CHAPTER 14

Exchanges

Infrastructures, Power, and Differential Organization of Capital Markets

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1 Introduction

What is the role of exchanges in capital markets? In public perception, the terms 'stock exchange' and 'stock market' are often used interchangeably, mostly referring to the latter. As central hubs, exchanges facilitate the circulation of financial information and the concentration of financial services firms, thereby serving as 'anchors' for financial centres (Wójcik, 2012). Therefore, exchanges are often depicted as marketplaces, neutral spaces where borrowers and investors meet to buy and sell ownership stakes in companies or trade commodities, derivatives, or other securities.

Traditionally, exchanges were merely such national marketplaces, mutual non-profit organizations owned and controlled by their members, which is reflected in earlier analyses of exchanges that rather focused on those members (Baker, 1984; Abolafia, 1996). Academic debates have often mirrored this perception of exchanges: while they facilitate financial market transactions, exchanges themselves are often not perceived and analysed as (powerful) actors, but rather as marketplaces or sites dominated by other actors (for a literature review, see Petry, 2021a).

But more than mere marketplaces, exchanges are powerful actors in their own right. Over time, they have become complex organizations whose task is the provision of financial infrastructures that enable the functioning of capital markets in the first place. While financial markets are used by investors to allocate financial assets, provide corporate financing, and facilitate economic growth, certain infrastructural arrangements must exist to *enable* these transactions (Bowker and Star, 1999): from market data, indices, financial products, trading platforms to clearing, exchanges shape the infrastructural arrangements of capital markets. Exchanges are the providers of these financial infrastructures (Petry, 2021a), thereby shaping capital markets, their development, characteristics, and dynamics.

As this chapter illustrates, exchanges exhibit both commonalities and differences. Section 2 examines commonalities across exchanges – notably their role in the provision of financial infrastructures. However,

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not all exchanges (and capital markets) are equal with respect to both how they organize markets as well as their relative importance within the global financial system. Section 3 thus discusses how exchanges are embedded within specific institutional environments which informs how they organize markets differently, while Section 4 illustrates the hierarchical nature of exchanges within the global financial system. However, we can also observe tectonic shifts within global capital markets. Section 5 therefore examines potential contestations through the rise of exchanges in emerging markets. Section 6 concludes by discussing exchanges within the context of an increasingly fractured global economy.

2 Commonalities: Organizing Financial Infrastructures

Exchanges are one of the institutional foundations of contemporary capitalism. The early history of stock exchanges dates back to ancient China during the Tang and Song dynasties where, in the seventh century, the first 'joint stock' companies were created. In Europe, pre-modern forms of stock exchanges have existed in Venice, Florence, and Genoa at least since the fourteenth century. This was followed by the founding of the Amsterdam Stock Exchange through the Dutch East India Company in 1602, which – while not the first exchange as such – was the first embodiment of what we today perceive as modern stock markets. As Braudel (1983, p. 101) noted, 'what was new in Amsterdam was the volume, the fluidity of the market and publicity it received, and the speculative freedom of transactions'. Thus, the modern stock exchange was born. While exchanges can be created for virtually anything – from bonds, to bitcoins and carbon emissions – stock and derivatives exchanges have historically emerged as their most prominent forms (see Chapter 10, this volume).

From the 1980s onwards, however, exchanges underwent important changes (Petry, 2021a). While there is variation in exchanges' transformation (see Section 3), we can observe important commonalities with respect to their core activities, that is, is the provision of financial infrastructures for capital markets. Exchanges have diversified their activities horizontally – by adding new asset classes, time zones, and countries to their market portfolio – and vertically – by buying/merging with other financial service providers such as clearing houses or index and data providers. You can now buy market data and analytics tools from exchanges; license their indices; trade various financial products and asset classes on their platforms, not only equities but also bonds, foreign exchange, commodities; or derivatives (e.g., index derivatives based on indices which the exchange might calculate itself in turn based on its proprietary market data); co-locate your servers next to theirs to enhance trading speed; and use their clearing house, settlement, collateral management, custodian services, and regulatory reporting tools. What exchanges do has changed significantly. This has endowed them with considerable power to shape capital markets (see Swartz, this volume).

