

# CENTRAL BANKING, SHADOW BANKING, AND INFRASTRUCTURAL POWER<sup>1</sup>

*Benjamin Braun and Daniela Gabor*

## Introduction

The global expansion of the financial sector has transformed capitalism, with significant consequences for the distribution of income, wealth, and power. While the earlier financialization literature often focused on the behavior of shareholders and corporate management, political economists have increasingly zeroed in on dynamics taking place at the core of the financial system, namely the rise of shadow banking, and of market-based finance more generally (Godechot 2016; Maxfield, Winecoff and Young 2017; Thiemann 2018). The new frontier for this research agenda, we argue, is the question of how power operates at the hybrid, public-private core of the monetary system, where banks transact with the central bank (Braun 2018b).

This chapter is concerned with the economic and political connections between the institutionalization of central bank dominance and the rise and resilience of shadow banking. In a nutshell, we argue that shadow money markets have come to serve as the governance infrastructure for central banks. This *infrastructural entanglement* has increased central banks' dependence on market-based finance, and thus the infrastructural power financial actors are able to exercise in the political process.

Political scientists and sociologists have tended to shy away from this question. Monetary and financial power operates not only “beneath open and immediate political conflict” (Pierson 2016: 129), but also beneath layers of technical complexity that are difficult to peel away. In recent years, important progress has been made in the study of the instrumental and structural power of the financial sector (Culpepper 2015; Pagliari and Young 2016; Woll 2016; Pagliari and Young, this volume). For the most part, however, this research has focused on state-finance interactions that take place on the turf and according to the rules of the political rule-making process. What this literature tends to overlook is a crucial set of interactions between private financial actors and public agencies that take place “beneath open and immediate political conflict,” on the turf and according to the rules of financial markets.

The paradigmatic example is modern central banking. The key features of modern central banks are their independence and their (mandated) focus on price stability. This institutional arrangement, which generally prioritizes low inflation over full employment, both stems from and entrenches unequal power between capital and labor in a low-salience, technocratic policy

area. Political scientists, sociologists, and economists have thoroughly studied the *political and macroeconomic consequences* of central bank independence (McNamara 2002; Polillo and Guillén 2005). By contrast, little is known about the *financial consequences* of modern central banking. More generally, there is a lack not only of empirical studies, but also of theoretical reflection about how power operates at the intersection of public monetary authority and private banking and financial markets.

In this chapter, we argue that central banks have acted as decisive catalysts for the crucial development at the heart of financialization: the rise of shadow money and shadow banking. While most accounts explain the rise and resilience of shadow banking as the outcome of market-led financial innovation aided by regulatory capture, we advance a view that places greater emphasis on the role of state actors: shadow money and shadow banking have co-evolved with the elephant in the room of financialization, namely central banking.

Monetary policy represents a peculiar form of economic state power in that it works in and through financial markets (Krippner 2011; Braun 2018a, 2018b; Walter and Wansleben 2019). Its reach and effectiveness depend directly “on the structure of financial markets and on the economic characteristics of market participants” (ECB 2000: 47). While the quote illustrates that technocrats were aware of this central bank–finance nexus, the tranquillity of the “Great Moderation” – a two-decade period starting in the late 1980 characterized by low inflation and stable growth rates – was such that (political) economists largely ignored this nexus. Crucially, however, this period of calm and institutionalized central bank dominance coincided with the transformation of traditional banking into “securitized” (Gorton and Metrick 2012) or “market-based” banking (Hardie et al. 2013), and with the growth of the broader shadow banking system (Lysandrou and Nesvetailova 2015; Gabor 2018; Thiemann 2018). The hallmark of that system is the securitization of both sides of banks’ balance sheets – market-based funding via the repo market on the liability side and market-based lending via asset-backed securities (ABSs) on the asset side. These markets were at the heart of the global financial crisis of 2008, which abruptly ended the “Great Moderation” and forced central banks to intervene on an unprecedented scale to stabilize the shadow banking system (Mehrling 2010; Gabor and Ban 2016; Jacobs and King 2016; Murau 2017).

