# Capital markets with Chinese characteristics:

# Exchanges, state capitalism & China's integration into the global financial order

by

Johannes Petry

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Department of Politics and International Studies

University of Warwick

Supervised by Dr Lena Rethel and Dr Timothy J. Sinclair

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## List of abbreviations

AIFC ..... Astana International Financial Centre
AIX ..... Astana International Exchange
APAC ..... Asia-Pacific
API ..... Application Programming Interface
ASIFMA ..... Asia Securities Industry and Financial Markets Association
ATS ..... alternative trading systems
BCBS ..... Basel Committee on Banking Supervision
BRI ..... Belt and Road Initiative
BRICS ..... Brazil, Russia, India, China and South Africa
CBOE/Cboe ..... Chicago Board Options Exchange
CBOT ..... Chicago Board of Trade
CCP ..... Chinese Communist Party
CDS ..... credit default swap
CEINEX ..... China Europe International Exchange
CFETS ..... China Foreign Exchange Trading System
CFFEX ..... China Financial Futures Exchange
CFMMC ..... China Futures Margin Monitoring Centre
CHX ..... Chicago Stock Exchange
CME ..... Chicago Mercantile Exchange
CPEC ..... China-Pakistan Economic Corridor
CSI ..... China Securities Index
CSRC ..... China Securities Regulatory Commission
DBG ..... Deutsche Börse Group
DCE ..... Dalian Commodity Exchange
DMA ..... Direct Market Access
DME ..... Dubai Mercantile Exchange
DSE ..... Dhaka Stock Exchange
EMIR ..... European Market Infrastructure Regulation
ETF ..... exchange-traded fund
FDI ..... foreign direct investment
FIA ..... Futures Industry Association
FOW ..... Futures & Options World
FSB ..... Financial Stability Board
FX ..... foreign exchange
HFT ..... high frequency trading
HKEx ..... Hong Kong Exchanges and Clearing
ICE ..... Intercontinental Exchange
INE ..... Shanghai International Energy Exchange
IOSCO ..... International Organization of Securities Commissions
IPE ..... International Political Economy
IPO ..... initial public offering
JPX ..... Japan Exchange

KPI ..... Key Performance Indicator
LME ..... London Metals Exchange
LSEG ..... London Stock Exchange Group
M&A ..... mergers and acquisitions
MiFID ..... Markets in Financial Instruments Directive
MOEX ..... Moscow Exchange
MoU ..... Memorandum of Understanding
NYMEX ..... New York Mercantile Exchange
NYSE ..... New York Stock Exchange
OTC ..... over-the-counter
P2P ..... Peer-to-peer
PBoC ..... People's Bank of China
PSX ..... Pakistan Stock Exchange
QDII ..... Qualified Domestic Institutional Investor
QFII ..... Qualified Foreign Institutional Investor
RQFII ..... Renminbi Qualified Foreign Institutional Investor
S&P DJI ..... Standard & Poor's Dow Jones Indices
SAFE ..... State Administration of Foreign Exchange
SEC ..... Security Exchange Commission
SGE ..... Shanghai Gold Exchange
SGX ..... Singapore Exchange
SHCH ..... Shanghai Clearing House
SHFE ..... Shanghai Futures Exchange
SIX ..... Swiss Infrastructure and Exchange
SOE ..... state-owned enterprise
SPV ..... special purpose vehicle
SSE ..... Shanghai Stock Exchange
SSF ..... Social Studies of Finance
SZSE ..... Shenzhen Stock Exchange
TSX ..... Toronto Stock Exchange
WFE ..... World Federation of Exchanges
WFOE ..... wholly foreign-owned enterprise
ZCE ..... Zhengzhou Commodity Exchange

## Acknowledgements

This thesis is the outcome of a four-year long intellectual journey, whose origins probably date back even further. In fact, the seeds for this project were sown more than a decade ago when I first started my studies in political science and economics only weeks after the collapse of Lehman Brothers at the height of the global financial crisis.

Since then, I was taken by global finance, fascinated by its destructive power and seemingly endless potential to reinvent itself. First in Frankfurt and later in Warwick and Konstanz, I began to research global finance and its transformations, starting with the global crisis but slowly gravitating towards more recent developments. Especially while I had been working in finance before starting my PhD, I could observe how dynamic China's financial system had become and was poised to study its changing capital markets.

I would have never been able to conduct this research project without my supervisors Lena Rethel and Timothy J. Sinclair, whose excellent advice and support over these years I am immensely grateful for. Their belief in this project was crucial, especially at times when it seemed impossible to me. As experts in the politics of global and Asian finance, their feedback was hugely important, and their constant encouragement to explore more deeply why this project matters – where is the politics? – has helped me greatly to grow as a scholar and contributed immensely to making this project what it is today. I owe much of its success to their excellent mentoring and guidance.

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best experiences during my PhD. Having the chance to bring together a community of early-career scholars that focuses on collaboration, cooperation and mutual research interests has been an incredibly rewarding venture and I learned a lot in this process.

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Lastly, and importantly, I would like to thank my family, Becky & Robin. There are no words for their unconditional love, support and patience over these years. They have been an invaluable source of strength and compassion during this at times difficult intellectual and personal journey. It is to them this work is dedicated.

## Declaration

This thesis is entirely my own work and neither the thesis itself, nor any part thereof, has been submitted for examination at any other university. Some of the content of this thesis has been published in article or book chapter format.

Major parts of Chapter 2 have been published as:

Petry, J. (2020b) 'From national marketplaces to global providers of financial infrastructures: Exchanges, infrastructure & power in global finance', *New Political Economy*.

Petry, J. (2020d) 'Securities exchanges: Subjects & agents of financialization', D. Mertens, P. Mader & N. van der Zwan (eds.) *International Handbook of Financialization*. London: Routledge, 253-264.

Minor parts of Chapters 3-6 have been published as:

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Petry, J. (2020c) 'Same same, but different? Capital markets, Chinese state capitalism & the global financial order' *Competition & Change*.

## Abstract

Since 2009, China's capital markets have developed and internationalised to an unprecedented degree, spurring debates about China's rise and its implications for the global financial order. Contributing to these debates, this thesis analyses the development of stock and futures markets in China and global financial integration between 2009-2019. Thereby, this thesis addresses three interlinked questions. First, to what extent – similar to other aspects of its economy – the Chinese state engages in a 'pragmatic use' of capital markets. Second, to what extent Chinese capital markets consequently function like 'global' markets or differently. Third, and most importantly, how this affects China's increasing integration into the US-dominated, neoliberal global financial order.

To explain China's evolving relationship with the global financial order (macro-level), the thesis draws on two concepts. First, it analyses the politics of *financial infrastructures* to explore the organisation of capital markets through exchanges (micro-level). Rather than mere marketplaces, exchanges are powerful actors that provide the infrastructural arrangements that underpin capital markets, thereby shaping their very form and functioning. The analytical focus is hence placed on the policies and practices of exchanges in organising capital markets. Second, the thesis situates this market organisation within different contexts. Utilising the concept of *institutional logics*, it illustrates how capital markets are institutionally embedded and how different institutional settings shape their dynamics and outcomes (meso-level).

By analysing this differential organisation of capital markets through exchanges' construction of financial infrastructures, the thesis demonstrates that what can be observed in China is the development of capital markets whose underlying objectives are twofold: for the state to *control* markets and to direct market outcomes towards *national development* goals, objectives that follow from the institutional logic of China's state-capitalist economic system. The thesis thus develops an ideal-typical distinction between China's 'state-capitalist' capital markets and 'neoliberal' capital markets that underpin the global financial order.

This conceptual toolkit enables a more accurate understanding of China's integration into global finance (macro-level), analysing three aspects in this process: China's state-capitalist capital markets represent a distinct alternative to neoliberal capital markets (domestic development), they resist pressures to conform with global finance despite an increasing opening process (integration) and they even challenge the global financial order by expanding abroad (internationalisation).

## 1 Introduction

Since 2009, China's capital markets have developed and internationalised to an unprecedented degree. In 1989, capital markets did not exist in China. Fast forward three decades and China's capital markets have become the 2nd largest equity markets, 2nd largest futures markets and 3rd largest bond markets in the world (FIA, 2018, WFE, 2018). Over the past decade, Hong Kong, Shanghai and Shenzhen have become world-leading venues for company listings (Fioretti, 2020), with more companies being listed in China than in any other country (Wigglesworth, 2019). And whereas China's capital markets have been virtually closed from the outside world for decades, especially since the global financial crisis of 2007-2009 they have become connected to both regional and global financial markets 'at an unprecedented pace' (ASIFMA, 2018: 4). While historically, capital markets only played a minor role in the development of China's political economy (Naughton and Tsai, 2015, Nölke *et al.*, 2015, Allen *et al.*, 2017, ten Brink, 2019), China's formerly bank-based, state-controlled financial system is quickly changing as new practices, products and actors such as market-based finance, derivatives or private equity firms emerge (Robertson, 2017, Naughton, 2018). China has since undergone a process of increasing financialisation exemplified by 'the 'growing influence of capital markets, their intermediaries and processes in economic and political life' (Pike and Pollard, 2010: 30)[1] as capital markets have over time become more important within China's socio-economic system (Wang, 2015, Gabor, 2018, Gruin, 2019a, Petry, 2020a).

This rapid growth of China's capital markets takes place within the context of a global financial order based on the neoliberal principles of open, lightly-regulated, internationally-integrated financial markets, guaranteed by and facilitating US power (Norrlof, 2010, Drezner and McNamara, 2013). And whereas for a while China seemed to gradually converge with the US financial model, this process ended abruptly with the global financial crisis (Kirschner, 2014: 221-222). As Drezner and McNamara (2013: 155) emphasise, post-crisis debates about the role of finance in the global economy 'are interwoven with continued questions about the primacy of American power and the potential rise of other actors in the international system.' The crisis opened up room for contesting the US-led global financial order (Helleiner, 2010,

[1] The development of capital markets has been a core focus of financialisation research (see Aglietta and Breton, 2001, Epstein, 2005, Hardie, 2012, Mader *et al.*, 2020).

Huotari and Hanemann, 2014), feeding into debates about the decline of the US as the global hegemon (Beeson, 2009, Ikenberry, 2011) and the economic and political rise of China (Jacques, 2009, Hung, 2015). Scholars are therefore debating whether China is a status quo power integrating into the existing liberal economic order (Steinfeld, 2010, Ikenberry, 2011), attempts to (partially) reform the existing order (Chin and Thakur, 2010, Breslin, 2013a, Xiao, 2015), whether it is a revisionist power challenging the US-dominated order (Hung, 2013, Huotari and Hanemann, 2014) or whether global finance is itself adapting to accommodate China (McNally and Gruin, 2017).[2] This growing Chinese significance in global finance has been analysed by International Political Economy (IPE) scholars with respect to: the internationalisation of the RMB (Bowles and Wang, 2013, Helleiner and Kirschner, 2014, McNally, 2015, Lombardi and Wang, 2016, Germain and Schwartz, 2017), the internationalisation of Chinese banks (Schlichting, 2008, Gottwald, 2011) and how Chinese investments change financing patterns (Clark and Monk, 2011, Kaplan, 2016). Others analysed the rise of China's sovereign wealth funds (Shih, 2009, Eaton and Ming, 2010), the establishment of new international financial institutions such as the AIIB (Callaghan and Hubbard, 2016), the Silk Road Fund (Summers, 2016) and the BRICS-New Development Bank (Dixon, 2015) as well as China's growing role in global financial governance (Nölke, 2015), in development finance (Woods, 2008, Bräutigam, 2011) and through the Belt and Road Initiative (Yu, 2017).

This is also not simply a discussion about finance. Rather, China's ascent to the league of economically powerful nations and its increasing role in global economic governance has sparked heated discussions about the broader role of the state in the economy. As a plethora of studies have highlighted, China's model of capitalism is characterised by a state-market configuration that significantly differs from 'Western' capitalisms (Breslin, 2007, McNally, 2012, Naughton and Tsai, 2015, Gruin, 2019a, ten Brink, 2019). While China's economic system is characterised by an increasing array of market-based coordination mechanisms, the state never quite (completely) relinquishes control over the organisation of economic life (Huang, 2012a, Tsai, 2015, Gruin, 2019a). As McNally (2013: 38-39) notes, in China there is a 'considerable distrust of markets and full-out economic liberalisation'; the state rather engages in a

[2] As Breslin (2018: 58) notes, China's challenge to the global order is rather partial and selective than holistic and systemic; this thesis therefore only focuses on China's challenge of the global financial order with respect to capital markets.

'pragmatic use' of markets, managing markets and steering them towards specific policy goals.[3] This also contributes to the increasing contestation of China's rise – the current US-China trade war being a case in point in which capital markets became a key point of contention (Long, 2019). Simultaneously, China has become the world's economic engine – contributing 45% of global GDP growth since the global financial crisis (The Economist, 2018). As the centre of gravity in the global economy seems to be gradually shifting towards the East, we can observe an increasing financialisation of China's state capitalism coinciding with an increasing integration of China into the global financial order.[4] Understanding the functioning and transformation of China's capital markets is therefore of great importance for the study of the contemporary global financial system and its governance.