While financial markets are used by investors as sites of exchange, financial infrastructures need to be in place to *enable* these transactions in the first place (Bowker and Star, 1999) – existing and newly emerging systems through which 'payments are settled, risks are assessed, and prices agreed' (Bernards and Campbell-Verduyn, 2019, p. 777). Crucially, financial infrastructures are 'the social, cultural, and technical conditions that make [financial markets] possible' (MacKenzie, 2006, p. 13) – socio-technical systems that enable the functioning of financial markets but tend to be taken for granted and assumed (Star, 1999; Edwards, 2003; see also Pinzur, this volume).

Providing these infrastructures is more than a mere technical exercise. Financial infrastructures are inherently political as infrastructural arrangements modify the distribution of power and capabilities within marketplaces (Riles, 2011; Pardo-Guerra, 2013). As Bernards and Campbell-Verduyn (2019, p. 783) note, financial infrastructures 'can confer, extend and enable new forms of governance'. Drawing on Mann's (1984) work on the infrastructural power of the state, Braun (2020) for instance demonstrates how states' attempts to govern through markets provide financial actors with infrastructural power due to states' increasing entanglement with financial markets on which they rely for governance purposes (see also Coombs, this volume). Infrastructure is thereby conceptualized relationally (Bernards and Campbell-Verduyn, 2019), and it is this entanglement that provides financial actors with infrastructural power (Gabor, 2016; Sgambati, 2019), as state–market interactions take place 'on the turf and according to the rules of financial markets' (Braun and Gabor, 2020, p. 241). Crucially, as Bernards and Campbell-Verduyn (2019, p. 783) emphasize, 'power often depend[s] on control over key financial infrastructures'. Financial infrastructures 'sediment' power relations and 'shape, enable, constrain that power in specific ways' (de Goede, 2020, p. 355).

This chapter argues that the implications of this 'control over key financial infrastructures' (Bernards and Campbell-Verduyn, 2019, p. 783), and who sets 'the rules of financial markets' (Braun and Gabor, 2020, p. 241), require closer examination in the emerging literature on infrastructures and power. While SSF/STS (Social Studies of Finance/Science and Technology Studies) perspectives in infrastructure usually focus more on the micro level (Pinzur, this volume), international political economy literature on infrastructural power focuses on the macro level of the state (Coombs, this volume). While both of these perspectives are helpful to understand the politics of financial infrastructures, this chapter emphasizes the meso level – concentrating specifically on those actors that provide, create, and control financial market infrastructures, thereby connecting the micro and macro levels (see also Campbell-Verduyn and Hütten, 2023). In other words, how and by whom markets are organized matters.

Through their transformation, exchanges have turned into exactly such providers of financial infrastructures. They are important actors whose power derives from their ability to define the features of the infrastructures for financial markets. Exchanges do not derive power through *participation* in financial markets, but from their role in *organizing* their underlying infrastructural arrangements. Rather than instrumental or relational, their power is more architectural in nature – from market data, indices, and products to trading platforms – they enable the operation of capital markets.

Through their role as providers of financial infrastructures, exchanges have therefore become constitutive for how capital markets function. First, by deciding which companies can list on their market or which products (stocks, bonds, derivatives, indices, etc.) can be traded, exchanges define *investment opportunities*. Secondly, exchanges exercise influence over who gets to participate in these markets and who is able to invest into – and own – these listed assets, thereby influencing *investor structures*. Thirdly, whoever wants to participate in these markets can only do this through the systems implemented by exchanges. Through these systems, exchanges set *investment rules* of how trading/investing is conducted, monitored, and sanctioned. Fourthly, because of their role of organizing markets exchanges have historically had close relationships with regulators and governments. Exchanges therefore also have a certain degree of *political influence* beyond capital markets.[1]

By organizing infrastructures exchanges constrain and influence the actions of those actors entangled within their markets. Exchanges decide the 'rules of the game' – acting as gatekeepers, deciding who gets in, what is traded, and how trading is conducted.[2] Thereby, they are crucial actors that *shape capital markets*. Developing an understanding of exchanges as actors rather than marketplaces as well as exploring the provision of financial infrastructures as the source of their power helps to place them and their activities within the political economy of global finance.