The global shift towards inflation targeting in the 1990s placed the burden of macroeconomic governance squarely onto the shoulders of central banks. The policy tools of the latter, however, were not necessarily up to the task, and monetary policymakers sought ways to translate their (indirect) control over the interbank money market into control over macroeconomic aggregates (Braun 2018a). In the process, they shaped “the structure of financial markets” (ECB 2000: 47) in ways that would support monetary governability. Those ways, it turned out, also boosted the private creation of shadow money.

The remainder of the chapter will develop our argument in three steps. The first section reviews the growing, interdisciplinary literature on the public–private hybridity of money and finance. Understanding that hybridity is key to understanding what is special about central banking as a form of state agency. As explained in the second section, central bank agency is not primarily administrative, but market-based. Its reach and scope, therefore, is closely intertwined with the reach and scope of those financial markets that constitute the infrastructure for monetary governance. The flipside of that infrastructural entanglement is infrastructural power enjoyed by financial market actors. The third section shows how infrastructural entanglement and power played out in the US and in the euro area. The US Federal Reserve and the European Central Bank both advocated and actively promoted, for monetary policy purposes, the development of shadow money. The conclusion discusses the applicability of our approach to other instances of infrastructural entanglement at the state–finance nexus, and for the study of power in the process of financialization more generally.

## The Essential Hybridity of Money and Finance

The literature on the history of money and finance shows that financial innovation is often driven by the interaction between banking and central banking (Konings 2011; Knafo 2013). When it comes to the more recent rise of shadow banking, however, awareness for the reciprocal nature of this interaction has been less pronounced. The political economy literatures on banking and central banking have largely remained separate. On one hand, comparative political economists have added depth and detail to Zysman's (1983) classic distinction between bank-based and market-based financial systems (Hardie et al. 2013). The crucial question of how "the structure of finance contributes to the state's capacity to act in the economy" (Zysman 1983: 298), which students of earlier historical periods have discussed (Konings 2011; Krippner 2011), has somewhat been lost in the market-based finance literature. On the other hand, the political-economy literature on central banks has tended to abstract from the operational details of central banking. Whether they focus on international monetary arrangements or on social groups' preferences for inflation, employment or exchange rates, these studies have largely bracketed the question of exactly *how* central banks establish and maintain control over their domestic economies, let alone how they project power in global financial markets (Frieden 1991; Bernhard Broz and Clark 2003).

What has been missing from these two literatures, thereby preventing their rapprochement, is an awareness of the essential hybridity of money and finance. This is despite a long, interdisciplinary tradition of scholars whose thinking revolved explicitly around hybridity (Innes 1914; Keynes 1930; Schumpeter 1954). For a number of reasons, however, these authors' insights got lost between the cracks of academic disciplines – economists focusing on private actors and markets, sociologists and political scientists focusing on public actors and institutions. The global financial crisis, however, renewed scholarly interest in the hybridity of money and finance, including in economics (Mehrling 2010, 2013), law (Pistor 2013; Ricks 2016, 2018; Hockett and Omarova 2017), and political economy (Gabor and Ban 2016; Koddenbrock 2017; Murau 2017; Braun 2018b). The two core tenets of this literature are easily stated. First, money is a liability of financial institutions, that is, credit. Ever since the Bank of England first managed to monopolize the issuance of negotiable banknotes in the mid-nineteenth century (Ingham 2004: 135), two main forms of credit-money have coexisted: the liabilities of the central bank (reserves and cash) and the liabilities of commercial banks (deposits). Second, while most of the liabilities that circulate as money are created on the balance sheets of private banks, the moneyness of those liabilities depends ultimately on legal rights granted and financial backing provided by the state (Hockett and Omarova 2017). In technical terms, private-sector liabilities trade at par with public-sector liabilities because the former enjoy special privileges granted by the state, including reserve accounts at the central bank, participation in the payment system, and direct access to lender-of-last-resort liquidity.