In order to understand the integration of China's growing capital markets into the global financial order, focusing on stock and futures markets[5] this thesis addresses three interlinked questions. First, given their situatedness within China's state-capitalist economic system, does the Chinese state similarly engage in a 'pragmatic use' of capital markets? Second, do Chinese capital markets consequently function the same way as 'global' markets or do they function differently? Third, and most importantly, what implications does this have for China's integration into the global financial order?

In short, the answers to these three questions are as follows: we can observe that the Chinese state manages and shapes capital markets through state-owned stock and derivatives exchanges which are crucial actors that organise capital markets (micro-level). Consequently, what we can see in China is the development of *state-capitalist capital markets* – capital markets that are influenced by the institutional logic of China's state capitalism (meso-level). As a result, these state-capitalist capital markets represent an alternative, resistance and even challenge to the *neoliberal capital markets* that underpin the global financial order (macro-level).

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[3] This changing state-market configuration is not only a Chinese phenomenon but can be observed across emerging markets with a resurgence of state-capitalist policies (Carney, 2015, Kurlantzick, 2016, Alami and Dixon, 2020, Nölke *et al.*, 2020).

[4] While I am aware that the term state capitalism is sometimes used in an ideologically charged way (e.g. Bremmer, 2010), this thesis follows Tsai and Naughton (2015: 12-20) in using state capitalism as a less value-laden, analytical concept to differentiate varied forms of state-market configurations.

[5] The main focus of this thesis is on futures and stock markets; bond markets are only sporadically analysed, which is also addressed in the limitations of this study in the conclusion.

In order to explain the macro-level development of China's integration into the global financial order, the thesis draws on two concepts. On the micro-level, it draws on Social Studies of Finance (SSF) and International Political Economy (IPE) literatures that focus on *the politics of financial infrastructures* to analyse the organisation of capital markets through the policies and practices of exchanges. In IPE literature, exchanges have largely been neglected as powerful actors. But rather than mere marketplaces, exchanges are powerful actors that provide the infrastructural arrangements for capital markets and shape the very form and functioning of these markets (Petry, 2020b). The analytical focus of this research is hence placed on the policies and practices of exchanges in the organisation of capital markets.

On the meso-level, the thesis then places the organisation of capital markets through exchanges into the context of Chinese state capitalism. Here, the thesis utilises the concept of *institutional logics*, drawing on insights from the economic sociology and comparative capitalism literatures. It is argued that capital markets are institutionally embedded and that different institutional settings create different institutional logics that lead to the creation of a varieties of capital markets. The thesis thereby develops an ideal-typical distinction between China's *state-capitalist capital markets* as well as *neoliberal capital markets* that underpin the global financial order. These two forms of capital markets are facilitated by Chinese and global exchanges, they inhibit different dynamics and produce different political-economic outcomes. While the analytical focus is on exchanges, these are analysed within different institutional contexts.

This conceptual toolkit enables to analyse the differentiated politics of Chinese and global capital markets and therefore allows the development of a more accurate understanding of China's integration into the global financial order. This is done in the second part of the thesis which analyses three empirical dimensions in this process: the domestic development of China's state-capitalist capital markets; their integration with global markets; and their internationalisation. It is shown that across these three dimensions, China's state-capitalist capital markets represent an *alternative* to neoliberal capital markets (domestic), *resist* pressures to conform with the global financial order despite an increasing opening process (integration) and even pose a *challenge* to the global financial order by expanding abroad (internationalisation). So far, China's capital markets, their organisation and integration into the global financial

order have been relatively neglected in IPE debates on China's rise.[6] Aiming to contribute to these debates, this thesis analyses the post-financial crisis reform and opening process of China's capital markets by focusing on the policies and practices of (stock and derivative) exchanges.

The remainder of this introduction proceeds as follows. Section 1 briefly outlines why exchanges matter for IPE analyses of global finance. Section 2 introduces the analytical framework and key theoretical concepts that underpin this study. Section 3 discusses methodology and data used in this research, followed by a list of specific contributions this thesis makes to IPE literature in section 4. Section 5 concludes with a brief overview of the individual chapters.

## 1.1 The role of exchanges in (China's) capital markets

This thesis analyses the role that stock and derivative exchanges play in capital markets. By analysing their role in the development and governance of Chinese capital markets, the thesis illustrates the political nature of the (diverging) role(s) that exchanges play in processes of capital market development, a set of actors which have been underresearched in IPE. While Chapter 2 discusses exchanges, their transformation and role within the global financial order in detail, due to their centrality for this thesis, they are briefly introduced here.

What is the role of exchanges in capital markets? Very often the terms stock exchange and stock market are used interchangeably, mostly referring to the latter. While exchanges facilitate financial market transactions, their own activities have been of little interest to understand how capital markets work. Whereas other financial institutions have been extensively scrutinised as powerful actors in global finance, IPE has so far not systematically analysed exchanges, their emergence as influential actors within capital markets and its implications for the politics of global finance. Contrary to an understanding of exchanges as mere platforms on which market transactions take

[6] With respect to Chinese finance, most IPE literature has focused on currency issues such as RMB internationalisation and only few have analysed capital markets; notable exceptions include Li's (2018a) analysis of the domestic politics behind China's financial opening, Malkin (2016) examining the role of international investors in China's financial market liberalisation process or Töpfer (2017) and McNally (2015) who analysed certain aspects of China's cross-border capital market trading. However, none of these studies engaged in a fine-grained analysis of the differential organisation of China's capital markets and the implications for their integration into the global financial order.

place (*broker-dealer clubs*), exchanges globally underwent a fundamental transformation and have over time become powerful actors in their own right. 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 markets in the first place. Exchanges decide the 'rules of the game' – acting as gatekeepers, deciding who gets in, what is traded and how trading is conducted. Thereby, they are crucial actors that shape capital markets.

In Western countries, exchanges are today *neoliberal corporations* – publicly traded companies, subject to the laws of the market, and they have to make profitable business decisions to increase shareholder value and serve the global investment community. In this process, a handful of mainly US-based global exchanges emerged that dominate global capital markets: Intercontinental Exchange (ICE), Chicago Mercantile Exchange (CME), Cboe (Chicago Board Options Exchange) and Nasdaq as well as, headquartered in Europe, London Stock Exchange (LSEG) and Deutsche Börse (DBG). They run the largest, most liquid markets, own crucial indices and benchmarks and control other vital infrastructures such as clearing houses (Petry, 2020b). By shaping the infrastructural arrangements of capital markets globally, they act as the rule-makers of the global financial order, whereby they reproduce the US-dominated neoliberal global financial order.[7]

However, how exchanges themselves are governed and by whom they are owned matters a lot for the kind of markets that they create. In contrast to being 'marketised', exchanges in China (and some other emerging markets) are rather 'politicised'. They are *state entities* subordinated to the Chinese financial regulators and, ultimately, the Chinese government. By analysing the role of exchanges in organising Chinese stock and derivative markets, this thesis demonstrates how the Chinese authorities attempt to partially control finance, not through command-and-control measures but by utilising exchanges as 'pivotal points' through which to manage and steer capital markets. By analysing the policies and practices of exchanges in shaping the infrastructural arrangements of China's capital markets, we can gain insights in how Chinese authorities aim to steer China's financial development and its

[7] Here the term 'exchanges' is used to refer to stock and derivatives exchanges in general. In contrast to the term 'Chinese exchanges' which specifies exchanges from mainland China, the term 'global exchanges' is used to refer to a small group of exchanges (CME, ICE, Cboe, LSEG, Nasdaq and Deutsche Börse) which dominate the exchange industry and significantly shape global capital markets; these are discussed in more detail in Chapter 2.

integration into the global financial order. Thereby, capital markets can be understood as a site where the authorities exercise 'statecraft [through] financial control' which enable them to govern social and economic life (Sum, 2019: 386). The exchanges thereby play an important role as intermediaries between the Chinese state, society and (global) finance as they facilitate the state's ability to control capital markets and to direct market outcomes towards national development policies. Chinese exchanges thereby create capital markets that function very differently from the markets organised by global exchanges. By examining the differential organisation of markets through exchanges, the thesis provides a novel perspective on the global financial order and China's integration into it.

Exchanges are underappreciated actors in IPE, both with respect to global markets and China. Therefore, analysing the role of exchanges in Chinese capital markets and contrasting it with global markets enables a discussion and reflection on the political nature of the diverging roles that exchanges can play in capital markets, in the politics of global finance and in the relationship between states and markets. The following section, hence, discusses the theoretical concepts that enable a clearer understanding of the role that exchanges have in capital markets and develops an analytical framework of how to analyse them.

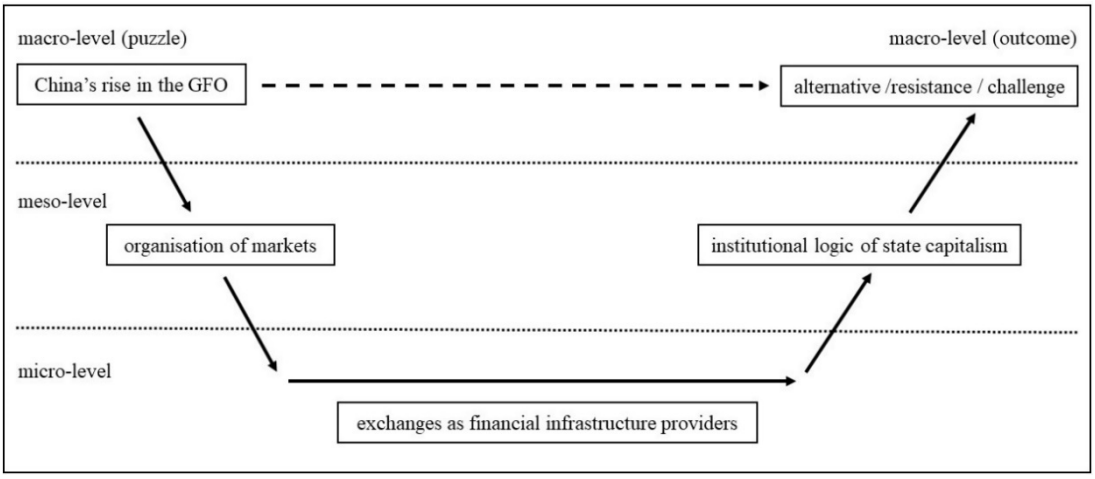
## 1.2 Analytical framework

In order to gain a better understanding of China's integration into the global financial order, this thesis adopts a causal mechanism-approach (Tilly, 2001, Mayntz, 2004, Checkel, 2006, Hedström and Ylikoski, 2010). As macro-level transformations – the effects of China's integration into the global financial order – often cannot directly be observed, a promising research approach is analysing causal mechanisms that link macro-level transformations with micro- and meso-level interactions (Sil and Katzenstein, 2010a).

Drawing on Elster (1989), Hedström and Ylikoski (2010: 51) argue that 'a mechanism explains by opening up the black box and showing the cogs and wheels of the internal machinery'. But in contrast to methodological individualism, mechanism-based explanations are much more attentive to intervening effects of structures and institutions as individual actions produce different outcomes 'when located in different

social contexts' (Coleman, 1990: 11). Studying causal mechanisms is an actor-centred approach that analyses the response of actors to institutional and structural variables which translate back into macro-level changes as 'system-level phenomena are […] explained by the activities of the parts' (Mayntz, 2004: 246).[8] Therefore, in order to understand the implications of China's integration into the global financial order (macro-level), this thesis examines the organisation of markets (meso-level) by analysing the creation and governance of financial infrastructures through exchanges (micro-level) and their interactions with the institutional logic of state capitalism (meso-level; see figure 1.1).[9]

***Figure 1.1:*** *Causal mechanisms of China's integration into the global financial order.*




*Source: author's figure.*

### 1.2.1 Organising capital markets through financial infrastructures

What is a capital market? Markets are social phenomena that are embedded in and influenced by man-made institutional arrangements (Granovetter, 1985, Fligstein,

[8] On the one hand, while exchanges are the main actors in this research design, their actions are influenced by their institutional setting. On the other hand, the differential organisation of markets through exchanges influences the global financial order. While global exchanges reproduce the global financial order, the research design basically analyses the emergence and influence of Chinese exchanges as capital markets in China developed and internationalised. Therefore, structure and agency co-constitute each other in this approach (Giddens, 1984, Wendt, 1987, Bennett, 2013); with respect to institutional logics, Thornton and Ocasio (2008: 103) refer to this as 'embedded agency'.

[9] By drawing on financial infrastructures and institutional logics as two concepts developed in different social science research programmes, the analytical framework of this thesis can be attributed to *analytic eclecticism*, which Sil and Katzenstein (2010b: 10) define as 'any approach that seeks to extricate, translate, and selectively integrate analytic elements – concepts, logics, mechanisms, and interpretations – of theories or narratives that have been developed within separate paradigms but that address related aspects of substantive problems that have both scholarly and practical significance'.

2001), where states (Fligstein, 1996) or private actors (Abolafia, 1996) facilitate the organisation of markets. 'Markets do not emerge out of a vacuum' (Ahrne *et al.*, 2015: 9); they are rather organised by particular institutions, and how and by whom markets are organised matters. For capital markets, this function is mainly fulfilled by exchanges as they create, govern and control financial infrastructures.

