

CHAPTER 1

Infrastructural Gazing on Global Finance

*Carola Westermeier, Malcolm Campbell-Verduyn,
and Barbara Brandl*

1 Infrastructural Gazing

The expansive and intricate world of global finance holds immense significance for socioeconomic processes worldwide, influencing everything from daily payments to geopolitics. Despite mainly operating behind the scenes, financial infrastructures have garnered attention in both public discourse and academic circles due to their growing politicization. In 2020 financial infrastructures came to the fore as COVID-19 pandemic lockdowns induced an even greater reliance on digital payments and disbursement of government aid. Two years later, as Western policymakers extended international financial sanctions on Russia while supporting Ukraine, the geopolitical dimensions of financial infrastructures became obvious not only to leading policymakers, but also to citizens and consumers. The development of central bank digital currencies (CBDCs) and attempts to disrupt established financial infrastructures by the likes of Facebook – with its failed Diem (formerly Libra) currency – have also attracted the attention of regulators and citizens alike to payment infrastructures that have

up to now remained out of the spotlight. Yet, despite the increased public and policy attention devoted to them, financial infrastructures and their scholarly analysis are not new. Infrastructures have underpinned finance since the origins of banking, insurance, and trading, as social scientists and historians have traced in detail.

This volume brings together scholars scrutinizing the socioeconomic, sociopolitical, and geopolitical dimensions of financial infrastructures across a range of academic disciplines. This is a guide for students, practitioners, and scholars alike on where the present underpinnings of global finance have come from and where they might be going in an uncertain future. The pages that follow bring together theoretical perspectives on financial infrastructures with empirical studies of infrastructures enabling finance to serve crucial societal functions across the world. This introductory chapter outlines the thread uniting all contributions to this volume: the infrastructural gazing heuristic that all contributors take in foregrounding the political stakes of what are typically backgrounded, merely technical, processes and actors underpinning global finance.

In developing this volume, the editors gathered scholars from different fields of study investigating varying corners of global finance from diverse theoretical and methodological approaches to explore the following central questions:

- What are financial infrastructures and how do they both reflect and shape wider socioeconomic and geopolitical relations?
- How do financial infrastructures change through digitalization?
- Which actors, objects, and processes are essential to shaping and maintaining, as well as challenging, financial infrastructures?
- How inclusive or exclusive are financial infrastructures? How do they relate to and act on (historical) socioeconomic inequalities and exploitations, including colonialism?
- How are financial infrastructures interlinked with global power structures and the “return” of geopolitics?

Infrastructural gazing links these broad questions and the technicalities of finance by making meso-level connections between interactions at the micro level and phenomena on the macro level. It foregrounds processes that typically lie in the background and shows that they are not merely technical methods, but entail profoundly sociopolitical stakes. Gazing at infrastructures injects a steadiness into the analysis of rapid developments in global finance, situating financial objects and practices in wider interdependencies across time and space. It links concerns of power and legitimacy with mundane technical systems that process transactions, market interactions, and monetary flows using distinct modes and rules of operation. Gazing on the interconnections of finance infrastructurally connects big-picture concerns to specific, technical questions and complex nuances. Its most powerful analysis is enabled when backgrounded interconnections are foregrounded to bring forth what are often analyzed separately: the materiality, politics, social inequalities, and technological innovations that enable

continuity and change within the local and global, the public and private, the collective and individual.

The type of gazing we advance, importantly, entails no single way of foregrounding financial infrastructures. Rather, it involves *various* meso-level approaches bringing together in different ways the macro and the micro. Some infrastructural gazing squints with a sharper eye at the micro-level details than at wider macro-level actors and processes. Big-picture concerns of power and authority always remain in sight, even if they are not as front and center as everyday sociotechnical complexities. Other infrastructural gazing focuses on big-picture processes yet nevertheless link these to underlying micro-level practices and objects.