What this literature offers is not so much a theory, but a close description of "actually existing" capitalist money. This description has far-reaching implications for the political economy of power and institutional change at the center of the monetary and financial system. The remainder of this chapter discusses these implications for the specific case of shadow money, defined as quasi-monetary liabilities created in the shadow banking system. The argument unfolds in two steps. First, the hybridity view reveals that public actors do not just govern private financial markets through rules and regulations. Instead, they often actively *participate* in those markets, which provide the *governance infrastructure through which public actors seek to govern the economy*. Where state agency is market-based, private financial market actors wield *infrastructural power vis-à-vis* public actors (Braun 2018b). The following section develops this

theoretical argument for the infrastructural entanglement between central banks and the shadow banking system.

Second, when private financial actors innovate, they create “shadow money” – financial liabilities that fulfill quasi-monetary functions within the financial system, but without (ex ante) state support (Gabor and Vestergaard 2016; Murau 2017). There is nothing new to this – Henry Simons worried about central banks giving private finance “too much freedom [...] in directing changes in the quantity of money and money-substitutes” in 1936 (Simons 1936: 3). While shadow money greases the wheels of credit creation and securities trading during good times, liquidity tends to evaporate at times of financial stress (Gorton and Metrick 2012). Classic examples are the repo market at the domestic level, and the Eurodollar market at the international level (Altamura 2017; Gabor 2016a; Green 2016). What the hybridity view reveals is that shadow money does not, as a rule, evolve in a purely private realm. Focusing on the US and Europe, the third section of this chapter shows that central banks can drive private monetary innovation, encouraging finance to monetize new forms of credit.

### **In Search of Monetary Governability: Market-based Agency and Infrastructural Entanglement**

Since the onset of modern central banking in the late nineteenth century, the share of the burden of macroeconomic stabilization carried by monetary policy has greatly increased. In relation to the weight of that burden, monetary policy must be seen as a *weak* instrument of macroeconomic governance. Compared to fiscal policy, the link between monetary policy and macroeconomic outcomes is indirect and prone to disruption. Establishing and maintaining monetary governability therefore requires purposeful action – discursive and institutional – by central bankers (Krippner 2011; Braun 2015 2018a; Dutta 2018; Wansleben 2018; Walter 2019). In abstract terms, the segment of the economy the central bank controls – the interbank money market – is small and insignificant relative to the economy as a whole. More specifically, central bankers, regardless of the monetary-policy regime they operate under, face two challenges. First, the central bank has direct control only over the *policy* interest rate at which it lends reserves to private financial institutions, whereas the *market* rates at which the latter lend to each other are beyond direct central bank control. This disconnect gives rise to the challenge of monetary policy *implementation* – the challenge of how to deploy the limited instruments of monetary policy to steer short-term interest rates. Second, the challenge of monetary policy *transmission* arises from the gap between this short-term interest rate and the rates of employment, growth, and inflation, which constitute the ultimate targets of most central banks.

In order to tackle these challenges, central banks have historically relied on two types of agency. Like other government bodies, central banks hold and exert *administrative authority*, “setting, interpreting and applying statutory rules” (Hellwig 2014: 5–6). Most importantly, central banks have a statutory monopoly to create central bank money, which takes the form of cash (notes and coins) and reserves. The latter are deposits held by commercial banks, and sometimes other financial institutions, in accounts at the central bank. Banks need reserves to settle debts among each other, and to make payments to the government. Central banks also have the authority to impose reserve requirements on banks, usually set at a small percentage of (certain) liabilities. Together, banks’ dependence on reserves and central banks’ monopoly on their creation gives central banks significant control over the price of money in the interbank money market. In addition to this core monetary power, the statutory rights of central banks often include far-reaching administrative powers in policy areas such as the payment system, foreign exchange transactions, and banking regulation and supervision. In short, central banks, in pursuit of their policy goals, act on the financial system through administrative authority.