While capital markets are described as enabling disintermediation between investors, financial infrastructures need to be in place to *enable* these transactions in the first place (Bowker and Star, 1999). Financial infrastructures are here defined as 'the social, cultural, and technical conditions that make [financial markets] possible' (MacKenzie, 2006) – existing and newly emerging systems through which 'payments are settled, risks are assessed, and prices agreed' (Bernards and Campbell-Verduyn, 2019: 777). Thereby, financial infrastructures are inherently political as infrastructural arrangement modify the distribution of power and capabilities within marketplaces (Riles, 2011, Pardo-Guerra, 2013). As Bernards and Campbell-Verduyn (2019: 783) note, financial infrastructures 'can confer, extend and enable new forms of governance' and that 'power often depend[s] on control over key financial infrastructures'. It is therefore important to look at how and by whom markets are organised – that means one needs to take into account those actors that provide and control financial market infrastructures (Braun, 2018, Bernards and Campbell-Verduyn, 2019, Sgambati, 2019).

For capital markets, exchanges largely provide and control these infrastructures: from market data and indices, financial products, trading platforms to post-trading activities such as clearing. They are important actors whose power derives from their ability to define the features of infrastructures for financial markets – the 'infrastructures of the infrastructure' of the global economy (Cerny, 1994). Rather than instrumental, their power is more architectural in nature as they shape how markets work. Instead of 'gaining under the prevailing rules of the game', through organizing infrastructures exchanges are able to 'rewrite the rules of the game' (Cohen, 1977: 54). Hence, the power of exchanges closely resembles what Susan Strange (1988: 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'. Consequently, exchanges exert structural power through infrastructures.

It is important, however, to link this micro-level dimension of the organisation of capital market infrastructures through exchanges back to broader political-economic

structures because these partially determine the characteristics of these infrastructures. The thesis therefore utilises the concept of institutional logics.

### 1.2.2 Institutional logics (of state capitalism)

In contrast to the premise that markets are uniform and emerge spontaneously, both capital markets and exchanges are 'embedded in distinct sets of social and political institutions' (Ebner and Beck, 2008: 4, also Vogel, 2018). As Deeg and Jackson (2006: 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: 245-246). Hence, by making some forms of action more likely or reasonable (Biggart, 1991), given the existing institutional structure a particular institutional logic emerges that is distinct from other institutional contexts (Thornton and Ocasio, 2008). So, while functionally capital markets are characterised by market-based mechanisms of coordination between buyers, sellers and investors, applying the concept of *institutional logic* to capital markets reveals how the institutional embeddedness of markets and market organisers shapes the content and dynamics of these markets. Hence, instead of looking at capital markets as homogenous entities, this thesis proposes to analyse capital markets as variegated – while characterised by market mechanisms, different institutional logics can underly capital markets, leading to very different market dynamics and outcomes. Exchanges are hereby important actors that facilitate these different forms of how markets work.

Consequently, how exchanges (i.e. market organisers) are governed and which constraints and incentives they face matters. In Western economies exchanges are neoliberal corporations, publicly traded companies that have to make profitable business decisions to increase shareholder value; they are situated within an institutional setting informed by a neoliberal institutional logic. The underlying institutional logic of neoliberalism that informs the functioning of these markets is one of a separation between state and market, depoliticising markets and instead putting a significant degree of trust in the collective agency of private (financial) actors that achieve efficient outcomes by seeking to maximise (private) *profit* (Peck and Tickell, 2002, Major, 2012). These (mainly US-based) global exchanges dominate capital

markets globally, facilitate the development of neoliberal market logics globally and thereby reproduce the neoliberal, US-dominated global financial order.[10] Rather than 'natural', the markets organised by global exchanges should therefore be conceptualised as *neoliberal capital markets*.

But in contrast to these neoliberal capital markets, capital markets in China are organised in a way that is not singularly aimed towards generating profit. This is because Chinese exchanges and capital markets are situated within a very different institutional context – that of state capitalism. The institutional logic of China's state capitalism is not simply one of command and control but rather a combination of top-down state coordination and control paired with bottom-up entrepreneurship and market competition (McNally, 2015, Naughton and Tsai, 2015). As McNally (2015: 709) emphasises this logic of Chinese state-capitalism 'relies on a unique duality or dialectic whereby state-capitalist features are balanced by […] a variety of hybrid institutional arrangements'. Chinese capital markets also follow this institutional logic.

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, 2019b). Consequently, the state, national development goals and capital markets are much more entangled than in neoliberal capital markets. By shaping market infrastructures, the Chinese exchanges facilitate two institutional sub-logics of state-capitalism: they extend the state's ability to exercise *control* within capital markets by monitoring, regulating and managing the behaviour of market participants and they direct market outcomes towards the accomplishment of *national development* policies. Rather than neoliberal, capital markets organised 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 conceptualised as *state-capitalist capital markets*.

Instead of viewing capital markets as homogenous entities, the thesis therefore proposes to investigate how *institutional logics* create a variety of capital markets (meso-level) that is enacted by the policies and practices of exchanges' organisation of *financial infrastructures* (micro-level). This enables us to better understand the politics of China's integration into the global financial order (macro-level).

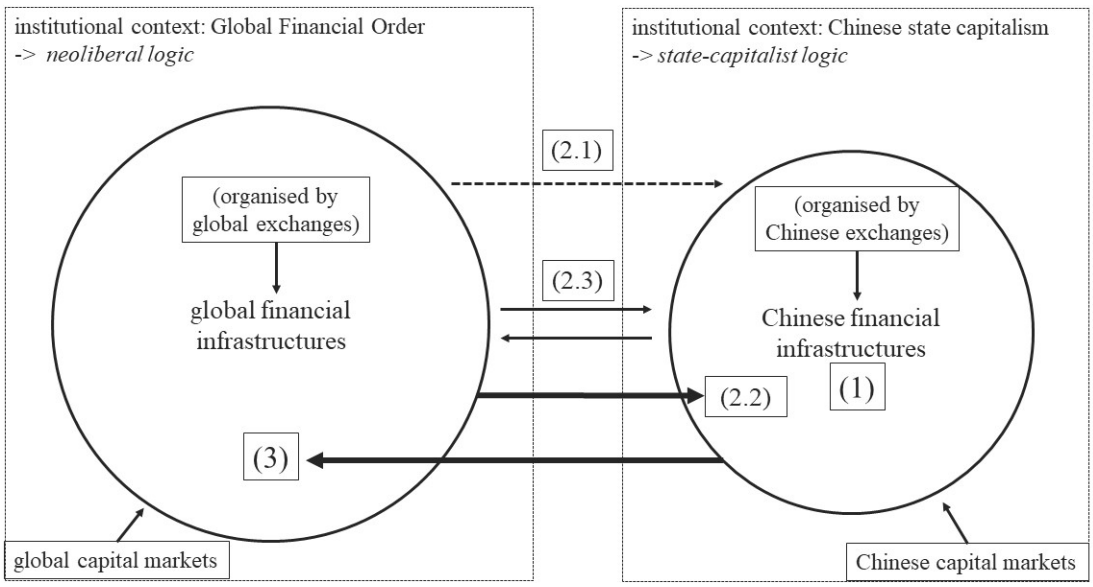
[10] Especially since the 1990s, many countries have reformed their institutional settings to accommodate such a neoliberal institutional logic of capital markets (Cerny, 1997b, Carroll *et al.*, 2019).

### 1.2.3 Analysing China's integration into the global financial order

Using this analytical framework, China's integration into the global financial order can be understood as a network of financial infrastructures created by exchanges – mainly Chinese but to some extent also global exchanges – that link China with global (neoliberal) capital markets. Consequently, this process encompasses three dimensions which are examined in the empirical analysis of this thesis (figure 1.2).

First, Chinese exchanges organise capital markets through the creation of financial infrastructures *domestically* within the institutional context of state capitalism (1). Second, financial infrastructures are created that link China's state-capitalist capital markets and global capital markets which function according to a neoliberal logic (2). This process can be divided into (2.1) *offshore* financial infrastructures that enable trading China indirectly (e.g. through an internationally listed product), (2.2) *onshore* infrastructures that enable global exchanges and investor activities within China and (2.3) *cross-border* infrastructures that enable international investors to trade into China and domestic investors to trade out of China. Third, Chinese exchanges internationalise their activities by venturing into other markets, constructing financial infrastructures *overseas* or contesting neoliberal global infrastructural arrangements (3). Analysing China's integration into the global financial order through this analytical framework helps us to understand how Chinese exchanges create an *alternative* to, *resist* pressures to conform with and even actively *challenge* the neoliberal global financial order in these three empirical dimensions.

***Figure 1.2:*** *Analytical framework of China's integration into the global financial order.*




*Source: author's figure.*

## 1.3 Methods and data

After developing an analytical framework to study China's capital market transformation, this section outlines how exchanges, financial infrastructures and institutional logics in China's capital markets have been studied. The thesis focuses on the post-financial crisis period as capital markets have since then gradually become an important pillar of China's state capitalism.[11] While the historical development of Chinese capital markets is briefly outlined in section 3.2, these empirical chapters analyse the 2009-2019 period.[12] As outlined, three aspects are thereby analysed: the domestic development of China's capital markets; their integration with global finance; and their internationalisation and expansion abroad. In contrast to other dimensions of China's financial opening (such as RMB internationalisation), the market organisation activities of Chinese exchanges have so far not been subject to scholarly analyses, and accordingly secondary academic literature on this topic is relatively limited. Consequently, this research mainly relied on collecting primary data and utilising other non-academic secondary sources. Overall, the thesis draws on five complementary data sources.

First, it draws on descriptive statistics on the development of Chinese capital markets. These include the Futures Industry Association (FIA) exchange volume dataset, monthly reports by the World Federation of Exchanges (WFE) or financial datasets in the World Bank's World Development Indicators. This is complemented with data from Chinese institutions such as the State Administration of Foreign Exchange (SAFE), the China Securities Regulatory Commission (CSRC) and from Chinese exchanges. This statistical data enables to analyse China's capital market development over time.

Second, the thesis utilises policy documents which include rules, regulations and research reports. Attention is thereby especially paid to exchange regulations detailing the rules and procedures that govern capital markets, such as trading rules, contract specifications or margin requirements. They offer important insights into the formal structures, rules and mechanics of capital markets, enabling an analysis of their infrastructural arrangements. This is complemented with reports from international bodies such as the Asia Securities Industry & Financial Markets Association

[11] This is explained in greater detail in Chapters 3 and 4.
[12] While significant developments have been unfolding since 2019, e.g. the escalating US-China trade war or Hong Kong's national securities law, these aspects are not addressed in the empirical chapters.

(ASIFMA) who regularly publish reports on the development of Chinese capital markets.

Third, contextualising information on capital market developments is also gained from financial news reporting. This includes global financial news agencies such as Bloomberg, Reuters, Financial Times, Wall Street Journal or Futures & Options World (FOW) and Chinese news outlets such as the South China Morning Post, Caixin or Xinhua. This data is especially important to corroborate primary data and to gain additional insights about specific aspects or important developments that were identified during fieldwork (see below).

However, these secondary sources only create an incomplete picture of Chinese capital market developments. Interactions of different market actors, especially between exchanges, regulators and investors, often involve power asymmetries and informal practices not written down in rulebooks and descriptive statistics, and can hence only be analysed through in-depth fieldwork (Richards, 1996). In order to explore the politics behind the organisation of financial infrastructures, a substantial part of this research draws on extensive fieldwork (8 months) that was conducted in China and other international financial centres: May-June 2017 in Hong Kong (1.5 months), October 2017 in London (0.5 month), October 2017 in Frankfurt (0.5 month), December 2017 in Singapore (0.5 month), April-May 2018 in Shanghai (1.5 months), September 2018 in Hong Kong (0.5 month), October-November 2018 in Beijing (1.5 months), September 2019 in Beijing (0.5 month) and September-October 2019 in Shanghai (1 month). Thereby, short research trips (1-3 days) were also made to Dalian, Hangzhou, Shenzhen, Zhengzhou and Zhoushan. Fieldwork was undertaken with the aim to collect two different types of data – expert interviews and participant observation.

As a fourth data source, the dissertation is based on expert interviews (Dexter, 2012 [1970]). Between June 2017 and October 2019, 132 semi-structured expert interviews were conducted with four sets of actors: market organisers (i.e. Chinese exchanges), market regulators, domestic market participants (e.g. brokers, banks, investors) and international players (e.g. exchanges, brokers, banks, investors). Interview partners were acquired based on three strategies: introductions through a pre-existing network of contacts; attendance of financial industry events and arrangement of interviews with other event participants; and cold-calling institutions where no access existed otherwise. Of these interviews, 46 were conducted in

mainland China, specifically in Shanghai (21), Beijing (14), Zhengzhou (3), Shenzhen (3), Hangzhou (3), Zhoushan (2) and Dalian (1). The remaining interviews were carried out with interview partners in Hong Kong (43), London (14), Singapore (11), Frankfurt (11), Karachi (3), Taipei (2), Zurich (1) and New York (1). These interviews were conducted with exchanges (51%), investors (14%), brokers (10%) and other actors (25%) such as regulators, law firms or clearing houses mainly working in senior management (18%), business development (18%), research/strategy (18%), international departments (16%) or product development (11%). Interviews were done with mainland Chinese (35%), Western (47%), Hong Kong (9%) and other Asian (9%) institutions, while a larger proportion of interviewees came from mainland China (47%; in contrast to 12%, 32% and 9% from Hong Kong, Western and other Asian countries, respectively). Most interviews (87%) were done in person, while 13% were conducted via phone (e.g. Karachi, New York, Zurich).[13] Due to the increasingly sensitive nature of academic research on financial market development in China, this interview data was anonymised to ensure the safety of interviewees (see Shih, 2015).[14]

These expert interviews provide a nuanced picture of the political dynamics of capital market organisation. As Shih (2015: 21) notes, as 'political processes in authoritarian regimes often remain hidden, interviews continue to be a key step in researching these regimes'; therefore, extended conversations with informants are one of the best ways 'to obtain some clarity about the world in which they live'. Seemingly technical decisions by exchanges (e.g. to alter contract specifications) can be contextualised and connected to broader institutional structures and policy goals. Data generated from primary qualitative data thereby helps to gain a deeper understanding of the motivations of actors to pursue certain actions and provide important insights

[13] Most interviews could be conducted in English as the interviewed financial market actors usually speak English sufficiently well due to an often international education and work environment; only three interviews were carried out with simultaneous interpretation.