2 What Are Financial Infrastructures?

Financial infrastructures have proven to be the lifeblood of political economies, ensuring continued circulation of money, value, and wealth as other processes evolve or even come to a halt (Langenohl and Westermeier, 2022). They are critical to citizens and governments around the world, central to the maintenance of power but at the same time facilitating challenges to these power structures. In the minds of most policymakers and members of the general public, infrastructures are physical “things” such as railroads or transmission towers. They are important objects that require care, maintenance, and even protection in order to avoid the potentially catastrophic consequences of their failure. The framing of infrastructures as “critical” and “vital” objects that need to be secured to ensure continuation of key societal functions produces several distinctions that the contributions to this volume push back on (Collier and Lakoff, 2015). These separations include, amongst others, dichotomies between “hard” things and “soft” relations, between matter and meaning, and between the public and private.

To better understand the characteristic feature of infrastructures as “vital systems,”

this volume works to unravel such dichotomies. A first step toward our broadened understanding of infrastructures is to maintain that financial infrastructures always include objects. Finance would not be possible without fiber-optic cables and computer servers or, earlier, paper bills, coins, and other concrete material things. Yet financial infrastructures also importantly comprise the relations between such physical objects, as well as between things and financiers, along with other humans and interactions between them.

Financial infrastructures therefore are not merely static sets of objects. As emphasized in this volume, they are processes of sociotechnical interaction that enable the essential activities of banking, payments, insurance, and trading (Bernards and Campbell-Verduyn, 2019). An infrastructural gaze on finance traces how these relations (d)evolved in ways shaped by interactions amongst (1) humans, (2) objects, and (3) humans and objects. Often taken for granted and assumed, these sociotechnical relations only become visible when they fail, cease to function, or undergo profound changes. In identifying infrastructures as sociotechnical relations, this volume builds on their understanding as everyday, mundane, and “dense social, material, aesthetic, and political formations” (Anand, Gupta, and Appel, 2018, p. 3).

A key advantage to an expansive notion of infrastructures is that it enables exploration of who acts, when, and how. Understood as processes, financial infrastructures are comprised of actions by practitioners, citizens, governments, and international organizations, as well as relations amongst them and interactions with everyday objects on a daily basis, not just in times of crisis. Human organizations and nonhuman objects act to enable and disable certain financial flows in every millisecond of the trading day, across jurisdictions worldwide. A relational understanding of infrastructure politicizes the ways global circulation of currencies, credit, and debt, as well as the disbursement of government aid and loans, all unfold – ways that are not merely natural or neutral. Gazing at financial infrastructures opens them to

challenge and change. Tracing who acts, when, and how reveals the idiosyncratic and often unintended constructions of financial relations that tend to attract little attention when they work smoothly. As during crises when their underpinnings are subject to reform, financial infrastructures can also be challenged and recreated in “normal” times by making the politics of their (re) construction – by whom and how – clear to policymakers, citizens, and consumers alike (de Goede and Westermeier, 2022; Westermeier, 2023).

Prominent cases in point are developments like CBDCs, whose backers promise new, “disruptive,” and better relations between central bankers, banks, firms, citizens, and society (Kuehnlenz, Orsi, and Kaltenbrunner, 2023). The choices being made, or not made, as CBDC projects unfold in individual countries (e.g., the United Kingdom) and across regions (e.g., the European Union) are attracting attention to who acts and how (Brandl, Hengsbach, and Moreno, 2024). Yet in other places, such as Nigeria or the Eastern Caribbean, where CBDCs have been rolled out and piloted, these questions surfaced only after the fact: following the stalled takeover of Nigeria’s e-Naira in Africa’s most populous country or when DCash, the Eastern Caribbean regional project, went offline for months following a technical issue in early 2022. In these and other cases infrastructural (re) formation is presented as a *fait accompli*: Processes and outcomes are seen as irreversible, short of major crisis or failure. Yet they entail significant political stakes for societies and economies around the world. What relational conceptions of infrastructures bring to the fore, in short, are the multiple choices and possibilities that exist both in stable and unstable times alike.