In addition to administrative authority, however, central banks also rely on *market-based agency*. Central banks implement monetary policy by transacting with other (commercial) banks. These are transactions “on a *quid-pro-quo* basis, such as taking deposits from banks, granting loans to banks, or buying and selling assets in open markets” (Hellwig 2014: 5–6, original emphasis). While other government bodies also engage in market transactions, these transactions are not a policy instrument to move market prices but instead serve a specific purpose (i.e., purchasing land to build a road). For central banks, by contrast, market transactions are the main policy instrument. This market-based agency thus distinguishes central banks from most other government bodies. Whereas the latter act on the economy by setting and enforcing rules, central bank control over economic conditions rests not only on administrative authority, but also on market transactions into which private actors enter at their own discretion.

Central banks shape the structure of the financial system both through administrative authority and through market-based agency (see Thiemann in this volume). While both types of agency are geared towards monetary governability, they follow different logics and affect the financial system in different ways. Historically, administrative authority has often been geared towards imposing *limits* on private financial transactions for the purpose of enhancing the central bank control over financial conditions. The effectiveness of market-based agency, by contrast, tends to depend on *deep and liquid markets* for money and securities.

The use of administrative authority for monetary governability purposes has a long tradition, ranging from nineteenth-century Britain (Knafo 2013: 7, 15) to Regulation Q, through which the Federal Bank (Fed) expanded its direct control over interest rates from the interbank money market to the retail deposit market (Krippner 2011). Other central banks, too, used “direct” instruments, such as interest rate ceilings and credit controls, to control conditions in credit markets for monetary policy purposes (Baliño and Zamalloa 1997). While many central banks gradually abandoned such direct monetary policy instruments from the 1980s onwards (see p. 00), some countries have continued to rely on them. Most importantly, the People’s Bank of China (PBOC) has resorted to a mix of interest rate ceilings and capital controls in order to square large-scale foreign-exchange interventions with low domestic inflation (Gruin 2013). More recently, the post-2008 expansion of central bank mandates to include macroprudential responsibilities means that even the most invasive deployment of administrative authority is under consideration by policymakers, including structural reforms that would change the legal, organizational, and economic structure of banks (Omarova 2018; Thiemann 2018).

The continued relevance of administrative authority notwithstanding, in the context of the financial liberalization policies of the 1980s, central banks took a decisive turn from “direct” to “indirect” policy instruments (Baliño and Zamalloa 1997). Since then, most central banks have sought to steer the market interest rate in the interbank market – the “operational target” of monetary policy – by deploying the trinity of reserve requirements, open market operations, and standing facilities (Bindseil 2004: 9). This indirect approach has increased the infrastructural entanglement between central banks and those parts of the financial system in which they conduct their open market operations.

Michael Mann developed the concept of infrastructural power to distinguish modern forms of state power from the “despotic power” pre-modern, absolutist rulers had relied on to govern their subjects (Mann 1993). By contrast, bureaucratic-democratic states developed the capacity to control their territory and population, and thus to “penetrate civil society, and to implement logistically political decisions” (Mann 1984: 189). While Mann theorized the power of the state, he did acknowledge that infrastructural power was “a two-way street” (Mann 1993: 59). A state that governs through civil society infrastructures at the same time becomes dependent. Civil-society structures that serve as conduits for governance are empowered vis-à-vis the state.

Today, the financial system is arguably the governance infrastructure *par excellence* (see also Woll 2017; Ricks 2018). This allows us to reverse Mann’s theoretical perspective to focus on the infrastructural power of *private actors* over public actors (Braun 2018b). It should be noted that the mechanism here is different from either instrumental power, which is based on the lobbying capacity of finance (see Epstein in this volume), or from structural power, which is based on the ability of finance (and business more generally) to threaten an investment strike. Of course, not all parts of the state rely on financial markets as governance infrastructures in equal measure. Rather, specific parts of the financial system exercise infrastructural power vis-à-vis specific parts of the state. While therefore not universally applicable, the infrastructural power approach offers “a higher-resolution view of the policymaking apparatus, and thus a more nuanced theory of the scope and reach of the political power of finance” (Braun 2018b: 7).