While this section discussed the provision of financial infrastructure as an important commonality, there are important differences between exchanges. As the next sections illustrate, not all exchanges organize markets equally, nor are all exchanges equals.

3 Differences: Differing Institutional Logics

In contrast to the premise that markets are uniform, both capital markets and exchanges are 'embedded in distinct sets of social and political institutions' (Ebner and Beck, 2008, p. 4; see also Vogel, 2018). As Deeg and Jackson (2006, p. 152) highlight, 'these institutional configurations create a particular contextual "logic" or rationality of economic action'. Every economy consists of a set of institutions which create distinct patterns of constraints and incentives that shape and channel actors' behaviours (Zysman, 1994, pp. 245–246). By making some forms of action more likely or reasonable, a particular logic emerges that is distinct from other institutional contexts (Thornton and Ocasio, 2008).

So, while functionally capital markets are characterized by market-based mechanisms of coordination between buyers, sellers, and investors, these markets are also embedded within variegated institutional settings that facilitate different *institutional logics* which underpin and shape the functioning of markets. Instead of viewing capital markets as homogeneous entities, this chapter therefore proposes to analyse capital markets as variegated – while characterized by market mechanisms, different institutional logics can underlie capital markets, leading to very different market dynamics and outcomes (Ahrne, Aspers, and Brunsson, 2015). Exchanges are hereby important actors that facilitate these different forms of how markets work. How exchanges (i.e., market organizers) are governed and which constraints and incentives they face matters.

Some aspects of their transformation are quite similar across exchanges. All over the world, exchanges have become electronic marketplaces, be it the New York, Shanghai, or Malawi stock exchanges. However, a crucial institutional characteristic where we see significant divergence between exchanges is how they are situated within as well as negotiate the relationship between states and markets.[3] For this reason, it makes sense to construct a heuristic typology which distinguishes between two ideal-typical poles on the state–market continuum: 'state-capitalist capital markets' and 'neoliberal capital markets' (Petry, Koddenbrock, and Nölke, 2023).

In Western economies exchanges have essentially become neoliberal corporations – publicly traded companies that must make profitable business decisions to increase shareholder value; they are situated within an institutional setting informed by a neoliberal logic. The underlying neoliberal institutional logic that informs the functioning of these markets is one of a separation between state and market, depoliticizing markets and instead putting a significant degree of trust in the collective agency of private (financial) actors to achieve efficient outcomes by seeking to maximize (private) *profit* (Peck and Tickell, 2002; Major, 2012). While states are tasked with the role of creating markets in neoliberalism, they should not intervene in these markets once established (Slobodian, 2018). The state's priority is rather to enable private profit creation instead of other socio-economic outcomes (Chomsky, 1999). Instead of 'natural', these markets should be conceptualized as *neoliberal capital markets*.

But capital markets do not have to follow a neoliberal institutional logic. While capital markets have emerged as important economic coordination mechanism globally (Gabor, 2018), these markets can function significantly differently as exchanges and capital markets may be informed by a very different institutional logic – that of state capitalism. While profit creation for private finance capital is the primary underlying principle in neoliberal markets, importantly, in the state-capitalist ideal type, the state intervenes into capital markets to facilitate state objectives (Lai and Daniels, 2015). In state-capitalist economies, less trust is put in free markets but rather in state guidance, whereby 'market forces are

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utilized' but only 'as long as state control over key economic aspects remains intact' (McNally, 2013, p. 42).