Emphasizing infrastructural relations enables politics to not simply be set aside as part of the boring “plumbing” of routine construction and maintenance work that ought to remain far out of the spotlight (Maurer, 2012). Rather than just pipes or any physical object alone, infrastructures are sociotechnical relations. Casting a gaze on

the ever-present politics of the pipes, their relations with other key objects, with their developers and users, and so on stresses how infrastructures are political. Moreover, even if they might appear “hard-wired” and can persist over long periods of time, infrastructures can still be subject to change, challenge, and contestation (de Goede, 2021; Bernards, 2022; Campbell-Verduyn and Hütten, 2023).

As its starting point, this volume conceives infrastructures as sociotechnical relations dis- or enabling politics on varying, intersecting scales, from the micro to macro. Transitioning away from object-centric and fixed perspectives on infrastructures as mere “things,” the scrutiny of infrastructure in this volume injects politics into what is commonly depicted as purely technical, peripheral, and uninteresting “stuff.” Our approach thus goes beyond intuitive notions when making sense of the extensive interconnections between people, products, and patterns of action underpinning financial relations across the planet. Infrastructures are (d)evolving processes unfolding in multiple ways that, this volume argues, can productively be gazed upon not only in admiration and astonishment but critically, as illustrated by the two general approaches adopted by contributors to this volume.

3 Two Forms of Infrastructural Gazing

Infrastructural gazing generally consists of taking sharp, attentive, piercing, and multiple looks at finance. Gazing can be and is done in a plurality of ways, as highlighted by contributions to this volume as well as by existing literatures on financial infrastructures. This section highlights two broad approaches to gazing into financial infrastructures in ways that foreground the politics of seemingly technical underpinnings. Both forms of infrastructural gazing piece together and pierce through the complexities of finance by connecting big-picture concerns of power, authority, legitimacy, and inequality in finance with particular nuances in everyday socioeconomic relations and

seemingly mundane matters. This section shows how these two forms of infrastructural gazing are reflected in the existing literature to highlight the point from which the contributions to this volume take off.

A first general gaze cast on financial infrastructures zooms out on the wider sociopolitical, economic, and cultural origins and implications of key micro-level objects and practices. Here studies frequently invoke Michael Mann’s conception of “infrastructural power,” which describes the capacity to implement political projects through connections between social actors in order to transmit authority (Mann, 1984). Unlike other forms of power, infrastructural power works indirectly and diffusely. It entails control over the systemic properties that underlie all kinds of interactions. The concept of infrastructural power thus highlights how power is distributed. As it is still attuned to micro-level sociotechnical details, this first gaze, with its macro-level focus, helps to highlight meso-level interconnections by underlining the capacities of certain actors and objects to implement political projects and transmit authority. Such infrastructural analysis generally helps us understand changes that are also part of the “intractable principle of continuity across time and space” (Berlant, 2016, p. 394). Inspired by Mann’s work, international political economy (IPE) scholars in particular have explored longer-term historical dynamics in financial governance and regulation at varying scales within and beyond national borders (Schwartz, 2019; Walter and Wansleben, 2020; Coombs, 2022).

A second form of infrastructural gazing on finance investigates questions of how and where infrastructures change, as well as the agency in and of financial infrastructures. These perspectives on financial infrastructure have alternated between considering material technologies facilitating financial processes (Caliskan, 2020; Westermeier, 2020) and as viewing financial processes, specifically in their economy-related aspect, as an infrastructure for the economy (Muellerleile, 2017). Inspired by the wider “new materialist” turn in the social