[14] To protect the anonymity of interviewees, some interviews are referenced in less specific ways than others. There is, for instance, only one exchange each in Shenzhen, Dalian or Zhengzhou and only a limited number of people are working in their respective research departments. Specifying the specific place of an interview in these instances would most likely reveal the respondents' identities. These would, therefore, instead be referenced as: 'Interview: research department of exchange (China, 18 October 2018)'. Further, it is necessary to note that there is not necessarily a correlation between where interviews were conducted and where exchanges are based; as exchange personnel is globally active, an interview with an exchange official in Dalian could also be done with the Singapore-based head of business development of a US exchange who is in Dalian for a business trip or industry event, not necessarily with the Dalian Commodity Exchange.

into the workings and power relations inherent to Chinese as well as global capital markets. A full list of anonymised interviews can be found in Appendix I.

As a fifth data source, the thesis also utilises insights from 27 instances of participant observation (Spratley, 1980) conducted in various locations between June 2017 and February 2020. These ethnographic observations can be separated into *placements*, *investor training & education* and *event ethnographic research* during financial industry events as three types of fieldwork sites. In recent years, such ethnographic methods have become an increasingly popular research approach (MacKay and Levin, 2015) as they enable a better understanding of the processes, logics and (knowledge) practices that inform capital markets. Following a 'multi-sited ethnography' approach (Marcus, 1995), these locally dispersed observations aim to analyse a global development. As MacKay and Levin (2015: 178) emphasise, in such research designs 'locations of research are thus linked by association with a single international phenomenon which recurs or is reproduced across a chain of sites' – in the case of this thesis this phenomenon is China's integration into the global financial order.[15]

The first participant observation method were placements in a global exchange. During three fieldwork periods in Hong Kong (6 weeks and 2 weeks) and Singapore (2 weeks), I had placement arrangements with a global exchange's business development team where I shared an open office, participated in meetings and socialised with co-workers. This enabled me to immerse myself into the workings of a global exchange aiming to cooperate with Chinese exchanges and gain exposure to Chinese markets, providing me with insights into how they operate their China business.[16] I further participated in 11 events, 7 online and 4 on-site, aimed at educating and training (mainly) international investors about aspects of China's capital markets. At these events, a specific market actor would provide a detailed discussion of current market developments and how their services and products enable the accessing of China's capital markets to an audience of potential customers followed by a Q&A session. Next to a better understanding of the technical aspects and

[15] It is important to note that this thesis does not attempt to conduct a proper ethnographic study where participant observation represents the primary method and data source (see e.g. Abolafia, 1996, Zaloom, 2006, Ho, 2009, Beunza, 2019); in the context of this thesis, participant observations are merely a complementary method of the overall research design.

[16] Rather than a primary data source, the observations made during these placements serves as background information, helping to identify important developments, actors and dynamics which were then corroborated through other data sources such as interviews or financial news.

infrastructural arrangements of China's capital markets, these events enabled me to analyse the interaction between market actors, e.g. by identifying points of contestation when global investors complained about specific aspects of China's market (infra)structures in Q&A sessions.[17]

Finally, I attended 13 financial industry events such as the 7th ASIFMA China Capital Markets Conference in Hong Kong, the 13th FIA Annual Asia Derivatives Conference in Singapore, the 3rd FOW China & the Global Derivatives Market Development Forum in Dalian or the 5th Annual Hedge Fund China Conference in Shanghai. These industry events are a relatively new methodological tool and a vastly underappreciated source of fieldwork data. On the one hand, these events enable the study of the respective financial industry gathered at these events. This includes interactions between market regulators, organisers and participants (both domestic and international) and industry discussions on contemporary developments in capital markets. Rethel (2018: 187), for instance, explores the importance of financial industry conferences to research capital market development as situated knowledge practice as these events represent sites where industries are being shaped (Nyqvist *et al.*, 2017: 2).[18] On the other hand, these industry events enable access to interview partners in a novel way, which is very useful as access is a primary obstacle for interview-based research with elites and experts. As these financial industry events are designed to facilitate interaction between participants, it is easy to establish new networks of contacts, also countering biases inherent to using snowballing as a method to create interview contacts. A full list of ethnographic research sites can be found in Appendix II.

Together, these expert interviews and ethnographic notes provide important insights into how Chinese exchanges manage capital markets, often involving power relations and informal practices, as well as on their interaction with global markets, insights that cannot be gained from document or dataset analyses but only through in-depth fieldwork. Combining both quantitative and qualitative data and using multiple data sources enabled a nuanced analysis of capital markets and remedies biases that stem from single data sources.

[17] On the ethnography of meetings, see also Brown *et al.* (2017), Sandler and Thedvall (2017).
[18] The emergence of literature on event/conference ethnography as a research method highlights the growing importance of this type of data (Campbell *et al.*, 2014, Leivestad and Nyqvist, 2017, Mauksch, 2020).

## 1.4 Contributions

This research makes several contributions to our understanding of the politics of Chinese and global finance. First, by analysing China's post-crisis transformation and integration into global finance, it fills an empirical gap on China's financial and economic transformation which so far has only partially been examined. Parts of China's financial opening have been analysed by Li (2018a) and Töpfer (2017, 2018) while others have scrutinised the development of financial markets within China (Collins and Gottwald, 2014, Gruin, 2019a). But so far, no comprehensive analysis of the organisation of China's capital markets and its implications for the global financial order exists.

Second, the main contribution of this thesis is to debates on China's rise within the context of the global financial order. As Alami and Dixon (2020: 12) point out, an important question is to investigate the relationship 'between […] state capitalism and the Western-dominated liberal capitalist world order [as well as] the current pattern of financialised globalisation and neoliberalism as the dominant hegemonic project'. By linking state capitalism, capital markets and the neoliberal global financial order through a detailed empirical analysis of China's capital market development and their integration into the global financial order, the thesis makes an important contribution to these debates. While many Western commentators maintain that 'proper' capital markets do not exist in China (Miron, 2015), this thesis argues that such assessments actually reflect the neoliberal bias that Western views of markets exhibit, thereby shedding light on the contested politics between different types of capital markets championed by China and the US. It highlights that China's state-capitalist capital markets function fundamentally different from and represent an alternative to, resist pressures to conform and even challenge the neoliberal capital markets that underpin the global financial order. In other words, the findings of this thesis highlight that no matter how deep the reforms, Chinese capital markets will not converge with global markets but rather maintain their distinct character – which has important implications for the study of global finance.

Third, this thesis also contributes to our understanding of the financial transformation of China's economy and how financialisation processes unfold within

state capitalisms (Petry, 2020a). State capitalism is often defined in juxtaposition to capital markets with state-owned banks being defined as the main financial actors, whereas capital markets only play a minor role (Gruin, 2013). From such a perspective, the rapid growth of China's capital markets together with an ongoing deepening of state capitalism (Economy, 2018, Lardy, 2019) represents somewhat of a paradox. But as Alami and Dixon (2020: 19) note, 'financialisation […] may push states to develop new institutions, policy tools, and forms of intervention in order to continue performing tasks and functions that they have long performed'. By analysing the role of exchanges in organising Chinese stock and derivative markets, this thesis demonstrates how the Chinese authorities attempt to partially control financialisation processes, not through command-and-control measures but by utilising exchanges as 'pivotal points' through which to manage and steer capital markets.[19] Thereby, capital markets can be understood as a site where the authorities exercise 'statecraft [through] financial control' which enable them to govern social and economic life (Sum, 2019: 386). By analysing the policies and practices of exchanges in managing China's increasingly important capital markets, this research points towards a different type of financialisation that is decoupled from neoliberalism with important implications for state-market dynamics, showing how the Chinese authorities aim to steer China's variegated financialisation process.

Fourth, an important conceptual contribution of this thesis is examining the role of exchanges as important actors in capital markets (Petry, 2020b, 2020d), existing IPE literature often treats exchanges as mere marketplaces. By highlighting the agency of exchanges in shaping capital markets, this thesis contributes to the literature on global finance by highlighting a set of underappreciated powerful actors. As such, the thesis advances a nuanced understanding of the source of exchanges' increasing power in global finance – the provision of financial infrastructures. While IPE has been very successful in shedding light on different power dynamics underpinning changes in the governance of global finance, its understanding of the specific infrastructural arrangements that enable finance is limited (Bernards and Campbell-Verduyn, 2019). By highlighting the political nature of capital market organisation through exchanges

[19] This finding is in line with Gruin's (2019b) analysis of the infrastructural arrangements of China's digital credit scoring which he describes as another way 'in which advances in financial technology open up new opportunities for socio-economic 'development' as well as the exercise of political authority'.

and their impact on macro-level developments, this thesis contributes to a growing literature within IPE that highlights the importance of infrastructures in global finance and the politics inherent to them (Braun, 2018, Bernards and Campbell-Verduyn, 2019, Clarke, 2019, Sgambati, 2019, Braun and Gabor, 2020).

Fifth, studying China's capital markets development also enables us to critically reflect upon IPE conceptions of capital markets (Petry, 2020c). Capital markets in China function quite differently from 'global' markets, hence the thesis proposes to look at *varieties of capital markets*. In contrast to *neoliberal capital markets* as they exist in the West and are promoted by (mainly US-based) global exchanges, in China one can observe the development of *state-capitalist capital markets*. Controlling markets and directing their outcomes towards national development policies are the underlying principles in Chinese capital markets – an institutional logic derived from China's state-capitalist economic system. Instead of neoliberal markets which supersede state logics and constrain state power, China's capital markets are subordinated to the state and its development goals. While this thesis focuses on China, the conclusion also emphasises potential implications for the study of capital markets in other countries where the state (continues to) play(s) an important role in the economy or where different institutional logics might exist (Rethel, 2011, Nölke *et al.*, 2015, Kurlantzick, 2016, Thurbon, 2016). Thereby, the thesis helps to shed light on IPE's understanding of the variegated relationships that can exist between states and capital markets.

Overall, through its analysis of China's capital markets and their integration into the global financial order thereby focussing on the activities of exchanges as market organisers, the thesis hopes to significantly contribute to IPE debates in global finance and beyond. The conclusion revisits these contributions and discusses limitations of this research and future research avenues.

## 1.5 Thesis outline

The thesis is structured as follows. Chapters 2-3 develop the conceptual apparatus of the thesis: Chapter 2 analyses the role of exchanges in capital markets as financial infrastructure providers, whereas Chapter 3 examines the institutional embeddedness of Chinese exchanges and its implications for market organisation. Chapters 4-6 then

discuss the three empirical dimensions of this study: Chapter 4 analyses the domestic development of Chinese capital markets; Chapter 5 examines their integration into global markets; and Chapter 6 analyses their internationalisation. Chapter 7 discusses implications for IPE research and future research avenues studying China, capital markets and exchanges.

Chapter 2 explores the politics of financial infrastructures by introducing exchanges as powerful actors in global finance through their role as infrastructure providers. Reviewing the existing literature, it is argued that while exchanges have been analysed in IPE (and related disciplines) to a limited extent, they have often only been described as marketplaces and not as powerful actors, which is based on an outdated understanding of exchanges. The chapter, however, outlines how over the last decades exchanges and what they do have fundamentally transformed. Drawing on the theoretical concept of *financial infrastructures*, it is argued that exchanges create the infrastructural arrangements of capital markets and how organising and governing these infrastructures represent a source of structural power for exchanges. Importantly, the chapter demonstrates how this transformation also led to a concentration of the exchange industry as a few global exchanges dominate global capital markets. Thereby, global exchanges have become crucial actors that facilitate financial globalisation and reproduce the US-dominated neoliberal global financial order into which China's capital markets integrate.

Chapter 3 then discusses the differential organisation of capital markets. How exchanges (i.e. market organisers) are governed, by whom they are owned and which constraints and incentives they face informs the kind of markets they create. Drawing on the concept of *institutional logics* enables a reconceptualisation of 'global' capital markets which are created by global exchanges and underpin the neoliberal global financial order as *neoliberal capital markets*. But as a brief historical overview of China's capital market development illustrates, Chinese capital markets do not follow a neoliberal institutional logic. In contrast, the institutional context of China's exchanges is state capitalism. Reviewing the literature on state capitalism and financial markets in China, the chapter analyses how state-capitalist institutional logics inform the ways in which Chinese exchanges organise markets. It is argued that consequently Chinese exchanges create *state-capitalist capital markets* that function fundamentally different from the neoliberal capital markets that underpin the global financial order.