China is a prime example of this. In China's capital markets, the state aims to steer market development into 'productive' tracks, and this steering role of the state is ingrained into the institutional setup of markets (Gruin, 2019). Consequently, the state, national development goals, and capital markets are much more entangled than in neoliberal capital markets. Instead of profit/shareholder value, the performance of exchanges, their personnel and management are measured by their contribution towards state objectives rather than commercial indicators. They consequently organize market infrastructures in ways that contribute to these state policies both domestically and abroad. By shaping market infrastructures, the Chinese exchanges extend the state's ability to exercise *control* within capital markets by monitoring, regulating, and managing the behaviour of market participants as well as the ability to direct market outcomes towards the accomplishment of *national development* policies. Following orders from the Chinese authorities,[4] the Chinese exchanges organize the infrastructural arrangements of capital markets in ways that aim to prevent 'over-speculation', maintain social stability, serve the real economy, and contribute to economic reform in spite of a controlled integration into global finance (Petry, 2020). So, while investors within Chinese markets are largely profit-driven, Chinese exchanges organize the infrastructural arrangements of markets according to state objectives. Rather than neoliberal, capital markets organized by Chinese exchanges – within the context of China's socio-economic system of state capitalism – produce a different type of capital markets that can be categorized as *state-capitalist capital markets*.

The defining difference between neoliberal and state-capitalist logic is thus not the existence of markets per se but rather the principles that underlie market organization (profit creation vs state objectives) and the actors that dominate/shape these markets (private finance capital vs state institutions) (Petry, 2021b). Exchanges here organize markets by designing market infrastructures that aim to steer markets by monitoring, regulating, and managing the behaviour of market participants towards the accomplishment of certain economic and political objectives – reproducing state capitalism through financial means (Petry, 2020). While state influence over capital markets in such a setup is neither absolute nor always effective, a different way of thinking about and actively managing capital markets dominates in the state-capitalist ideal type.

Going beyond the provision of financial infrastructures which all exchanges have in common, this section explored how their distinct institutional embeddedness influences exchanges' organization of capital markets as different institutional logics facilitate different infrastructural arrangements that shape how markets work. In other words, not all exchanges organize markets equally. Section 4 explores further differences between exchanges, notably the hierarchical nature of the exchange industry and concentrated power of a few global exchanges.

4 Differences: Hierarchical Nature of Exchange Industry

While all exchanges create financial infrastructures, the extent of their individual power derived from these infrastructures differs substantially. Traditionally, every country had an exchange of varying size. Since the 1980s, however, a new global hierarchy between exchanges has emerged – with global exchanges from the West at the top, complemented by a few regional and larger national exchanges. Overall, an enormous concentration of marketplaces, liquidity, and power had taken place.

Instead of equally powerful national marketplaces, a few global exchanges have come to dominate the exchange industry and thereby the organization of financial infrastructures (Petry, 2021a): CME Group which operates Globex, the world's largest futures trading platform, the largest fixed income trading platform (NEX), and which partially owns index provider S&P Dow Jones Indices; ICE Group which runs the New York Stock Exchange (NYSE), the world's largest stock market, and several large derivative exchanges like NYBOT (New York Board of Trade) or LIFFE (London International Financial Futures and Options Exchange), together forming the world's second-largest derivative market; Nasdaq Group which operates the iconic Nasdaq stock market, 28 other US and European capital markets, while Nasdaq's technology is used by 130+ marketplaces globally; Cboe, the world's largest options exchange, which also owns BATS (Better Alternative Trading System), the world's largest alternative trading system (ATS), and EuroCCP, Europe's largest equity clearing house; Deutsche Börse Group which owns index provider Qontigo, Europe's largest derivatives market Eurex, and Clearstream, the world's second-largest international central securities depository; and LSE Group which, next to the London Stock Exchange (LSE), owns index provider FTSE Russell, Refinitiv (formerly Reuters Eikon), and LCH.Clearnet, the world's largest clearing house.