In the following section, we will zoom in on the most consequential instance of infrastructural entanglement and power in the contemporary financial system – that between central banking and shadow banking. Decisions by most leading central banks to conduct their open market operations in the form of (reverse) repurchase transactions, or repos, made them particularly dependent on deep, liquid and, in the case of the euro area, transnationally integrated, repo markets.

### **Shadow Money in the US and in the Euro Area**

Monetary theorists and historians conceptualize the process through which new monies are developed as an eminently private endeavour. For Hyman Minsky (1986: 228), “everyone can create money; the problem is to get it accepted”. Charles Kindleberger (1978) argued that private finance fuels the flames of financial instability by creating close money substitutes that monetize credit. Monetary history provides a long list of such experiments, some of which have crossed over into “proper,” means of settlement: “money.” In both accounts, and in the large scholarship these have influenced, central banks are silent, and rather helpless, witnesses. The case for controlling the supply of money rests on the ability to correctly identify which new monies matter for creating additional demand pressures. Central banks have suffered so many defeats at the hand of Goodhart’s law – “any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes” (Goodhart 2006: 757) – that there are few left who make a serious case for targeting the supply of money. The age of inflation targeting promised a new scientific paradigm for central banks that did not require them to closely monitor *how* credit is monetized, since *the pace* of monetization would be set by the interest rate policy of the central bank. A closer look at the historical evolution of shadow money, however, challenges this view.

#### ***Shadow Money: A Very Short Introduction***

The Financial Stability Board defined shadow banking as the “system of credit intermediation that involves entities and activities outside the regular banking system” (FSB 2011: 3). Shadow money, a recent addition to the monetary vocabulary, conceptualizes promises to pay created by banks and shadow banks – such as money market funds or hedge funds – in the process of lending through capital markets (Pozsar 2014; Gabor and Vestergaard 2016; Murau 2017). It is the money of (globalized) financial systems organized around securities markets. These promises to pay backed by tradable collateral are known as repos or securities financing transactions. Repos derive their moneyness, understood as their capacity to preserve parity to settlement money, from legal and risk practices of collateral valuation. When a bank creates shadow money, it creates a promise to pay backed by tradable collateral, usually government-issued or

private-sector-issued bonds. The holder of shadow money cannot rely on traditional guarantees of banks' promises to pay, namely deposit guarantees and central bank support, but instead relies on collateral. Legally, collateral belongs to the holder because shadow money creation is structured as a sale and repurchase of collateral that belongs to the shadow money issuer. Economically, collateral belongs to the shadow money creator, who assumes the risks and reaps the rewards of securities it deploys as collateral. Put differently, shadow money funds the securities used as collateral. But legal ownership is not sufficient to preserve convertibility at par between shadow and bank money. Rather, collateral is marked to market on a daily basis, to ensure full parity between the market value of collateral posted and the shadow money IOU. Divergences (fall in market price of collateral) are settled by (more) collateral or cash posted by the shadow money creator. In sum, the term shadow money refers to securities that fulfil the same functions, but do not enjoy the same government guarantees, as money "proper."

Since the late 1970s, shadow money has been an attractive method to monetize credit created through securities markets (Ban and Gabor 2016; Gabor 2016a). Most notoriously, both Bear Stearns and Lehman Brothers created shadow money to fund their rapidly expanding balance sheets, and both fell because the private mechanism for preserving moneyiness – the daily valuation of collateral – proved eminently fragile in moments of crisis. When private collateral valuation broke down, central banks reacted with a mixture of surprise and disbelief. Ben Bernanke confessed that he had viewed overnight shadow money as the safest funding for (shadow) banks. The ECB wondered how it could have lost sight of an activity that had grown systemic, albeit in the shadows (Gabor and Ban 2016).

### ***The US Federal Reserve and Shadow Money***

Central banks may not have thought in terms of shadow money, but they were familiar and closely engaged with repo markets. In late 1990s, the US Federal Reserve was confronted with a peculiar predicament. While the world was celebrating central bank independence as a mark of "scientific" economic governance after the populist era of monetizing government bonds, the US Federal Reserve worried about projections that the US government would pay down all its debt by 2012. A world without US government debt, they worried, was a world filled with monetary dangers. Market participants would not have a safe, liquid asset to turn to in times of distress.