Using this analytical apparatus, Chapters 4-6 analyse China's integration into the global financial order by focusing on the domestic dimension of China's capital market development, their integration into global markets and their internationalisation. While these empirical developments occur simultaneously and are of course interlinked, for analytical and practical purposes these are divided into three chapters. In all three empirical chapters, the focus of analysis are the policies and practices of Chinese (and to a lesser extent global) exchanges in the organisation of capital markets.

Chapter 4 examines the domestic development of China's capital markets. The chapter analyses how Chinese exchanges facilitate the development of state-capitalist capital markets through creating and managing financial infrastructures, whereby they steer markets towards the accomplishment of several state policies such as: for capital markets to serve the real economy, preventing overspeculation, stabilising the socio-political system by encouraging and protecting Chinese retail investors, or aiding efforts to reform Chinese companies. On the one hand, the Chinese exchanges thereby aim to control the financial and social risks emanating from increasing capital market development. On the other hand, they attempt to facilitate national development by steering market outcomes. Chinese exchanges thereby effectively act as intermediaries that manage the relationship between the Chinese state, Chinese society and domestic capital markets. They resolve existing and emerging tensions in the increasing financialisation of China's state capitalism. These state-capitalist capital markets, therefore, represent a distinct *alternative* to the neoliberal capital markets underpinning the global financial order.

Chapter 5 analyses the integration of China's capital markets into global markets across three dimensions: *offshore*, *onshore* and *cross-border* infrastructures that link China and global finance. By analysing financial infrastructures instead of capital controls, a more nuanced picture of China's opening process emerges. While the Chinese authorities try to prevent offshore trading that evades its control, the development of onshore and cross-border trading follows a state-capitalist logic of market organisation as the financial infrastructures that link Chinese capital markets with global markets (e.g. the Stock Connect) are designed to maintain Chinese state control and national development. Despite an increasing integration with global finance, rather than a 'Big Bang' style liberalisation, China's capital market opening is a carefully managed process, whereby the Chinese exchanges act as intermediaries

between the Chinese state and global finance. Thereby, China's state-capitalist capital markets demonstrate *resistance* towards pressures to conform with neoliberal capital markets despite an increasing opening process.

More than just opening up to global markets, one can also observe an international expansion of Chinese capital markets. Chapter 6 therefore discusses this increasing internationalisation by analysing the actions of Chinese exchanges abroad, both visa-vis the rules-makers and rule-takers of the global financial order. Overall, this process can be divided into three projects: cooperating with global exchanges in developed countries, engaging with exchanges in developing countries and contesting US dominance in global markets, each of which have their own political objectives and inherent politics but are informed by state-capitalist institutional logic. Whether Chinese exchanges thereby participate in financial industry associations, establish joint ventures with global exchanges or build market infrastructures in BRI countries, they (partially) shape the financial infrastructures that they create and influence abroad. Here, the Chinese exchanges act as intermediaries between the Chinese state and other states, and to some degree even actively *challenge* neoliberal capital markets and the global financial order.

Chapter 7 concludes by reflecting on the findings and integrating them into broader IPE discussions. It is argued that China does not simply adopt or adapt to global capital markets, but simultaneously does not outrightly and comprehensively challenge the global financial order. Chinese exchanges rather create a parallel system of capital markets that function according to Chinese state-capitalist logic. The chapter further discusses how the thesis contributes to an understanding of financialisation in China that is decoupled from neoliberalism, the diverging roles of exchanges as powerful actors in global finance and the creation of varieties of capital markets in other countries. Finally, further avenues of research are suggested to analyse these issues as well as the ongoing development of China's capital markets.

## 2 Exchanges and the politics of financial infrastructures

> We are of course known as a US exchange but that's a very small part of our business, only about 10% of our revenue. […] The major part of our business is what we today call FinTech. […] So, we provide infrastructure to the world's capital markets. We have more than 100 marketplaces around the world that are using our technology for their day-to-day trading, clearing, settlement, risk management. […] We sell market data in different shapes and forms from markets in Europe and the US, we do index business, licensing our indices to asset managers that provide ETF products, […] we participate in the big derivative markets… […] Today, we are truly a global and technology-focused company.
>
> General manager, global exchange (Hong Kong, 5 July 2017).

While this thesis investigates China's integration into the global financial order, this chapter analyses the role of exchanges in capital markets more generally. It explores the politics of financial infrastructures by introducing exchanges as powerful actors in global finance through their role as infrastructure providers. While the power of private financial actors has been a major research area for IPE, exchanges have only been analysed to a limited extent and have so far not been recognised as important actors in the politics of global finance. Developing a different understanding of exchanges – as actors rather than marketplaces – as well as exploring the provision of financial infrastructures as a source of structural power for exchanges helps to place them and their activities into the politics of global finance and to understand their role in reproducing the global financial order. This chapter therefore explores how exchanges provide the financial infrastructures of capital markets and how their micro-level activities translate into the macro-level of the global financial order.

Partially, this is the case because an outdated understanding of exchanges dominates discussions about them. Before their transformation, exchanges were *broker-dealer clubs*, national, member-controlled, non-profit organisations and physical trading locations with (quasi) monopolies on trading. They enabled the disintermediated financing of enterprises and trading of securities between investors, borrowers and lenders by said members, but exchanges had little agency of their own. Similar to other financial market actors, however, exchanges have undergone a transformation since the 1980s that has fundamentally altered their role in capital markets. Resulting from marketisation, internationalisation and digitisation, (most) exchanges have transformed from *national marketplaces to (global) providers of financial market infrastructures*.

To understand the nature of exchanges' power, the concept of *financial infrastructures* is explored and how the provision of the infrastructural arrangements of capital markets translates into a source of structural power for exchanges. From market data, indices, financial products, trading platforms to post-trading activities such as clearing, exchanges enable the functioning of capital markets, but also shape their very form and dynamics, whereby they exercise structural power and influence the actions of companies, investors and states entangled in these markets.

While exchanges were affected globally by this transformation, this change was not uniform. In Western countries, exchanges have become *neoliberal corporations*, (relatively) autonomous actors, demutualised, self-listed, profit-driven and (often) globally active technology companies that create, regulate and shape (electronic) markets around the world and across asset classes. But especially in emerging markets, including China, exchanges have rather become *state/bureaucratic entities*. While they underwent a similar transformation, these are less market-driven and more politicised entities.[20] This process also created a global hierarchy between exchanges as an enormous concentration of this power in the hands of a few global exchanges took place. These mainly US-based neoliberal corporations and global players disseminate norms of market organisation and shape capital markets globally. They reproduce the US-dominated neoliberal global financial order into which China is gradually integrating.

The chapter is structured as follows. After Section 1 reviews the existing IPE literature on exchanges, Section 2 outlines the transformation of exchanges through marketisation, internationalisation and digitisation. Section 3 analyses how this fundamentally changed exchanges' business models, moving away from being national marketplaces to becoming providers of financial infrastructures. Section 4 discusses how organising and governing these infrastructures represents a source of structural power for exchanges by analysing their constitutive role in the provision of market data, indices, financial products, trading platforms and post-trade services. Importantly, Section 5 shows how this transformation also led to a concentration of the exchange industry as a few global exchanges dominate global capital markets, reproducing the contemporary global financial order. Section 6 concludes.

[20] This chapter analyses why exchanges matter in capital markets generally, focusing on commonalities between exchanges; Chapter 3 then analyses these differences between Chinese and global exchanges in greater detail.

## 2.1 Exchanges in IPE: A literature review

Following in the footsteps of political economists such as Hilferding (1910 [2006]), Keynes (1936) and Polanyi (2001 [1944]), IPE scholars have extensively researched the different sources and nature of power of private actors in global finance and how this affects the relationship between states and markets (Strange, 1986, 1988, Helleiner, 1996, Pauly, 1997, Konings, 2007). Especially since the end of the Bretton-Woods system, disintermediated financial markets have become a central feature of global capitalism. However, financial globalisation is not only an external, structural force, it is enacted by and through certain agents. The construction of the global financial order – defined by Drezner and McNamara (2013: 156) as 'the rules, norms, and procedures that govern cross-border money and finance' – does not only include states and regulatory arrangements, but also more broadly the financial practices and structures promoted by various actors. An important strand of literature has highlighted the need to attend to their emergence and sources of power in a financially globalised world.

Scholars have analysed the role of credit rating agencies and technology companies as market authorities (Sinclair, 2005, Campbell-Verduyn, 2016), the power of institutional investors reproducing neoliberal social relations of production (Harmes, 1998), how hedge funds exercise power through derivatives or short-selling (Ertürk *et al.*, 2010), the growing power of asset managers in a shift towards passive investment (Fichtner *et al.*, 2017) or the rise of index providers as private authorities in such an age of passive investing (Petry *et al.*, 2021). Banks and their transformation have been extensively scrutinised as powerful actors in global finance (Ertürk and Solari, 2007, Rethel and Sinclair, 2012, Hardie and Howarth, 2013). Certain state institutions have also been analysed as powerful actors in financial markets such as sovereign wealth funds (Helleiner and Lundblad, 2008, Monk, 2011), development banks (Mertens and Thiemann, 2018) or central banks (Gabor and Ban, 2016, Walter and Wansleben, 2019). Similarly, some scholars have analysed the internationalisation of Chinese financial actors, their relationship to the Chinese state and implications for existing power relations in global finance (Gottwald, 2011, Kaplan, 2016, Yu, 2017, Chen, 2019b, Summers, 2020). More recently, debates in IPE have focused on the infrastructural power of finance, as states become more and more entangled with financial markets (Braun, 2018, Bernards and Campbell-Verduyn, 2019, Genito, 2019a, Gabor, 2020). It is this relational entanglement with financial infrastructures that increases states' dependence on market-based finance (Braun and Gabor, 2020)

and provides power to financial institutions through e.g. their leveraged activities (Sgambati, 2019) or their involvement in repo markets (Gabor, 2016).

But while there is a plethora of literature on various actors in global finance, stock and derivative exchanges – one of the institutional foundations of modern capitalism – have received only little attention in this growing body of research. A closer look at their activities, however, highlights an important but underresearched aspect of the IPE study of financial power: Rather than studying relational entanglement with financial infrastructures, more emphasis should be put on those actors that provide financial infrastructures. Because by shaping the 'rules of the game' these infrastructure providers can exercise structural power over companies, investors and states that utilise their infrastructures.

However, in the public perception, the terms stock exchange and stock market are often used interchangeably, mostly referring to the latter. Exchanges are depicted as marketplaces, neutral spaces where borrowers and investors meet to buy and sell ownership stakes in companies or trade commodities, derivatives and other securities. This is perhaps not surprising, given that traditionally exchanges *were* merely national marketplaces, mutual non-profit organisations owned and controlled by their members,[21] which is reflected in earlier analyses of exchanges that rather focused on those members (Baker, 1984, Abolafia, 1996). Since then, IPE debates have often mirrored this perception of exchanges: while they facilitate financial market transactions, exchanges themselves are not perceived and analysed as (powerful) actors, they are analysed as marketplaces or sites dominated by other actors.

Next to several detailed historical accounts of single exchanges and their (changing) activities (e.g. Michie, 1999, Lagneau-Ymonet and Riva, 2012), exchanges have often been analysed as dependent variables: scholars explored how new stock markets were created through EU bureaucracy dynamics (Posner, 2009), how a coalition of banks and government created a unified German stock exchange (Lütz, 1998), how international organisations aided the development of stock exchanges in emerging markets (Lavelle, 1999) or how activist investors intervened in exchange mergers (Watson, 2005). Similarly, IPE accounts of stock market liberalisations focused on the abolishment of fees and the breakdown of monopolies for the respective

[21] This applies especially to exchanges in the Western hemisphere; Section 2.3 introduces a typology of exchanges and their differential transformation. However, it is important to note that the public perception and scholarly debate was primarily informed by images of these Western exchanges.

exchange's members, rather than their impact on exchanges themselves (Cerny, 1989, Moran, 1990, Quaglia, 2010), while others have focused on the electronification of exchanges (Zaloom, 2006, Engelen and Grote, 2009, Gorham and Singh, 2009, Muniesa, 2011, Pardo-Guerra, 2019). Others, especially SSF scholars, have researched changes in equity market trading like the advent of algorithmic and high frequency trading (HFT) (MacKenzie *et al.*, 2012, Coombs, 2016, Lange *et al.*, 2016, Thompson, 2017), the creation of non-exchange venues such as dark pools (Patterson, 2012, MacKenzie, 2019, Mattli, 2019b, Lagna and Lenglet, 2020) and the resulting fragmentation of equity markets (MacKenzie *et al.*, 2012, Castelle *et al.*, 2016, MacKenzie, 2019, Mattli, 2019a). Research on Chinese exchanges is even more limited and has similarly focused on the development of the stock market (Heilmann, 2002, Greene, 2004), analysing the stock market's position within China's state institutions (Heilmann, 2005a, Lyu, 2015) or how institutional change facilitated by Chinese elites initiated market reforms (Tan, 2004, Bell and Feng, 2009).[22] A closer analysis of exchanges in China is therefore especially warranted.