First, these mostly US-based exchanges control the majority of *globally relevant* financial infrastructures.[5] They run the largest, most prestigious and profitable venues, own the most important products, indices, and technological know-how, and shape the development of capital markets globally. By operating the futures markets that create the prices for WTI and Brent, ICE and CME essentially shape the world's oil market; despite Brexit, the majority of Euro-denominated clearing of derivatives still takes place in London via LCH. Clearnet (James and Quaglia, 2019); and a handful of mostly exchange-owned index providers set standards for market accessibility and corporate governance, increasingly steering global capital flows (Petry, Fichtner, and Heemskerk, 2021). Global exchanges are positioned at crucial nodes within the global financial system.

Secondly, global exchanges also shape how capital markets work elsewhere as the former have been both impacted by financial globalization but have themselves also turned into important agents thereof, spreading the development of capital markets globally.[6] They export their financial infrastructures to 'underdeveloped' markets, support their development, and sometimes even run these smaller markets, promising to create growth by capitalizing on their economies of scale and helping create new financial products and services. In return, global exchanges earn fees, buy (a stake in) those smaller exchanges, or have preferential access to their market data and products.

Nasdaq, for instance, provides technology to 130+ market organizers in 50 countries,[7] 40+ exchanges use LSE Group's Millennium platform,[8] Deutsche Börse Group technology is used by over 30 exchanges and it facilitates various cross-listings and joint ventures,[9] while CME Group has multiple similar cooperations.[10] Especially when exchanges are (relatively) underdeveloped, such infrastructure and knowledge transfers are crucial (Wójcik, 2012, pp. 114, 121). Not least because global exchanges aided processes of market development, the number of countries with stock exchanges nearly doubled from 59 to 117 between 1980 and 2005 (Weber, Davis, and Lounsbury, 2009). Through the provision of financial infrastructures, global exchanges create, connect, and shape marketplaces globally, thereby also significantly shaping the way in which developing country capital markets work. They define the rules of the game in global markets: they have hence become the *rule-makers* of the global financial order – while exchanges on the lower rungs of the global hierarchy often follow their lead as *rule-takers*.

Importantly, these global exchanges are mostly US-based companies. Financial infrastructures globally converge around characteristically American 'best practice' – including denominating trading and clearing in USD. In this respect, US-based global exchanges fulfil a similar role as other actors that disseminate Anglo-American norms in financial globalization (see Sinclair, 2005, p. 4). By organizing capital markets according to a neoliberal script and disseminating their financial infrastructures globally, global exchanges facilitate and reproduce US financial hegemony within the global financial system. Hegemonic power is 'hardwired' into financial infrastructures (de Goede and Westermeier, 2022; also Westermeier and de Goede, this volume).

While all infrastructures derive their power from the provision of financial infrastructures, this section has illustrated the unequal power relations between exchanges, as the central nodes of global financial infrastructures are controlled by only a handful of Western exchanges. Section 5, however, draws attention to contestations of this power constellation through the growing importance and global impact of non-Western exchanges.

5 Contestations: Beyond Western Markets

However, important changes are afoot in the world of exchanges. Since the 2007–2009 global financial crisis, non-Western capital markets have emerged as central nodes in the global financial system as ever more financial flows are directed towards or originate in emerging markets.

While for decades CME was the world's largest futures market by trading volume, in 2019 the National Stock Exchange of India took this position, and in 2022 CME was also superseded by Brazil's exchange B3 (see Datz, this volume). Chinese exchanges have toppled Nasdaq and NYSE as the world's largest initial public offering (IPO) markets, with more companies being listed in Hong Kong, Shenzhen, and Shanghai than anywhere else in the world. Contrary to what one might think, the world's largest IPOs were not US tech companies. Facebook/Meta, for instance, only ranked 8th; instead, a Saudi Arabian oil company (Saudi Aramco), a Chinese ecommerce giant (Alibaba), and a Japanese investment holding company (Softbank) occupy the top three spots.