sciences generally and in social studies of finance (SSF) in particular, infrastructure here gains more of an agential role in tracing how sociotechnical relations are constraining and enabling what can be done (Campbell-Verduyn and Hütten, 2023). This second approach looks more than the first at the mundane technical objects that power and process financial transactions, market interactions, and monetary flows through distinct modes and rules of operations. This more micro-level focus, however, retains meso-level connections to macro-level analyses of power, authority, and legitimacy in finance across time and space (Muellerleile, 2017). Significantly, the diverse and contradictory nature of these infrastructures serves as a platform for observing power dynamics in the financial economy (Brandl and Dietrich, 2023). Historical analyses of financial infrastructures detail power struggles among different entities, such as exchanges, storages, telegraph companies, and courts (Pinzur, 2016, 2021). Approaching finance infrastructurally in this second way still connects to big-picture concerns of power, authority, legitimacy, and inequality, yet in ways that pay more attention to matter and to sociotechnical nuances.

Both infrastructural gazes counter tendencies toward reductionism in macroeconomics as well as wider neglect of materiality in studies of finance. Complexity made a comeback a decade after the 2007–2008 global financial crisis, as “macro-finance” emerged as a key lingua franca for analyzing finance, even amongst nonspecialists (Dutta et al., 2020). Macro-level views of finance are valuable yet can overlook the more mundane materials and social relations that enable global finance to come together – and that can tear it apart in times of crisis as well as shape financial relations in more minute ways in periods of “normality.” The infrastructural gazing into global finance by contributors to this volume builds on efforts to link SSF and fields such as IPE through meso-level approaches that foreground infrastructures in ways that avoid the pitfalls of oversimplification and further complexification (Bernards and Campbell-Verduyn, 2019). Broad questions

are asked about the seeming technicalities of finance. Specific answers to questions about how finance unfolds are provided by making meso-level connections between interactions at the micro level and phenomena at the macro level. Infrastructural gazing injects steadiness into the analysis of rapidly evolving sociotechnical relations while also avoiding tendencies to either dismiss novelty entirely or view everything as new. Novelty – in financial objects and practices – is thereby situated in wider interdependencies that come together as well as fall apart across time and space. Power and legitimacy concerns are tied to mundane technical systems that process transactions, market interactions, and monetary flows using distinct modes and rules of operations.

In short, examining the extensive interconnections of financial infrastructure enables linking overarching questions with particular, seemingly technical inquiries and intricate nuances. While emphasizing different aspects of micro and macro scales, all examinations of infrastructure highlight and connect elements often studied independently: materiality, power dynamics, inequalities, and technological advancements, crossing dichotomies of continuity and change, local and global perspectives, public and private domains, and collective and individual interests.

4 Overview of the Volume’s Contributions and Key Themes

Part I, “Conceptual Approaches,” begins by illustrating how infrastructures in finance are both distinguished from and overlap with institutions and devices (Chapter 3, Pinzur), platforms (Chapter 5, Roitman), and assets (Chapter 7, Golka). Chapters in this part expand on the relation between power and infrastructures via infrastructural power (Chapter 4, Coombs) and on payments as hegemony (Chapter 8, Westermeier and de Goede). Contributors vary in their views on the strengths of and limits to which varying ways of gazing at financial infrastructures illuminate agency, power, and legitimacy.

Arguing that the best way to understand a concept is through its critique (Chapter 2, Muellerleile), this part includes a critical take on emphasizing infrastructures in finance (Chapter 6, Langenohl).

Chapters in Part II, “Histories of Financial Infrastructures,” maintain the first part’s conceptual thrust yet inject a deeper empirical view across time and space in ways that all emphasize the *longue durée* of financial infrastructures. Contributions in this part connect infrastructural relations unfolding over past decades to contemporary developments, with a focus on post-socialist developments (Chapter 12, Ehlke) and stock exchanges (Chapter 10, Handel), as well as their colonial legacies, with a broad view on Africa (Chapter 9, Bernards) and more specifically on Lebanon (Chapter 13, Atme). As in other parts of the volume, contributors here use perspectives from various scholarly disciplines to trace the sociotechnical relations involved in the (re)construction of financial infrastructures over time; for instance, how finance was integrated into the built environment of cities like the key financial center of London (Chapter 11, Eagleton-Pierce).