However, most of these accounts analyse *exchanges as marketplaces*. While Newman (2009: 548, 557), for instance, analyses the role of commodity exchanges in the financialisation of food, the analytical focus here is on 'the behaviour of international traders operating on these exchanges' and the need 'to recognise differences in the types of financial actors on commodity futures exchanges'. Seddon (2019) analyses the financialisation of the London Metals Exchange (LME) and how competing interest groups affected LME's market structure as banks gradually became more influential than merchants.[23] Similarly, Mattli (2019a) analyses how investment banks facilitated the fragmentation of equity market trading on the New York Stock Exchange (NYSE) as a result of power asymmetries between them and other NYSE-members. Hereby, 'stock exchanges' are equally equated with 'stock markets' which are defined as 'governance systems where contending groups of members or other stakeholders are frequently embroiled in intense battles to share market rules and

[22] A more detailed overview of this literature can be found in Chapter 3.
[23] While the LME's members did play an important role in shaping its market structure as Seddon (2019) demonstrates, the LME is not representative for the exchange industry as it was the last major global exchange to demutualise and is in fact an outlier in exchanges' transformation.

structure' (Mattli, 2019a: 4).[24] The exchange is often an arena for members, traders and investors, and the analytical focus is placed on the latter.

Only few scholars have analysed the agency of exchanges, describing how they facilitated capital market development in other countries (Botzem and Dahl, 2014), their role in the geographical constitution of stock markets (Engelen and Grote, 2009, Wójcik, 2012), in creating markets for certain financial products (Millo, 2007), in facilitating algorithmic trading practices (MacKenzie, 2018a, 2018b) or their role as policy actors in regulatory processes (Mügge, 2006, 2011, Pagliari, 2018). Nevertheless, even these accounts have not linked exchanges and their activities to broader macro-political processes. To be clear, this chapter does not negate any of these insightful findings. It rather argues that the existing IPE literature on exchanges has been preoccupied with analysing 'exchanges as marketplaces', thereby missing how exchanges themselves and what they do have changed fundamentally. Therefore, this chapter develops a novel argument about *exchanges as (powerful) actors* in the politics of global finance.

## 2.2 What is an exchange?

### 2.2.1 Historical development of exchanges

Since the 1980s, marketisation, internationalisation and digitisation have fundamentally changed exchanges and their role in capital markets. Historically, exchanges were marketplaces, physical spaces (e.g. coffee houses) where merchants met to discuss business deals and eventually agreed to jointly finance enterprises. While exchanges can be created for virtually anything – from bonds, bitcoin to carbon emissions – stock and derivatives exchanges[25] have historically emerged as their most prominent forms.

The early history of stock exchanges dates back to ancient China during the Tang and Song dynasties where in the 7th century the first 'joint stock' companies (*ho-pen* and *dou-niu*) were created (Ebrey and Walthal, 2012: 131, Carlen, 2016: 97).[26] In Europe, pre-modern forms of stock exchanges existed at least since the 14th century

[24] While in his conclusion Mattli (2019a: 168) acknowledges the emergence of global exchanges such as CME or ICE this is not reflected in his analysis.
[25] The term 'derivatives exchanges' is used to refer to both futures and options exchanges.
[26] The history of Chinese exchanges is discussed in more detail in section 3.2.

in Venice, Florence and Genoa. 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: 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.

And while the first 'derivative contracts' were invented as early as 1800 BCE in ancient Mesopotamia (Weber, 2009, Kummer and Pauletto, 2012), the world's first derivatives exchange, the Dojima Rice Exchange, was established in 1697 (CE) in Osaka, Japan, enabling the centralised trading of standardised futures contracts (Schaede, 1989). With the dawn of modern capitalism, futures exchanges then rapidly developed as central institutions that enabled the trading of risk, from the establishment of the Chicago Board of Trade (CBOT) in 1848 to the London Metals Exchange (LME) in 1877 and the New York Mercantile Exchange (NYMEX) in 1882 (Lambert, 2011). Together, stock and derivative exchanges formed the anchors of financial centres (Cassis, 2008), became almost metonymic with capital markets and an institutional foundation of modern capitalism, spreading first in the heartlands of global capitalism, from London to New York, as a means to finance enterprises, and then also into the global periphery – often to support colonial ventures (Moss, 2003: 10, Lavelle, 2004: 27).

From their inception until the 1980s, exchanges did not change much. For sure, the advent of pre-modern information technologies such as the telegraph led to changes in trading practices and facilitated consolidation towards national-level exchanges.[27] Regulation changed with recurring market crashes, existing markets matured, exchanges in former colonies became independent from their 'mother exchanges' and new markets and products emerged (see Engel, 2013). But little about the basic principles of what exchanges were and how they functioned changed.

Historically, (almost) all exchanges were member-owned marketplaces. These *broker-dealer clubs* were non-profit organisations and did not have much agency themselves as they were jointly governed by their members, e.g. merchants, brokers or bankers (Mattli, 2019a). As Weitzman (2011: 184) stated, 'member control was

[27] Similar to the creation of national currencies, the consolidation of national exchanges was a result of changes in financial technology and often part of broader processes of nation building (Helleiner, 2002: 11).

reflected in their attitude to even the most senior exchange employees, who the traders regarded as their employees.' The former CEO of a global exchange made a similar point:

> So, an acquaintance of mine, when he joined the [exchange] in the 1960s, one of his jobs was to dust of the partner's top hat, and at the end of the day, go and sit in the first class compartment of a train, wait for the partner to come along… […] Jack would wait for him and if he didn't get on that train, Jack would have to go sit in another train, and wait for him to arrive… that was when principals [members] owned the firms…[28]

The members ruled the exchange, which as an organisational entity had little agency of its own. Exchanges were marketplaces that served their members through enabling the disintermediated financing of enterprises and trading of securities between investors, borrowers and lenders facilitated by said members. Trading on the exchange took place on a trading floor, pit or ring, where only physically present members could trade a small range of products, limited both by national boundaries and/or asset classes, for instance stocks of one country's companies or certain commodities (e.g. base metals).

Exchanges were also embedded in nation states and often understood as quasi-public institutions. As NYSE's former CEO John Thain once stated 'every country has a flag, an army, and an exchange' (Biglari, 2007). This captures the (unchanged) understanding of exchanges as crucial for national economic development and aiding processes of nation building following an almost strategic realist line of argumentation, while simultaneously treated as quasi-national institutions and icons. This hardly changed over the centuries. Indeed, as a special issue in *The Banker* states, '[u]ntil the 1980s, exchanges would, in their essentials, have been recognisable to a merchant who was trading in the 14th century – the time of their inception' (Skeete, 2008).

However, in the 1980s and 1990s, exchanges became subject to three interlinked, mutually reinforcing processes that transformed their role in capital markets. First, while exchanges gained more agency, they themselves became subjected to competitive pressures (marketisation). Second, from a solely national focus their business activities became international, resulting in a consolidation of the industry and inter-exchange cooperation (internationalisation). Third, due to the pressures and opportunities presented by technological change they turned from being

[28] Interview: former CEO, global exchange (London, 8 January 2018).

physical trading locations into financial technology companies (digitisation). While these macro-processes impacted all aspects and elements of financial markets, through them exchanges eventually became powerful actors in global finance.

### 2.2.2 Marketisation: ownership, agency and competition

Largely as a result of marketisation, (most) exchanges today are profit-driven corporations, especially in the US and Europe. Marketisation does not only encompass shifting ownership structures, it rather works at a deeper level and might be best understood as the facilitation of 'policies and processes oriented towards continuing the diffusion of market discipline' (Carroll and Jarvis, 2014b: 2). While exchanges and their management gained agency through demutualisation and corporatisation, they have also become subject to market pressures themselves, due to increasing competition between them. Hence, the marketisation of exchanges is characterised by both changes in ownership and (corporate) governance structures as well as the introduction of competitive dynamics.

The marketisation of exchanges in the Western hemisphere is strongly linked to neoliberal economic reforms and restructuring in the 1980s and 1990s which placed a great emphasis on privatisation and financial market deregulation. Liberalisation reforms such as May Day in the US (1975), Big Bang in the UK (1986) or the EU Investment Services Directive (1993) enabled brokers to charge varying commission rates, allowed foreign participation in previously national stock markets and abolished rules requiring orders to be executed solely on exchanges, breaking down monopolies and barriers of entry. IPE literature on stock market liberalisation largely focused on these regulations (Cerny, 1989, Moran, 1990, Quaglia, 2010).

Facing such pressures, exchanges needed to modernise, become more efficient and customer focused. At the same time, members came under pressure as they increasingly saw exchange ownership as an administrative burden, a conflict of interest as they themselves adopted new corporate governance forms, and partially impeding their changed commercial interests (Mattli, 2019a). The days of exchanges as cosy old boys' clubs run by their members were over. Consequently, exchanges were demutualised, turned into for-profit companies and self-listed, becoming traded on their own markets (Aggarwal, 2002). While the first member-owned exchange only

demutualised in 1993, by 2013 all of the world's largest exchanges (n=50)[29] had been demutualised (with the notable exception of China's state-owned exchanges). By 2018, 70% had also become publicly traded companies (see figure 2.3).

This broke up exchanges' traditional corporate governance forms. Instead of members/owners they had shareholders and clients and, crucially, as corporate entities *exchanges became more self-determined actors in their own right*. As a business development manager working at a global exchange emphasised:

> I think, demutualisation is probably the most striking [change] in the fact that the exchanges are now fully in charge of their own destiny. They can decide what they want to compete on, decide what they want to launch, what areas of business they want to expand or attract from, whereas before they were looking after their own membership. […] That has then of course allowed them to move into different areas, whether its technology, new products […] So, I think it's really taking charge of their corporate direction… [that] is probably the biggest single change.[30]

While previous scholarly accounts on the workings of capital markets stress the role of members (Baker, 1984, Abolafia, 1996), their power to organise and responsibility to regulate the marketplace shifted towards exchanges. Through marketisation exchanges became actors with considerable autonomy over the governance of markets, deciding which products are traded on their platforms and who is eligible to trade on them by setting a framework of incentives and constraints for market participants.

But while exchanges gained more agency, many exchanges now also had to generate profits and maximise shareholder value in a completely different environment (see, e.g. Watson, 2005). As one interviewee noted, 'if you think about the position of exchanges, it's somewhat ironic that something that is the centre of a capitalist environment, it was really a monopoly'.[31] However, most exchanges were now in a marketplace for marketplaces (Castelle *et al.*, 2016).

Whilst previously, the interests of exchanges and their members had been aligned, exchanges now had to compete with their former members and owners (e.g. banks, brokers). These tried to side-step exchanges by setting up or backing non-exchange trading platforms (alternative trading systems, ATS), inter-dealer crossing

[29] This sample (n=50) consists of the 20 largest stock exchanges and 20 largest derivatives exchanges globally in the years 2003 and 2018 (earlier ranking data is not consistent) measured by market capitalisation (for stock exchanges) and trading volume (for futures exchanges); n=50 due to M&A activities between entities during this period. A list of those exchanges can be found in Appendix III.
[30] Interview: business development, global exchange (London, 11 October 2017).
[31] Interview: CEO, alternative trading system (London, 11 October 2017).

networks or dark pools – and with one another, for listings, customers, order flow and market share (Mattli, 2019a). This process was intensified by regulations such as Regulations ATS/NMS (1998/2005) in the US or MiFID (2005) in Europe which facilitated this competition (Mügge, 2011, Castelle *et al.*, 2016). As Thompson (2017: 7) noted, those regulatory initiatives aimed at 'reducing the influence of […] exchanges'. By 2009 and 2010, US and European exchanges had respectively lost 47.31% and 28.85% of stock market trading volume to non-exchange venues (Lannoo and Valiante, 2010: 2f). This fragmentation of markets has since been analysed by several scholars (Mattli, 2019a, 2019b), especially the emergence of dark pools as non-exchange trading venues (Patterson, 2012, MacKenzie, 2019, Lagna and Lenglet, 2020).[32]

Not only stock exchanges, but also derivatives exchanges were challenged by a changing environment as the rapid development of over-the-counter (OTC) derivative markets severely pressured them.[33] As former CBOT Chairman Patrick Arbor noted in 1997: 'This is a critical time for all U.S. futures exchanges. Our continued viability is being seriously threatened by two sources of competition—over-the-counter derivatives and foreign futures exchanges' (cited in Nystedt, 2004: 4). In a similar vein, legendary former CME chairman Leo Melamed stated that: 'it is no secret that the combined onslaught of globalisation, OTC competition, and technological advancement, have put enormous pressure on traditional futures exchanges. Indeed, in some quarters, there is a growing belief that the good days for traditional exchanges are behind them' (cited in Nystedt, 2004: 4). As Arbor and Melamed hinted, pressures through marketisation were only intensified by the internationalisation of exchanges.

### 2.2.3 Internationalisation: expansion, consolidation and cooperation

From being institutions mainly focused on their respective national markets shielded from the outside world, increasing cross-border integration from the 1980s onwards exposed exchanges to global markets. This increased competitive pressures on

[32] It is important to note that while demutualising and self-listing, many exchanges in East Asia, for instance, remained shielded from competition and retained their national monopoly positions as discussed in Section 2.3 (see also, OECD, 2018).
[33] On the evolution and governance of OTC derivative markets, see Spagna (2018).

exchanges but also created possibilities for them to scale up their business, to exploit or create new markets.