The US Fed dismissed proposals that the government put its securities-creating powers in the service of capital markets, issuing debt divorced from its fiscal needs. This raised complex questions of what to do with the cash raised, questions that neither the Fed nor the US Treasury thought could be addressed without fundamentally involving the state in the process of private resource allocation. Instead, the Fed embraced a market-solution that put shadow money creation at its core. It proposed to use shadow money creation in order to create private substitutes for US Treasuries. Shadow money would liquefy collateral securities such as mortgage-backed securities and asset backed securities.

Rather than seeking to limit shadow money supply, the Fed actively encouraged its expansion, seeking market solutions to political problems. It lobbied Congress to ensure that holders of shadow money backed by private (securitized) collateral had the same legal rights to collateral as those holding shadow money issued against US government debt. The Fed also changed its lending practices. In the early 2000s, banks could issue shadow money backed by private collateral to borrow from the Fed. These concrete steps contrast starkly with the picture of central banks watching passively from the margins, as financial institutions find new ways to monetize credit and circumvent rules (Gabor 2016a).

### ***The European Central Bank and Shadow Money***

The European Central Bank (ECB) provides a similar challenge to the received wisdom that innovation occurs in the market and is followed by adaptation in policymaking. In its early days, the ECB actively shaped the creation of shadow euros, that is, of shadow money created against euro-area securities collateral. For the ECB, it wasn't so much financial stability that was at stake in its active encouragement of financial innovation, since the institution only had a mandate for price stability, as the effectiveness of monetary policy. The designers of the ECB were well aware of Minsky's insight that evolutionary changes in finance can pose significant challenges for monetary policy making, and identified those evolutionary changes in the increasing importance of securities markets. But larger securities markets sharpened the contradictions of a single currency with many sovereign bond markets. The ECB worried that the transmission mechanism of monetary policy would be impaired because of the differences in liquidity and yield across the public debt markets of the countries participating in the euro project.

The ECB found itself in a predicament similar to that confronting the US Fed at the time. The solution to its diagnosed problem was political: pulling together sovereign debt issuance into Eurobonds. Since this political solution turned out to be impossible to deliver, the ECB turned to shadow euros. It decided that it would organize the implementation of monetary policy via shadow euros that treated all euro area government bonds as equal collateral. Put simply, the ECB would not follow the traditional approach to open market operations, that involved outright buying (and selling) government bonds from (to) banks. Rather, it would lend to banks via repo transactions, with the collateral framework organized so that the nationality of government bonds did not matter. A Greek bank could borrow from the Eurosystem – by issuing repos (shadow money) to the ECB – on the same collateral terms if it used Greek government debt or German Bunds as collateral.

In doing so, the ECB stressed that it hoped to set an example that private finance would follow. Shadow euros offered a vehicle for the ECB to incentivize the private sector to integrate government bond markets, liquefying those public securities that did not benefit from the size of the Italian bond market or the fiscal reputation of the German Bund. This turned out to be a strikingly, albeit temporarily, successful experiment. By the time of the collapse of Lehman, private shadow euro creation had risen to around EUR 7 trillion, of which EUR 6 trillion were backed by sovereign collateral.

### ***Shadow Money and Infrastructural Power***

The growing importance of shadow dollars and shadow euros simultaneously reflects an evolutionary shift in credit creation via securities markets and deliberate state policy to solve intractable political problems posed by the rise of market-based finance. If shadow money is a mark of the growing infrastructural power of private finance, then the crisis of shadow money in both Europe and the US provides several insights into the limits and potentialities of that infrastructural power. Historically, shadow money is not exceptional in that its privately produced moneyiness could not withstand the pressures of a financial crisis. The crisis of shadow money, conceived as a run on US repo markets (Gorton and Metrick 2012) and a run on periphery sovereign collateral in the euro area (Gabor and Ban 2016) suggests that infrastructural entanglement, no matter how deep, cannot generate the immediate state responses that would preserve shadow moneyiness. It took the Federal Reserve several months, and the collapse of Bear Sterns and Lehman Brothers, to introduce measures that safeguarded shadow dollar moneyiness, notably the term securities lending facility and the primary dealer credit facility (Gabor 2016a; Murau 2017). More strikingly, it took



the European Central Bank three long years to negotiate a political compromise that allowed it to stabilize shadow euros through the Outright Monetary Transactions program (Gabor and Ban 2016). Put differently, private finance's ability to put infrastructural power in the service of its survival, threatened by the crisis, is not automatic.