Part III, “Organizations and Actors of Contemporary Financial Infrastructures,” foregrounds nonhuman objects and human practices in the (re)construction of financial markets, from foreign and securities exchanges to clearing counterparties (Chapter 14, Petry; Chapter 15, Datz; Chapter 16, Krarup; Chapter 21, Genito and Lagna) to enactments of international financial flows, with forays into correspondent banking (Chapter 18, Nance and Tsingou), international bank transfers (Chapter 17, Kaltenbrunner and Orsi; Chapter 19, Robinson, Dörry, and Derudder; Chapter 20, Nölke), and efforts to instigate green transitions (Chapter 22, Fichtner, Jaspert, and Petry; Chapter 23, Seabrooke and Stenström). These chapters collectively foreground the materials, practices, and sociotechnical connections typically assumed to be running in the background, yet whose smooth functioning is central to facilitating varying inclusions and exclusions of specific groups, individuals, and whole countries in global finance.

The chapters in Part IV, “Digital Technologies and the Future of Financial Infrastructures,” trace continuity and transformation in financial infrastructures confronted with technological “revolutions.” While all chapter authors were asked to incorporate contemporary trends and events into their analyses, it is in this final section that processes current to the time of writing inform contemplations of where finance may go in uncertain futures. The chapters of this section focus on the effects of growing experimentation with blockchains and CBDCs (Chapter 29, Salzer; Chapter 30, Zhang, Cui, and Yang), social trading platforms (Chapter 25, Tong and Preda), and artificial intelligence (Chapter 31, Paraná). The rise of digital finance more generally is linked to broader developments of digitalization and connects to social media (Chapter 24, Swartz), means of identification, and inclusion, with examples from South Asia (Chapter 27, Singh; Chapter 28, Jafri) and Africa (Chapter 26, Langevin and L’Heureux).

5 Failures, Inequalities, Continuities, and Changes

Three themes emerge across all chapters: failures, inequalities, as well as continuities and changes. A first intersecting process that the infrastructural gazing across the four sections of this volume helps to understand is failure. Finance is full of failures and glitches. Infrastructural perspectives draw attention to these in ways that enable us to think about how things might be done differently. This is not only in moments of crisis but also as the processes and relations of finance are continually (re)constructed. Foregrounding financial infrastructures, in other words, instigates the politicization of what is typically seen as technical, natural, and backgrounded. Infrastructural approaches enable us to think of geoeconomic alternatives (to SWIFT, as Nölke describes) to notions of disruption, connecting these macro-level trends to micro-level attempts to, for instance, enhance informational and market security (Ferrari, 2023). Yet, who is able to undertake

infrastructural inversion and politicize the technical is far from evenly distributed, both in the practical and scholarly sense, given the resources needed to wade through the technicalities of finance (Bowker, 1994). These inequalities link to a second theme permeating the volume.

Second, infrastructural gazing illustrates different inequalities in relations often thought to be, or acted upon in manners assumed to be, universal. Despite the general openness of infrastructures, the financial infrastructures traced in this volume are exclusionary. We know about digital divides, credit apartheid, and other hierarchies, but how these are (re)inscribed, embedded, and made real in and across national borders is often assumed rather than closely examined and explained (Roitman). Infrastructural approaches enable the tracing of colonial legacies in instruments and processes ostensibly seeking to foster inclusion as chapters trace in Africa (Bernards), Latin America (Datz), the Middle East (Atme), and South Asia (Jafri). Other forms of intersectional inequalities – race, class, and gender – surely deserve more attention in future research that connects the analysis of financial infrastructure to already existing literature (Gabor and Brooks, 2017; Guermond, 2023).