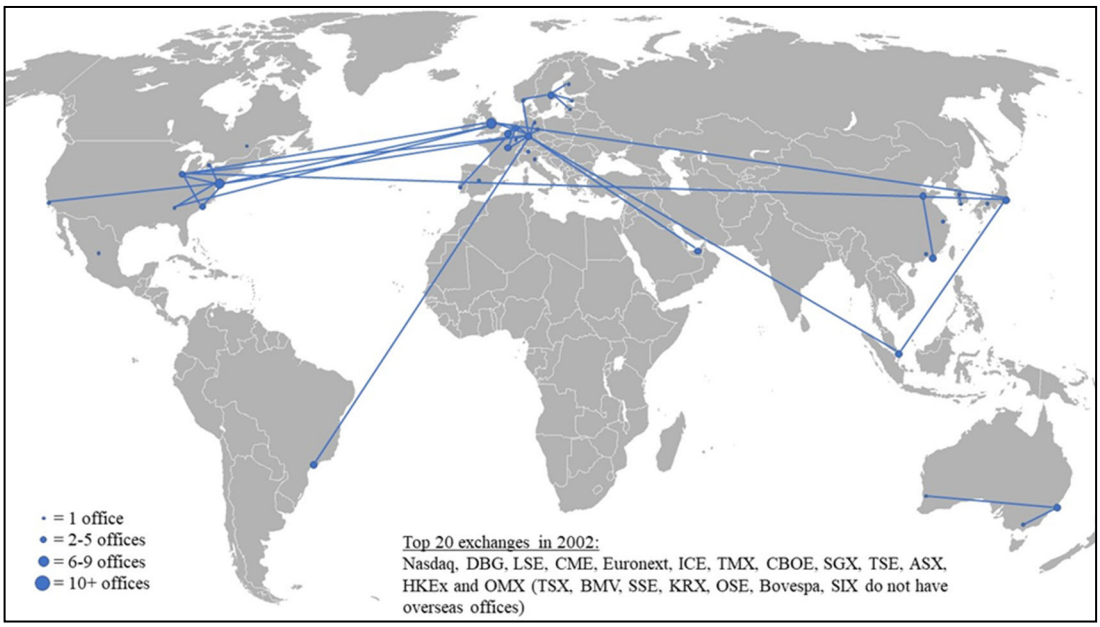
In a global world, their national markets had become too small: in order to survive, exchanges had to gain in size by engaging with and venturing into regional or global markets. In the industry, the mantra is that liquidity attracts liquidity – size matters, which facilitated a stream of mergers and acquisitions (M&As) between exchanges (see figure 2.5). While the first international M&As only occurred in the early 1990s, 68% of the largest exchanges had engaged in international M&A activities by 2018 (see figure 2.3). Futures exchanges started buying stock exchanges and vice versa as well as trading venues for bonds, foreign exchange, carbon emissions, commodities or financial derivatives – with 88% of the largest exchanges offering trading in multiple asset classes in 2018 (see figure 2.3).[34] As erstwhile national institutions, exchanges started to form huge organisations spanning the globe. Previously 'individual' marketplaces such as the NYSE, CBOT or Nasdaq became (acquired by) globally active exchange groups such as ICE Group, CME Group or Nasdaq OMX that now controlled markets all around the world (see section 2.5).

However, mergers between exchanges are subject to political limitations as exchanges are still understood as quasi-public/national institutions with a strategic importance for their respective economies. Consequently, there are serious political reservations against further consolidation (see Gravelle, 2016), as demonstrated by many high-profile exchange mergers that failed due to such political reasons.[35] In less liberalised countries such as Taiwan or Korea foreign shareholders are not allowed to own a majority stake in their exchanges or exchanges are completely state-owned as in China. Although exchanges have become international, the idea of exchanges is still very much intertwined with that of the nation state. Consequently, similar to the airline industry, exchanges started to form alliances, create joint ventures, cross-list and jointly develop products or create connectivities between markets by linking their trading platforms (Domowitz, 1995).

[34] Exchanges also started to acquire some of their new, non-exchange competitors literally buying back part of the market share they had lost earlier: Nasdaq acquired BRUT in 2004 and Inet in 2006, Archipelago/ArcaEx was bought by NYSE in 2006, LSEG acquired a majority in Turquoise in 2009 and in 2017 Cboe acquired Chi-X/BATS Global Markets.

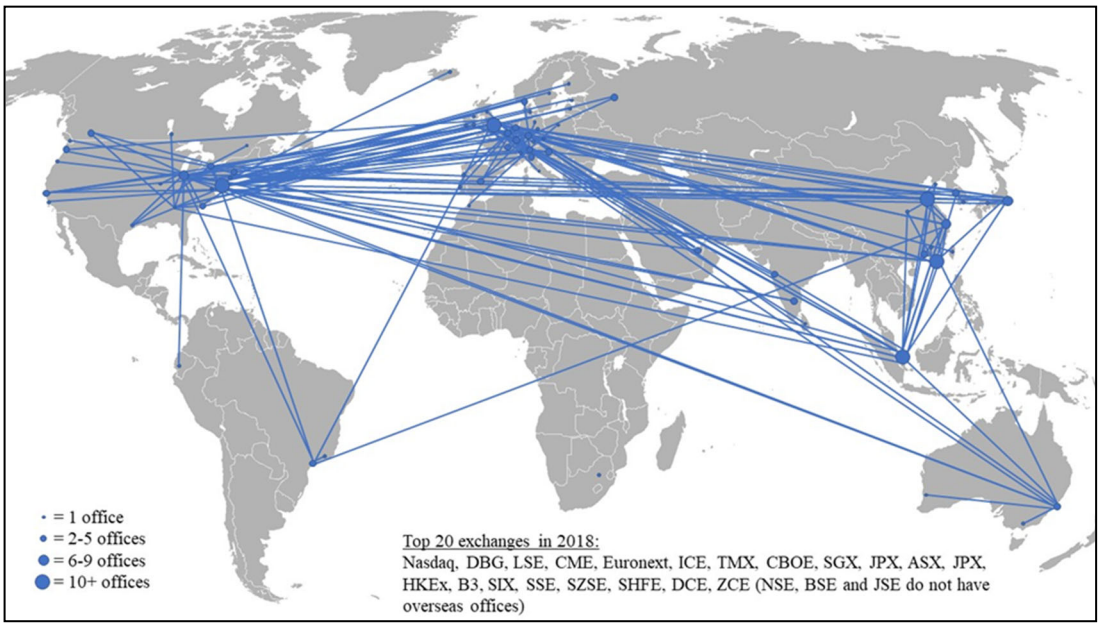
[35] These include the proposed mergers between the Singaporean and Australian exchanges in 2011, LSEG trying to acquire Canadian TSX Group in 2011, the failed mergers between NYSE Euronext and Deutsche Börse in 2012 as well as LSEG and Deutsche Börse in 2017.

***Figure 2.1:*** *International offices of 20 largest exchanges in 2002.*




*Source: annual reports, financial news; author's figure.*

***Figure 2.2:*** *International offices of 20 largest exchanges in 2018.*




*Source: annual reports, financial news; author's figure.*

To expand into new markets and win new clients, from the 1990s onwards many large exchanges started to internationalise their (co-)operations, opening offices around the world to gain access to local financial communities. As one broker noted, 'exchanges work themselves through the networks'[36] – hence these foreign offices are usually staffed with sales and business development teams. While the CME was the first

[36] Interview: sales department, broker (Singapore, 1 December 2017).

exchange to open an international office in 1987, in 2002 the then top-20 exchanges already had 48 offices. By 2018, the top-20 exchanges had established 212 offices (figures 2.1 and 2.2).

While overall, internationalisation amplified the competitive pressures that exchanges had been subjected to, it also opened up opportunities for a consolidation of the exchange industry, an expansion of their business models, new forms of cooperation between exchanges and the creation of globally connected markets.

### 2.2.4 Digitisation: electronic trading, data and technology

Exchanges have also transformed from physical trading locations into electronic marketplaces and financial technology companies. Despite powerful images in the public mind such as commemorating initial public offerings (IPOs), the ceremonial ringing of the bell, or hectic activity on open out-cry trading floors, from the late 1990s onwards traditional face-to-face interaction had been gradually superseded by electronic trading (Zaloom, 2006, Gorham and Singh, 2009, Muniesa, 2011, Pardo-Guerra, 2019).

Instead of members physically making markets and prices in trading pits, rings and floors via open-outcry (see Zaloom 2006), exchanges replaced functions originally performed by floor-trading members through running electronic matching engines.[37] Fully electronic newcomers to the exchanges landscape such as OM, Nasdaq, ICE or Eurex soon acquired vast market shares across asset classes, triumphing over incumbent floor-based exchanges such as NYMEX or LIFFE in breath taking market showdowns (Scott and Barrett, 2005).[38] The future of trading was bound to become electronic. By 2013, all the world's major exchanges had adopted electronic trading, and 70% had closed their physical trading floors by 2018 (see figure 2.3), often only retaining them to 'keep up appearances' – for the spectacle, news reporting and ceremonial events.

However, digitisation also fundamentally changed the workings of exchanges. On the one hand, electronic trading further facilitated the marketisation and internationalisation of exchanges. Instead of requiring access to physical trading

[37] Interview: CEO, asset manager (Singapore, 4 December 2017).
[38] Interview: business development, exchange (Frankfurt, 2 November 2017).

platforms in specific locations, everyone with the necessary hard- and software could participate in these markets, as long as any regulatory and organisational obstacles had been resolved. As Engelen and Grote (2009: 681) pointed out, exchanges were no longer necessarily the 'anchors' of financial markets. Digitisation also increased competitive pressures as everyone with some venture capital and a few lines of code was able to create a new trading platform (MacKenzie and Pardo-Guerra, 2014). This massively drove down the price of trading, partially because these ATS had less overhead than traditional exchanges. As Mark Hemsley, then CEO of BATS Europe, stated:

> What's happened since firms such as ourselves arrived is that we really put pressure on [the exchanges'] cost basis. […] When we put together BATS and Chi-X […] we had about 35 people on the BATS side and about 55 on the Chi-X side, so we had a total of 90 people, when we finished the integration, we were running it with 50… So, just the synergies we could get, particularly in technology – and we had the biggest stock exchange in Europe running with 50 people.[39]

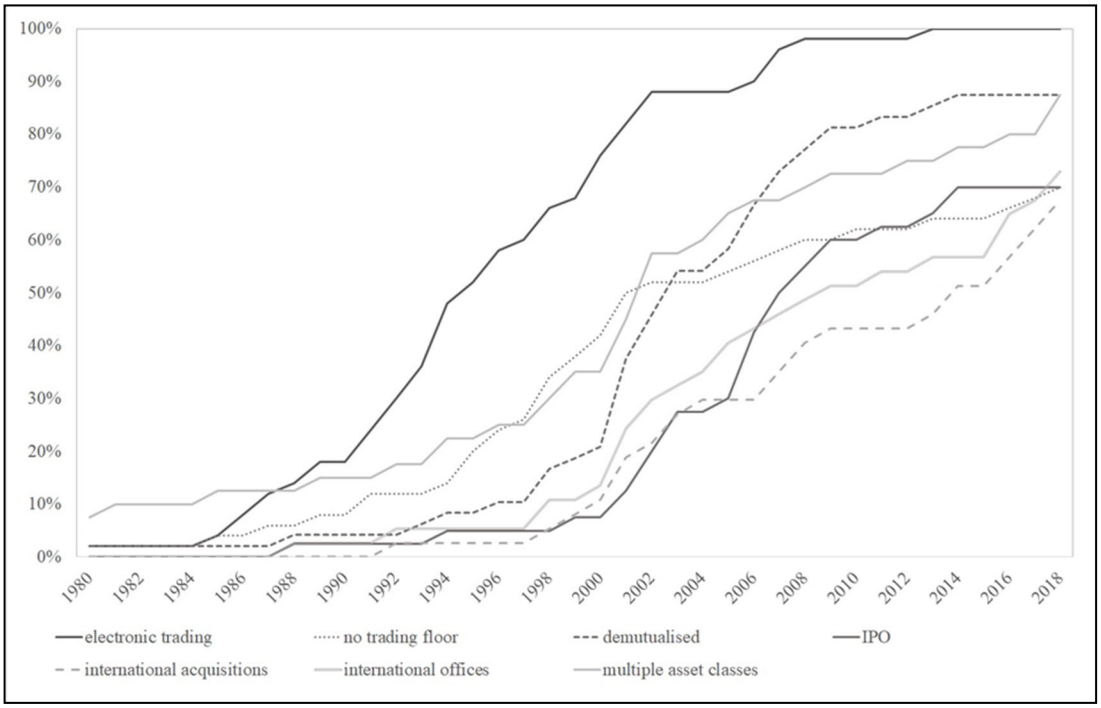
On the other hand, the proliferation of data and computing capacity opened up completely new business fields for them. As exchanges were hard pressed to find new sources of revenue, they realised that the electronification of markets and the rapid development of information technology created many opportunities for them to capitalise upon. Not only could they sell their market data, they could also use it to create new services and products, such as analytical tools, indices, reporting or post-trade services. Consequently, exchanges started investing heavily into market data, data analytics, and indices, which facilitated an expansion of new asset classes such as financial index derivatives based on continuous streams of market data (Millo, 2007). Digitisation has not made exchanges obsolete, but overhauled traditional trading technologies (open-outcry floor trading) tied to their traditional corporate governance form (mutuality), reinforced marketisation and internationalisation pressures, while simultaneously opening up a whole new range of business opportunities exchanges.