Paradoxically, the limits to infrastructural power *during* the financial crisis translate into opportunities in the *post*-crisis environment. Here, the interests of the shadow banking sector have proven enormously resilient, in spite of the fact that academics, regulators, and politicians had singled out shadow banking as the key culprit of the crisis. Various recent studies have shown that those interests found their way into the political process via the alliance between central banking and shadow banking. Thus, the ECB played a crucial role in fending off an aggressive proposal by the European Commission for a financial transaction tax that would have taxed repo transactions (Gabor 2016b; Kalaitzake 2017). Similarly, the ECB went out of its way to protect the securitization market. It provided collateral easing and quantitative easing, and successfully lobbied the European Commission and national governments for regulatory easing (Braun 2018b). In both cases, the ECB cited concerns over the potential negative consequences for monetary governability. This is the transmission mechanism of the infrastructural power of shadow banking: the ECB's readiness to throw around its weight in Brussels to protect the financial infrastructure through which it governs the economy.

## **Conclusion**

Financialization is a process of enormous complexity. Determining where power and agency reside, and if and how they drive financialization, poses difficult analytical challenges. Private financial innovation, the instrumental power of financial actors to influence political decision-makers through lobbying – these are sources of power that have helped the rise and resilience of shadow banking. They cannot explain, however, why financial innovation in this area has partly been state-led, with central banks actively promoting the development of deep, liquid, and transnationally integrated repo markets. They also cannot explain why, in the global financial crisis, central banks backstopped some forms of shadow banking but not others. When securitization markets were threatened by market turmoil or by regulatory action, the Fed and the ECB came to their rescue. This chapter has argued that an important source of power for shadow banks is their infrastructural entanglement with central banks. Central banks depend on shadow bank activities for the implementation and transmission of monetary policy. Herein lies the infrastructural power of the issuers of shadow money.

Across the world, policy implementation by central banks has come to rely on open market operations in domestic repo markets. This marketization of monetary policy has seen a new twist with the widespread adoption, in the aftermath of the global financial crisis, of “unconventional” monetary policy measures, notably quantitative easing. Here, different types of purchase programs imply entanglement with different segments of the financial system. Thus, the ECB bought mostly government bonds and corporate bonds, whereas the Fed bought large quantities of mortgage-backed securities. The Bank of Japan and the Swiss National Bank, by contrast, purchased large quantities of domestic (BoJ) and foreign (SNB) equities, thus giving rise to infrastructural entanglement with a different financial market segment.

Finally, infrastructural entanglement and power are not limited to monetary policy, but are increasingly important features of financial systems around the world. At the national level, the marketization of sovereign debt management practices has certainly increased infrastructural entanglement between treasuries and capital markets (Lemoine 2016; Fastenrath, Schwan and Trampusch 2017; Wang in this volume). At the European level, the European Commission's

Capital Markets Union is best understood as an experiment in “governing through financial markets” (Braun, Gabor and Hübner 2018). In alliance with the member states and the ECB, the Commission seeks to boost investment, stability, and cross-border risk sharing by expanding cross-border capital markets and securitization. Nor is infrastructural entanglement between the state and financial markets limited to the Western world. The Chinese state in particular has used the financial system to project power and to accelerate economic development (Gruin 2013; Wang 2015). And while concerns over the sustainability of the growth of shadow money in China have grown, the government has been hesitant to reign in the shadow banking sector (Gabor 2018). Disentangling finance and the state, and thus curbing the infrastructural power of the former is not, it appears, on the agenda of the Communist Party.

## Note

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