanded, and magically without any cash inflows. The balance sheet balances, because the outflow is balanced by a promise to repayment, which appears on the asset side even though at this point it is only an expectation. This is where depositors help, because their cash provides the bank with the liquid means to pay cash to its own creditors, including other depositors. But it is not critical for the money creation process as such.

The need for liquidity brings the state back into the picture in the disguise of the issuer of high-powered money that only a sovereign without a binding survival constraint can issue. As Minsky (1986) famously quipped, anybody can issue an "I owe you" (IOU), but not everyone will find a taker. This lesson was learnt the hard way during the era of free banking back in the nineteenth century America, when banks were freely established and expanded the money supply by issuing notes drawn onto themselves with the promise to convert them into silver coins on demand (Sylla, 1982). These banks did not maintain any silver reserves to draw on and certainly lacked the authority to such mint coins themselves. Sovereign or state money (whether metallic or fiat money) is different, because states have the power to force others to pay certain obligations they themselves impose, such as taxes or fines, in their own money (Lietaer & Dunne, 2013). This power play is at the heart of hierarchical organization of money with sovereign money always at the apex. Occupying the apex, however, is not the same as exerting full control over money. Modern money systems have evolved as hybrid systems (Mehrling, 2013); they consist of private and public money. The size of the private money by far exceeds the amount of public money in circulation, forcing the hand of central banks certainly in times of crisis and increasingly on an ongoing basis.

The analogy of the distinction between public and private money to the difference between public and private *law* (discussed above) is worth noting. Whatever states do, private parties can do too as long as they are backed by state power. For this reason I should have probably said more about state, not only private money in the book, and more about banks, not just about shadow banking. The chapter on "minting debt" (Chapter 4) focuses instead on how law is used to coin not just bank money, but any form that private money can take by grafting the modules of the legal code onto simple promises to pay – from bills of exchange to securitized assets and their derivatives. Every privately minted debt instrument is a bet on the ability to convert the repayment promise into state money on demand. Incidentally, this applies also to most cryptocurrencies. Recall that convertibility is one of the attributes of capital; it locks in past gains and thereby helps financial assets attain durability. Add to this the simple truth that the debt of one person or entity is always someone else's credit. This accounting logic leads, in the last instance to the conclusion that most, if not all, private money is a contingent liability on the state. Whether or not a contingent becomes an actual liability depends on the threat a massive default on a given asset class poses for the system as a whole. Not every bank is too big or too interdependent to fail; neither is every asset too toxic to lead to its own demise and that of its current holder. Yet, when the perceived costs for refusing to take the "put" that private actors have placed on the balance sheet of the government or its central bank become too big, the contingent liability will be converted into actual bailout. A possible solution to this problem is to curtail the private-money creation machine. As far as I can see, however, no state has ever been able to completely suppress private money creation, although socialist regimes have come close. There is, however, another aspect of the accounting logic, according to which debt and credit mirror each other, that is worth mentioning. The accounting logic alone says little about whether debt and credit are equal not only in nominal terms, but in the sense of being equally empowered; this question is determined in law, not in accounting.

There is a saying that if you owe 100 dollars to bank, that is your problem; but if you owe one million or more, it is the bank's problem. This saying focuses on quantity but abstracts from differences in the legal quality of assets versus liabilities. The bank can reduce the risk associated with one million dollars by requiring a security interest, such as a mortgage; or it might securitize thousands of loans backed by mortgages and sell the interests to investors, thereby shifting the default risk to others. The ever more sophisticated legal coding of debt has given creditors a super-safe asset, which they can produce in quantities that have little to do with supply and demand under binding resource constraints. A good example is the legal coding repos (repurchase agreements) or asset backed securities. An enforceable claim against an underlying asset (a house owned by the debtor) turns a probabilistic claim to future cash flows into a (seemingly) safe asset by virtue of the fact that the creditor can enforce against the house in case the debtor defaults on the loan. As long as the house retains its value, lending becomes a safe bet. The risk of this additional contingency is rarely fully assessed. As is well-known, the value-at-risk models that were used for mortgage backed securities (MBS) prior to the 2008 crisis, for example, assumed that, on average, real estate prices would increase, or at least maintain their value. Similarly, airlines collateralized their start and landing slots and routes to obtain debt finance. When air travel contracted drastically in response to the COVID-19 crisis, these "assets" were no longer worth much. As long as any claim or receivable can be secured with the help of the legal system, private actors can literally mint debt without constraints; and if they mint enough of it, this license comes with an implicit disaster insurance, as few states will stand by idly when another credit boom goes bust.