Whereas in 2000 non-Western stock markets only accounted for 22.4% of global market capitalization, their share had doubled (46.1%) by 2020. A similar picture emerges for futures exchanges where the non-Western share of global futures/options trading volume increased from 39.5% to 60.6% between 2007 and 2020. This increasing importance of non-Western markets is mainly due to the rise of a handful of large emerging markets – notably China, but also other countries like the BRICS+ (Brazil, Russia, India, China, South Africa, Iran, Egypt, Ethiopia, and the United Arab Emirates) as well as in Asia.[11]

This increasing financial activity in non-Western exchanges not only means a quantitative shift but it also has two significant implications. First, exchanges in many of these countries operate quite differently. They often tend more towards the state-capitalist (or developmental; see Petry and Pape, 2023) end of our continuum, thus creating pockets of autonomy from the neoliberal capital markets created by global exchanges. Secondly, many of them are increasingly internationalizing themselves – exporting their different ways of organizing markets abroad. This raises questions not only about resistance towards neoliberal convergence but also potential contestations thereof.

While powerful, global exchanges are also constantly in competition with each other as well as with non-exchange trading platforms such as ATS or dark pools and market structure is consequently much more fragmented (Mattli, 2019). Therefore, especially when it comes to the state–market relationship – which means whether exchanges are themselves profit-driven companies subject to market pressures/competition or whether exchanges are subject to state control/influence to achieve certain national development objectives – we can see big differences between Western and non-Western exchanges.

As previously discussed, China is the extreme case where exchanges are state-owned and policy-driven, consequently organizing capital market infrastructures in a way that follows state-capitalist logic (Petry, 2020, 2021b). But it is far from the only country where markets function differently from global exchanges.

More examples can be found in other BRICS countries. In India, state institutions are still the largest owners of the stock exchanges and regulatory authorities exercise a lot of control over the design of market infrastructures. Foreign investor access is restricted, speculative trading practices such as high-frequency trading are limited, and offshore trading of certain financial products – such as index futures based on the Indian stock market – are severely curtailed. Indian markets are much more state-permeated than Western markets (Petry, Koddenbrock, and Nölke, 2023). And while Russia's capital markets had been more liberalized previously, the state has equally started to severely intervene in the organization of capital markets via the Moscow Exchange (Viktorov and Abramov, 2022) – a policy that was accelerated in the run-up to the Ukraine invasion and in the face of Western financial sanctions.

Similarly, exchanges in Asian developmental states organize capital markets very differently from Western markets (Pape and Petry, 2023). While exchanges are formally listed companies in Korea and Taiwan, foreign ownership is severely limited, and state influence remains extensive. Exchange management is essentially decided by regulators and the exchanges are vital in facilitating certain developmental policies. This includes protecting retail investors as capital markets serve as an important fix in their respective societies, for instance, by banning certain trading activities like short selling or by punishing foreign investors as scapegoats to placate retail investors who lost money in market downturns (also Yasuda, 2023). Other aspects include protecting their non-freely tradeable currencies and keeping global investors at bay through a variety of infrastructural arrangements to control market access as well as monitoring and intervention measures.

Even in Japan, which is probably closest to Western exchanges, the stock exchange is in a very different position of power vis-à-vis market participants. While ATS are allowed, they only account for a fraction of trading (around 10%), and market regulations are designed in a way that keeps them small. While seemingly open, Japan's market structure is deliberately designed to maintain its stakeholder model of capital markets. Deregulation only took place at the margins: international high-frequency traders basically driving up share turnover through trading between the ATS and main exchange,[12] accounting for 70.6% of trading in 2022.[13] The majority of the market are long-term holdings with very little turnover by Japanese corporates and financials (52.1%), which is complemented by a somewhat more active retail investor segment (17.6%).[14] Market infrastructures thus basically reinforce a traditional buy-and-hold market while allowing a certain international high-frequency trading appendix. Across East Asia, exchanges organize capital markets decidedly differently than in Western markets (Pape and Petry, 2023).