The third cross-cutting insight is how infrastructural gazing overcomes thinking about a dichotomy of continuity versus change in finance. Instead, infrastructural gazing enables an emphasis on how both processes tend to occur at once in any given place and at any given time. While infrastructures have profound path dependencies and tend to sediment relations into “installed bases,” they also shift in subtle (as well as not-so-subtle) ways (Star, 1999). Conceptually, thinking in terms of infrastructures helps to shift beyond the well-known inadequacies of seeing continuity or change in further dichotomized relations between the public and private, formal and informal, local and global. Infrastructural approaches reveal the various forms of entanglement between these often taken-for-granted analytical categories, such as how the public/private divide is in practice bridged by relations

between state and nonstate actors, technologies, and technical objects that amount more to hybrid interconnectivities than to separate spheres of activity. Analysis of financial infrastructures thereby advances studies of how nonstate actors fulfill “public” tasks traditionally undertaken by states and vice versa such as how state actors increasingly participate in spheres traditionally considered to form “private” spheres of financial activity (Best and Gheciu, 2015).

6 Conclusion

Infrastructural gazing, as outlined in this chapter, foregrounds infrastructures as sociotechnical relations disabling or enabling politics at varying, intersecting scales and spaces, from the micro to the macro. Shifting away from a focus solely on objects and fixed perspectives when examining infrastructures, the interdisciplinary scrutiny of various aspects of global finance by contributors serves to politicize what are commonly depicted as mundane technical background elements. As a whole, this volume goes beyond intuitive notions for making sense of the extensive interconnections of global finance. The infrastructural gaze piecing together and piercing through finance undertaken in this volume embraces the complexities of these sociotechnical relations without reducing them to simple things or single persons in understanding who acts and how.

In foregrounding infrastructures, this volume highlights the politics of their creation, maintenance, (re)design, and contestation. Contributions deepen and expand the growing policymaker, scholarly, and citizen attention paid to the underpinnings of global finance. The volume provides a foundation for discussions among academic, practitioner, and policy communities who often only talk among their own groups and focus only on their idiosyncratic understandings of financial infrastructures. As a resource embracing the interconnectedness of global finance, this volume also counters the reductionism of academia in

general and of macroeconomics in particular by embracing the complexity of finance. Retaining the benefits of foregrounding the big picture, macro views are linked and deepened in this volume, as macro and micro are connected via meso-level approaches. In so doing, the diversity and complexities of finance are embraced in ways that avoid the pitfalls of both oversimplification and overcomplexification.

While this volume provides a foundation for public and scholarly debates on the past, present, and future of financial infrastructures, there remain areas of activity – processes, people, and actors – that require exploration. At a time of seemingly continual growth in geopolitical tensions, the (inter) national security roles and implications of financial infrastructures are especially deserving of further research that does more than assume their passive “weaponization.” As this volume stresses, infrastructures are acted upon and harnessed by powerful actors, but not always in ways and with outcomes that are intended. Further explorations at the intersections of financial infrastructures and (geo)political security rationales should be attentive to these developments.

While several chapters foreground the inequalities and disconnection that are ingrained into financial infrastructures, the ways in which individuals, particular groups, and regions are excluded or privileged in their financial interactions need further unpacking (Alami et al., 2023). A growing strand of literature has foregrounded racialized, gendered, and other forms of inequalities within finance. This is an important furthering of attention to the various intersecting hegemonies in and between financial infrastructures (see Chapter 8; de Goede, 2021; Bernards, 2022).

There are also further connections to be explored between financial infrastructures and the underpinnings of trade and production, as well as leisure and entertainment in a digitizing world economy. As distinctions between structures and actors often considered separately become increasingly blurred, the very naming of infrastructures as “financial” comes into question. Given financialization,

but also gamification and other processes integrating finance in all aspects of life, it may no longer be necessary to qualify infrastructures as financial. This includes high politics but also the everyday politics of work and leisure that involve objects and practices either hailing from or overlapping with finance (Campbell-Verduyn, 2024).

The study of infrastructures, whether or not they continue to be qualified as financial, promises to continue enhancing the understanding not only of scholars, but of citizens, consumers, and policymakers for years to come.

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Part I

CONCEPTUAL
APPROACHES