The official policy behind the securitization of mortgages, subsequently car and student loans, and eventually every conceivable receivable was to reduce the costs of credit and thereby enable low income families to buy houses, their children to go to college, small and medium size companies to grow, and foreign companies as well as sovereign states to access international capital markets. This, at least, is how mainstream economics, which abstracts from money and finance, has rationalized the importance of money and finance for economic development (Levine, 1997). In fact, the legal fortification of debt assets has enriched creditors and left many debtors struggling for economic survival. The expansion of credit was not without risk for lenders, for banks, money market funds and other investors who took asset-backed securities on their balance sheets.

To paraphrase the above saying, if a single debtor within a securitization structure defaults, it is his problem; but if most do, it is the creditors' problem and ultimately society's problem, because the widespread default of the money market, hedge funds, banks and others risk bringing the global financial system to its knees. And so in 2008 and on many occasions before and since, central banks stepped into the void promising to "do whatever it takes", as ECB President Draghi put it in July 2012, playing on a theme that Ben Bernanke, the former chairman of the Fed had announced earlier.[3] This is just another way of saying that state power will be mobilized in the defense of the financial system to avoid this system blowing itself up and taking down much of the economy with it. The specific mechanism, or access point to the state's means of coercion at play here is the power of central banks to issue state money and to invoke their emergency powers to rescue whomever they deem indispensable for the survival of the system.

In economic debates about markets and production, we tend to think in terms of tangible objects, such as land, cattle, or machines. These objects are indeed scarce and the process of allocating them follows the standard rules of microeconomics. Financial markets, however, do not allocate "stuff"; they allocate expected returns or future cash flows (Commons, 1924; Veblen, 1908). Legal coding can turn empty promises of future cash flows into enforceable claims that are

3 For the Draghi quote, see (Bernanke, 2015, p. Loc727670). Bernanke himself had formulated this in a slightly more nuanced fashion in his speech at Jackson Hole on 27 August 2010: "Should further action prove necessary, policy options are available to provide additional stimulus."

assets in their own right. A mortgage is not a house; it is a claim against a house; a securitized mortgage is a claim against a pool of loan contracts, each backed by mortgages. A credit default swap is a quasi-insurance claim against another party who is willing to take the risk of a decline in the value of a securitized asset pool. In short, a variety of financial assets can be produced on top of a simple home loan. Once the common law rule that made such speculative assets non-enforceable was repealed (in the US in 2000), only the sky has been the limit for manufacturing financial assets (Stout, 2011).

In sum, resources are not things that exist in specified amounts outside social or legal structures that markets allocate according to their pricing mechanisms. All relevant wealth producing assets owe their existence and ultimately their value to social conventions. They do not follow rules of scarcity, but of privilege and power.

Perhaps I should have made my critique of economics and its tendency to reify goods and markets more explicit. Leon Wansleben is correct in pointing out that I did not really engage with economists, not even with progressives, such as Joseph Stiglitz, Branco Milanovic, and others. By way of explanation, although not necessarily justification, I have avoided to lay out in detail the many big theoretical and conceptual battles the book relates to. I also did not want to write yet other treaties on the failure of economics in general and neoclassical economics in particular. In engaging with authors in the field of economics, my goal was to trace the intellectual origins of my argument, which led me to the old institutionalists, not the old or neo-Keynesians. Joseph Stiglitz is correct in suggesting that the vast amount of wealth does not consist of “produced capital goods”; indeed many of these goods can hardly be called “productive” (Stiglitz, 2015). John Commons made a similar point almost a century ago by identifying the “working rules” of society as the source of capital (Commons, 1924).[4] Furthermore, a book that masterfully places legal institutions in the context of the history of economic thought had already been written by Geoffrey Hodgson (2015). Last but not least, I felt that the most important contribution I could make was to show how law actually works in practice, something that few outside the field of law fully grasp.

An important message from my book especially for economists is that law is not static; it is not a fixed set of “rules of the game” that is rarely changes and responds only to exogenous shocks of radical top down change, typically in response to a political regime change. Rather, law is a system – according to Niklas Luhmann a communicatory system – that co-evolves in interaction with the economic and other social systems (Luhmann, 1987). Property rights are not allocated once and for all; they are constantly created – in the age of financialization at an ever faster pace. In

4 Commons attributes Veblen for having developed this concept first but only with regards to intellectual property rights. See (Commons, 1934, pp. 649–656).

Western legal systems, the centralized means of coercion have been institutionalized as law, and critically not only as top down public but also as private law so that private parties can avail themselves (with the help of their attorneys, the master coders) of state power to protect their private interests and create private wealth. This process pitches private parties against private parties and, as Awrey correctly suggests, often capital against capital. Not all asset holders or capitalists succeed; the attributes of the legal code only give them a relative, not an absolute advantage. Some may have superior skills not just superior rights, but without the latter, any returns on skills might be shortlived. In short, my core argument is not that law only helps the rich; it is that the rich owe their wealth to the social resource we call law.