Importantly, these non-Western exchanges are increasingly internationalizing themselves – exporting their different ways of organizing markets abroad. Chinese exchanges have actively engaged in constructing financial infrastructures along the Belt and Road (Petry, 2023). Similarly, Japan Stock Exchange's acquisition of the Yangon Stock Exchange was partially motivated by the desire to gain political allies and to fend off competition, such as from Chinese and Korean exchanges, which have invested in and operated marketplaces in Bangladesh, Pakistan, Kazakhstan, and Germany (China), or Uzbekistan, Laos, and Cambodia (Korea). As these countries compete for their standing as regional economic powers, according to one exchange representative 'the Japanese government encouraged that relationship' while 'the Korean government [also] strongly encourages Korea Exchange (KRX) to expand their business in Southeast Asia, *even though it's not profitable*' (cited in Pape and Petry, 2023, p. 243).

Similarly, we can see the construction of new cross-border financial infrastructures between the BRICS countries, especially with the aim of reducing vulnerabilities vis-à-vis US-dominated market structures and potential sanctions (see Nölke, this volume). This is especially visible in ongoing Sino-Russian financial infrastructure collaborations. To shield themselves from a US-dominated/USD-denominated global financial system, the two countries facilitate RMB/RUB cross-currency trading, developing a unified RMB/RUB liquidity pool and alternative financial payments infrastructures. These collaborations have important material effects as the USD's share in Sino-Russian trade settlement dropped from 90% in 2015 to only 40% in 2020, while RMB/RUB currency trading surged by 1,067 between February and May 2022. Similarly, Indian and Russian exchanges have been actively discussing the creation of new financial infrastructures to increase connectivity and reduce dependency, and the success of broader efforts towards de-dollarization – and thus reduce the US's ability to weaponize financial interdependence – also depend on the existence of alternative infrastructural arrangements to facilitate capital market-based investments.

Importantly, how these markets function as well as their internationalization process are fundamentally different from the profit-driven approach followed by Western stock exchanges (Petry, 2021a). Increasingly, exchanges in many pockets of global capital markets have developed their own ways of organizing financial infrastructures in ways that differ from neoliberal logics and have even challenged the current global hierarchy of exchanges.

6 Conclusion: Towards Fragmented Global Markets?

This chapter illustrated the role of exchanges as providers of financial infrastructures in global capital markets. While exchanges are one of the institutional foundations of contemporary capitalism, they have received comparatively little attention in existing scholarship. In part, this was because their source of power was unrecognized. Focusing on their role as providers of financial infrastructures thus provides us with a novel conceptual lens to understand their importance as powerful actors within the global financial system. Rather than investors who are active within a market, exchanges play a much more architectural role for capital markets as they create the infrastructural arrangements that enable the functioning of these markets: from market data, indices, financial products, trading platforms to clearing, exchanges create the rules according to which market transactions take place. By deciding the 'rules of the game' and acting as gatekeepers, deciding who gets in, what is traded, and how trading is conducted, exchanges are crucial for shaping capital markets, their development, characteristics, and dynamics.

While all exchanges have this in common, there are also important differences between exchanges. First, exchanges are embedded within specific institutional environments that inform exchanges' organization of capital markets. Secondly, the chapter illustrates the hierarchical nature of exchanges within the global financial system where a handful of Western exchanges dominate the most important financial infrastructures globally and influence how other exchanges organize capital markets. Thirdly, the chapter discusses the growing importance and international reach of non-Western exchanges as potential contestations of the existing global hierarchy.