In his book, "Capitalism, alone" (2019), Branco Milanovic draws attention to the coincidence of high income and wealth on modern day capitalism. This implies that inequality is a product not only of differences in (the stock of) wealth, but also in (the flow of) income and suggests that the two might reinforce one another. Yet, from legal and accounting perspective, the difference between wealth production and income may be more fluid than the argument suggests. The exorbitant pay packages of top CEOs rarely consist of cash-only payments; stock-options are often part of it. Are these stock options income or wealth? Does it matter how they are expensed or taxed? Whether they are designed to the superior performance of the firm that the CEO serves and not to the performance of the entire market?

In sum, while law is not a stand-alone explanation for inequality, it is impossible to have a meaningful discussion about wealth and inequality without a deeper understanding of the operations of the law. My hope is that my book contributes to such an understanding across disciplinary boundaries.

4 Re-theorizing Social Relations

The history of capitalism is has been written time and again with the relation of capital and labor taking center stage. According to Marx, the struggle between the capital controlling bourgeoise and the working class was only the latest manifestation of class struggles, the motor behind transformative social change, which, according to him, would ultimately lead to a revolution by the working class, and to the withering away of both state and law.

Against this background it may appear foolish to write a book that focuses exclusively on capital and to make the perhaps outlandish statement that the political economy of capitalism can be explained even without recourse to labor or to class identities. Leon Wansleben criticizes this position, arguing that even if "the classical distinction between capitalists and workers (are) less salient", a book such as mine "should serve to encourage studies of …. new class formations, rather than advising against them” (p. 6). Fair enough; I certainly did not mean to discourage the study of new class formations. My intention was rather to preempt the tendency of Marxist scholars to read the exploitation of class into any social condition in which capital is present. Instead, I wanted to show that for the form that wealth has taken since the days of industrialization, labor input is less relevant and may not even be needed. Consider the example of banks and their ability to fashion money out of thin air. To succeed, they need backstopping by state money, not exploitation of labor. There is still exploitation in this context, but what is exploited is not a class, but the collective resource of state power and law for the interest of a few, which may or may not share a common class identity.

Still, something of great importance is missing in my book, namely the reorganization of labor that has accompanied the “metamorphosis of capital” (Piketty, 2014) from the pre-industrial to the present stage. The story of how the commoners were uprooted and their labor force freed up for work in factories has been often told. However, the story does not end there. The outsourcing of factory work from advanced to developing countries, the rise of the service sector, of temporary work relations intermediated by profession agencies, even the re-invention of labor as self-employment are further variations on the theme. This is not only a feature of advanced capitalist societies, such as US, where Uber, Lyft, and other companies in the ‘gig economy’ have sought to portray their employees as independent entrepreneurs to avoid the employer taking responsibility for unemployment insurance, health care, or pension obligations. Indeed, the gig economy rests on an expansive global work force, where individuals are recruited for specific tasks and compete fiercely with one another, thereby driving down labor costs (Gray & Suri, 2019). Importantly, a similar process has engulfed developing countries, where workers on tea plantations were turned into self-employed by giving them property rights in the land or the company that farmed it, yet faced as a monopolist buyer of their produce the same company that had formerly employed them.

Thus, there is definitely room for a complementary book that focuses on how labor relations were reconstituted as capital morphed from land to finance to know how, and ultimately to data. I would suspect that the same legal techniques that I identified in the book played a major role in this reconstitution of labor relations, augmented by the adversarial use of anti-trust law in the US, for example, to constrain the organization of labor.

The sociologist Akos Rona-Tas, who collaborated with me on an earlier project coined the phrase that “law is the differential access to power” (Pistor, 2013). This phrase acknowledges the centrality of law while simultaneously (even if only implicitly) posing new questions about the factors that differentiate access to law and law enforcement. These factors may include access to lawyers with the right skills to code capital; to regulators for reassurance that new coding strategies will not be challenged ("no action letters"); as well as forbearance against law enforcement under conditions of market distress. Access to state power is never fixed, but elastic (Pistor, 2013). Importantly, however, as Rona-Tas and his co-author put it, "the way elasticity is distributed is related to the power each actor wields. The source of this power can be structural position in the hierarchy of finance, political influence or both" (Rona-Tas & Guseva, 2013, p. 420). Structural hierarchies, however, are not necessarily the same a class identities. There are huge discrepancies in wealth or political orientation among individuals who belong to the same income or wealth bracket. Perhaps the increasing political antagonism between the super-rich and the rest will help form class identities, but wealth alone does not explain them and neither does the legal coding of wealth.

Similarly, the question of how access to law and the legal institutions has changed over time should receive greater attention, as Thiemann suggests in his comments. The modules of the code of capital have indeed been "re-programmed", to use Niklas Luhmann's language, to fit different assets. Important work has been done by legal historians on the evolution of legal institutions over time, and in my book I have heavily, if imperfectly, drawn on their work. I take responsibility for simplifying and perhaps over-generalizing. Yet, an analytical framework of the kind I offer in the book might shed a fresh light on the evidence they have produced and help make their analyses accessible to a broader audience.

5 Epistemology

This then brings me to the epistemological issues Lisa Herzog raises in her critique: the question of knowledge and access to it. I confess that I was not aware that a field called "political epistemology" exists that explores "the various ways in which knowledge and politics are interrelated" (Herzog, p. 4). The study of legal institutions should certainly be on the top of the agenda of this field (if it is not already). The legal profession that controls the knowledge of law on its part is perhaps rationally, but unfortunately, fiercely protectionist.

In Chapter 5 on "the masters of the code", I quote Lord Campbell bemoaning the fact that the project of reforming land law (the law of realty) remained stalled even as the families that owned most of the land in England realized that reforms had become inevitable. "There is an estate in the realm more powerful than either your Lordship or the other House of Parliament, and that [is] the country solicitors" (p. 158), he stated. The legal coding of land back then had become so complex that only solicitors with extensive experience in the conveyance of land knew their way through the thicket of legal rules and coding strategies. And the legal historian Anderson recounts that lawyers from Britain's colonies who were sitting for the bar exam were regularly exempted from tests in the English law of realty and would instead be examined in Hindu or Islamic law (Anderson, 2010). It seems that one had to be born in England to make sense of English land law.

The democratization of the legal profession has advanced considerably since. Legal training is no longer confined exclusively to protected clubs – the Inns of Court or one-on-one apprenticeships with solicitors reminiscent of the old craft guilds. Law schools are relatively more accessible, at least in Europe, where education is publicly funded or fees are still relatively modest. However, in the US, they have now reached US$ 70,000 per annum at top schools like Harvard or Columbia, making future lawyers dependent on either wealthy parents or the student loan machine, which in turn sets up law graduates to become master coders to repay these loans. Financial entry barriers to becoming lawyers will affect not only access to legal know how, but might also serve as a new class signifier (see supra).

A related question is whom lawyers serve. Where attorneys serve their clients without even the slightest ethical responsibility towards the broad public or the rule of law, lawyers are effectively incentivized to commodify the law to maximize their clients' interest. Straddling these often conflicting interests is, of course, not easy and appealing to the lawyers' ethics alone hardly suffices. The French Code Civil of 1804 embodies an aspiration of a legal code that was written not for jurists, but for the (literate) people. Its language is simple and straight forward and has been written with the *citoyen*, the legal subject of a new order founded in private law, most importantly in a new conception of property rights, in mind. But even the French have been unable to keep their civil code as simple in an ever changing environment and avoid the need to read evolving case law into it, which necessarily obscures the meaning of the words on the page.

Another strategy for democratizing the law is to bring law and legal reasoning into public daylight, to play on a quote by the American justice Brandeis that sunlight is the "best of disinfectants; electric light the most efficient policeman" (Brandeis, 1913). Indeed, disclosure has become the mantra of administrative law in general and financial regulation in particular at least since the 1930s, when the US opted for this regulatory strategy to govern capital markets. Prospectuses for complex financial assets, however, are not an easy read, and only in part because lawyers write them in language that is perhaps intentionally difficult to access by laypeople. In addition, they are filled with direct and indirect references to legal principles in case, statutory, or regulatory law, which would take hundreds of additional pages to spell out in full. Outside criminal law, there are few legal rules that simply speak for themselves or operate independently of other rules. Indeed, the greatest opportunities for imaginative coding, legal and regulatory arbitrage arise lie at the intersection of different rules (Thiemann, 2018). One needs to know a lot of legal rules and how they interact to master the coding of capital – and at least the same amount of know-how to counter it. Just placing more legal documents under bright daylight will not be enough.

6 Concluding Comments

We thus face a dilemma. Legal ordering has enabled highly complex social orders that are governed by multiple sets of interdependent rules, often from different jurisdictions. They do not add up to a coherent whole and they are not ruled by a coherent set of over-riding norms. The complex worlds of legally coded social systems have become ungovernable. This leads to two conclusion: First, humans should perhaps not create systems that they themselves can no longer control, but this is what we have done. Unwinding this system to simpler structures that we can control with the collective governance mechanisms at our disposal would require structural change well beyond resetting the rules of the game. Second, in complex legal system, democratizing knowledge about the law has to begin with the master coders and the techniques they are using. This is the reform strategy I proposed in the final chapter of my book, which Thiemann found wanting. I am open to considering more radical change, but any reform strategies will have to start with acknowledging that public power is not a simple antidote to private power. The two systems of law are imbricated and co-evolve often in ways that are unpredictable in their details as well as in their effects.

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