While this chapter provided a brief overview, more research is needed to analyse exchanges and their role within the global financial system. More in-depth case studies of exchanges are warranted to better understand the nuances of how exchanges create financial infrastructures and correspondingly shape markets, especially by exploring more closely their relationships to market regulators and participants as well as state actors in different contexts within this process. Furthermore, the synergistic effects that emerge from individual financial infrastructures that exchanges create or control should be analysed in more scrutiny. This, for instance, includes the relationship between market data, indices, and index futures; the increasing relevance and interplay of post-trading infrastructures such as central clearing, central securities depositories, and collateral management; as well as the growing infrastructural eco-system for 'sustainable investment' like ESG (Environment, Social, Governance) data, analytics, ratings, indices, or futures (also Fichtner, Petry, and Jaspert, this volume). More research is also needed to investigate the global dissemination/diffusion of financial infrastructures propelled by exchanges. What is the nature of the influence that global exchanges can exercise through the provision of infrastructural arrangements to developing and emerging markets, and what determines its size and reach?

Finally, it is noteworthy that the macro context in which exchanges operate has been rapidly changing with growing geopolitical tensions in recent years (Petry, 2024). On the one hand, security considerations might impact the previously profit-driven business model of Western exchanges. US financial sanctions against countries like Russia or China, including the forced de-listing of companies and denying access to cross-border infrastructural arrangements certainly had a big impact on Western exchanges, which now have to navigate these more political waters in their search for profit. On the other hand, we can observe increasing efforts from non-Western countries to circumvent US financial hegemony. De-dollarization and multi-polarity thereby rest on the creation of alternative financial infrastructures which might be informed by different institutional logics. Overall, exchanges and their provision of financial infrastructures must continuously adapt in the face of an increasingly politicized and fractured global economy.

Notes

1. Roscoe (2023), for instance, highlights the importance of early stock exchanges for political actors and their subsequent influence in the corridors of power.
2. Hence, the power of exchanges closely resembles what Susan Strange (1988, p. 31) defined as structural power – the ability of powerful actors 'to change the range of choices open to others without apparently putting pressure directly on them'.
3. Other institutional differences might also impact the functioning of (some) exchanges; one example for this would be how capital markets in Indonesia, Malaysia, or Abu Dhabi are strongly influenced by religious norms (Islamic finance).
4. At the 5th National Financial Work Conference (Beijing, 14 July 2017), Xi Jinping, for instance, noted that the main tasks of China's financial sector were '[to] better serve the real economy, containing financial risks and deepening financial reforms'.
5. CME, ICE, Nasdaq, and Cboe are US-based, while London Stock Exchange and Deutsche Börse are headquartered in Europe; but all of them are integral to Anglo-American finance.
6. By connecting ever more investors, providing them with more investment opportunities, and internationalizing financial products and markets, global exchanges facilitate the globalization of disintermediated financial practices in a way that increases the structural power of finance over states and societies (Pike and Pollard, 2010).
7. https://business.nasdaq.com/market-tech/ (accessed 1 June 2023).
8. www.lseg.com/en/capital-markets/market-infrastructure-business-development (accessed 1 June 2023).
9. See: https://deutsche-boerse.com/resource/blob/31764/2ae61c511fef41b901e2656b4ce9fa90/data/db-dbg-p-z-v-hp_en.pdf (accessed 1 June 2023).
10. See: www.cmegroup.com/international/ (accessed 1 June 2023).
11. For example, the BRICS accounted for 53.9% of global futures trading and 23.1% of global stock market capitalization in 2020, up from 4% and 5% respectively in 2000, growing even more rapidly than their share of global GDP, which increased from 8.1% to 24.2%.
12. Notably, only one out of fifty registered high-frequency traders in Japan is a domestic company, whereas the rest are well-known global hedge funds; www.fsa.go.jp/menkyo/menkyoj/kousoku.pdf.
13. 'Trading by Type of Investors on Japan Exchange Group (JPX)' (2022); www.jpx.co.jp/english/markets/statistics-equities/investor-type/00-02.html.
14. 'Shareholding at Market Value by Investor Category on JPX' (2022); www.jpx.co.jp/english/markets/statistics-equities/examination/01.html.

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