[39] Interview: CEO, alternative trading system (London, 11 October 2017).

## 2.3 Exchanges, transformed

While the public perception of exchanges is still nostalgically clinging to their historic form, between the 1980s and today, exchanges have morphed into fundamentally different entities. As a result of marketisation, internationalisation and digitisation, what exchanges do today is radically different from their previous form and function. First, exchanges have become actors in their own right, while often also having become subject to market pressures themselves, forcing them to innovate, generate profits and diversify their business model. Second, exchanges have become larger and more complex institutions that are often globally active. Third, exchanges operate electronic markets and have become financial technology companies. From being mere marketplaces – national, member-controlled, non-profit organisations and physical trading locations with a trading monopoly but little agency of their own – exchanges have become (more) self-determined actors – demutualised, self-listed, often profit-driven and globally active technology companies that operate (electronic) marketplaces around the world and across asset classes (figure 2.3).

***Figure 2.3:*** *The transformation of exchanges, 1980-2018.*




*Source: annual reports, exchange website information, financial news; author's figure.*

What exchanges are and what they do today is radically different from their previous form and function. Exchanges diversified their business horizontally – by adding new

asset classes, time-zones and countries to their market portfolio – and vertically – by buying other financial service providers such as clearing houses, index and data providers. You can now buy market data and data analytic tools from exchanges, license their indices, trade various financial products and asset classes on their platforms, not only equities but also bonds, foreign exchange (FX), 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.

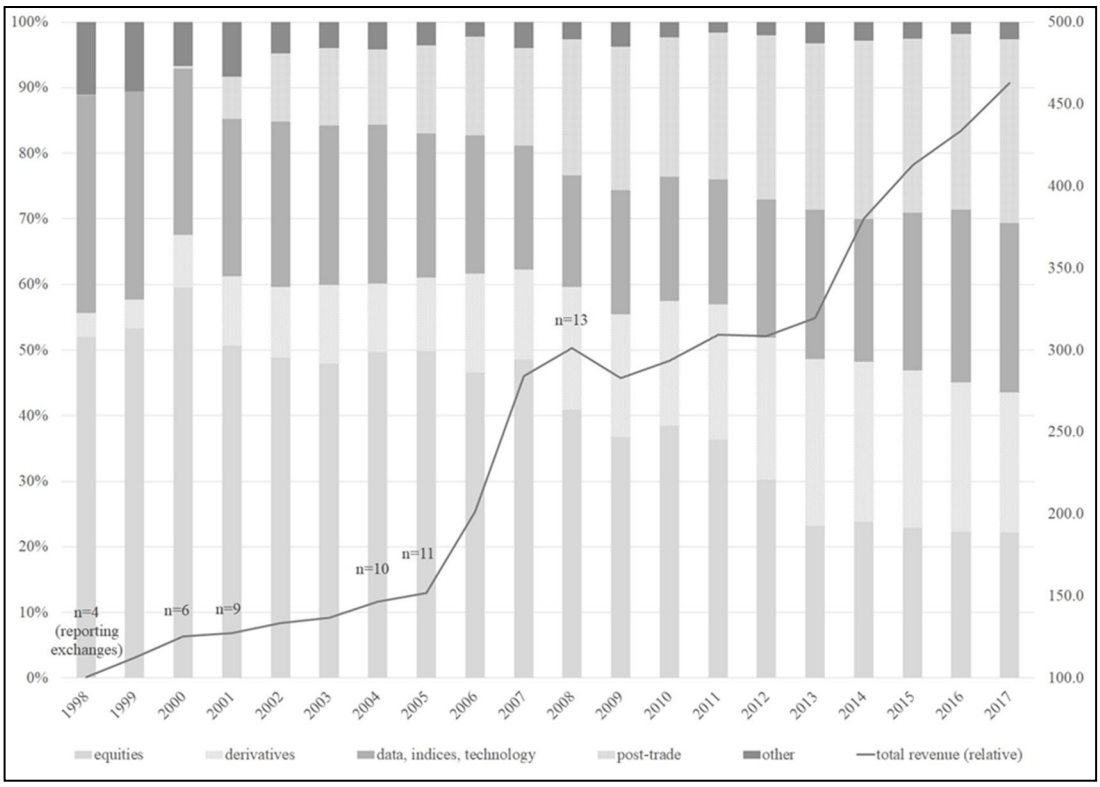
This can also be seen in how exchanges across the globe generate profits from their business activities. Stock trading revenues at Nasdaq for instance only contributed 11% to its revenues in 2017 while its 'corporate services', 'market data' and 'technology segments' have all become more important over time with 27.89%, 23.72% and 12.08%, respectively (Nasdaq, 2017). Similarly at ICE Group, albeit running the NYSE – the world's largest stock market – equities only marginally contributed to its profits (13.24%), while derivatives (37.37%) and 'data, analytics and indices' (45.02%) generated the majority (ICE, 2017). At LSE Group, stock trading revenues declined from 46.91% to 8.40% between 2007-2017 while post-trade and index services contributed 36.72% and 37.65% in 2017, respectively (LSEG, 2017). Over time, stock trading revenue at Deutsche Börse Group decreased from 35.35% in 2000 to 7.17% in 2017 while derivatives and clearing increased to 40.70% and its post-trade business to 36.02% (DBG, 2002, 2017). This development is similar for most exchanges: At Singapore Exchange (SGX) equity trading fees dropped from 78.11% in 2000 to 26.17% in 2017 whereas derivatives account for 40.10% of its revenue (SGX, 2018). Even at Japan's relatively 'traditional' JPX Group, equity trading revenues declined from 46.55% in 1997 to 26.82% in 2017 with a simultaneous expansion of post-trade, market data and derivatives business (JPX, 2017).

Resulting from their transformation, exchanges' business models have fundamentally changed. A detailed analysis of revenue reporting data from exchanges' annual corporate reports (n=214) of 13 stock exchanges[40] between 1998-2017

[40] Analysed exchanges (n=13) are: NYSE/Euronext/ICE, Nasdaq, B3, BME, JSE, JPX, LSEG, DBG, TSX, SIX, SGX, HKEx and ASX; the sample analyses the top-20 stock exchanges by market capitalisation globally, excluding those whose financial reports are not detailed enough to

(figure 2.4) shows that once 'traditional' stock exchanges only made around 20% of their profits through the listing and trading of equities – which was their main source of revenue up until the end-1990s and their original function for facilitating corporate finance (Zysman, 1983).

***Figure 2.4:*** *Revenue development of stock exchanges by business segment, 1998-2017.*




*Source: annual reports, exchange website information, financial news; author's figure.*

Instead, derivatives trading accounts for 21% of their income up from 3% in 1998 and post-trade activities such as (derivatives) clearing and collateral management make up 28% from being virtually non-existent until 2001. Data, indices and technology remained relatively stable (25-30%) despite the rise of new revenue segments and gained in importance vis-à-vis equity trading. Simultaneously, exchanges became much larger and hugely profitable enterprises as their revenues increased five-fold.[41] In 2017, the global exchange industry made profits of US$30.7 billion, with average EBIT margins of 53.6% across the industry (Burton-Taylor, 2018a). Far from

comparatively analyse revenue developments (NSE, BSE, SSE, SZSE, TWSE, KRX; Euronext after demerger); revenues were normalised (baseline=100 for each exchanges' first year of reporting); not all exchanges started reporting in 1998.

[41] This transformation is probably even more wide-reaching as reporting only started once stock exchanges became publicly listed, at which time their transformation was already under way.

embattled incumbents struggling to survive in a new era of globalised, electronic and competitive capital markets, most exchanges are thriving nowadays.

While this section briefly outlined exchanges' transformation, this is by no means an exhaustive account thereof, especially as transformation processes across exchange were not homogeneous. The following typology of exchanges aims to briefly outline some of these differences (table 2.1).

***Table 2.1:*** *A typology of exchanges.*

| | **broker-dealer clubs** | **neoliberal corporations** | **state/bureaucratic entities** |
|---|---|---|---|
| **marketisation** | no | yes (extensive) | yes (limited) |
| **demutualisation** | no | yes (extensive) | yes (often) |
| **IPOs** | no | yes (extensive) | yes (limited) |
| **competition** | no | yes (extensive) | yes (limited) |
| **internationalisation** | no | yes (extensive) | yes (often) |
| **international M&A** | no | yes (extensive) | yes (limited) |
| **international office** | no | yes (extensive) | yes (limited) |
| **multiple assets** | no | yes (extensive) | yes (extensive) |
| **foreign ownership** | no | yes (often) | no (or very limited) |
| **digitisation** | no | yes (extensive) | yes (extensive) |
| **public-private** | private (closed) | private (accessible) | public (or hybrid) |
| **primary constituency** | members | shareholders/customers | regulators/state |
| **independence** | no | yes | limited |
| **geographical distribution** | Western countries, former colonies (all exchanges at the time) | Western countries, (global exchanges), emerging markets (most, ex-Asia) | East Asia, some emerging markets (especially China) |
| **time period** | until 1980s | from 1980s/90s | from 1980s/90s, after decolonialisation |

*Source: author's table.*

Before their transformation, all exchanges were member-owned *broker-dealer clubs*. This applies to both exchanges in the capitalist core as well as the colonial periphery of global finance where exchanges were often dominated by financial institutions from the core. After their transformation, most broker-dealer clubs turned into *neoliberal corporations* – becoming subject to as well as facilitating neoliberal norms, especially those from Western countries. But while exchanges as facilitators of capital market-based finance emerged around the globe from the 1980s onwards (Weber *et al.*, 2009), some exchanges were specifically (re-)organised as *state/bureaucratic entities*.[42] These exchanges were mainly a phenomenon in parts of the Global South, especially

[42] Partially these were newly established as in the case of China, partially transformed from (colonial) broker-dealer clubs like in Indonesia or Malaysia.

in East Asian developmental states (OECD, 2018: 12-13). While they went fully digital, their internationalisation and especially their marketisation was much more limited than that of Western exchanges.[43] Instead of purely private, they were often partially owned by the state (or were hybrid public-private institutions) and even if they were demutualised and listed, they had closer ties to state institutions which bestowed upon them a greater role in economic management but also gave states more control over their actions. As the following chapters demonstrate, Chinese exchanges represent an extreme case of this category.

While there is variation in exchanges' transformation, all exchanges have drastically changed. Instead of single marketplaces owned by their members, exchanges have become providers of financial market infrastructures – self-determined, (often) global companies whose business model is vertically and horizontally integrated: horizontally, they independently organise multiple marketplaces across asset classes, countries and time-zones; vertically, they organise evermore parts of the financial value chain and infrastructures that enable market transactions. This has endowed them with considerable power to shape capital markets.

## 2.4 Financial infrastructures as a source of power for exchanges

While financial markets are used by investors as sites of exchange (Morgan, 2010), 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: 777). Crucially, financial infrastructures are 'the social, cultural, and technical conditions that make [financial markets] possible' (MacKenzie, 2006: 13), socio-technical systems that enable the functioning of financial markets but tend to be taken for granted and assumed (Star, 1999, Edwards, 2003). In other words, it is not infrastructures as such that are the focus of the analysis, but rather the ways in which infrastructures allow for certain functions to be carried out. As Krarup (2019: 110) notes, 'it [infrastructure] integrates international finance' – in other words, financial

[43] This is also indicated by the amount of off-exchange trading (ATS, dark pools etc.) in equity markets. While in Europe and the US 50% and 67% of trading is conducted on exchanges, in Asia 88% of trading are still conducted on exchanges (Reid and Jessop, 2017).

infrastructures (micro-level) help explain questions of power in global finance (macro-level).

More than mere technical exercises, 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: 783) emphasise, the concept of 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 (2018) 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 (also, Braun and Gabor, 2020). Infrastructure is hereby conceptualised 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: 241). Crucially, as Bernards and Campbell-Verduyn (2019: 783) emphasise, 'power often depend[s] on control over key financial infrastructures'.

This thesis argues that the implications of this 'control over key financial infrastructures' (Bernards and Campbell-Verduyn, 2019: 783) and who sets 'the rules of financial markets' (Braun and Gabor, 2020: 241), require closer examination in the emerging IPE literature on infrastructures and power. Rather than studying relational entanglement within markets, this thesis proposed to place more emphasis on those actors that provide, create and control financial market infrastructures – how and by whom markets are organised matters. Through their transformation exchanges have turned into exactly such infrastructure providers. Exchanges do not derive power through their and states' participation in financial markets, but from their role in *organising* the infrastructural arrangements of financial markets. Rather than instrumental or relational, their power is more architectural in nature as they shape how markets work. Through their role as providers of financial infrastructures, exchanges have become constitutive for how capital markets function (see also, Rethel and Sinclair, 2012).

Instead of 'gaining under the prevailing rules of the game', through organising infrastructures exchanges can 'rewrite the rules of the game' (Cohen, 1977: 54), and thereby constrain and influence the actions of those actors entangled within their

infrastructures. Hence, the power of exchanges closely resembles what Susan Strange (1988: 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'. Thereby, the concept of financial infrastructure allows for an examination of how power is exercised through specific infrastructural arrangements in global finance.

Consequently, this chapter argues that *through providing infrastructures* exchanges exert structural power. This structural power is not uniform but multifaceted as they exert their power differently over different actors through different parts of financial infrastructures (table 2.2).

***Table 2.2:*** *The structural power of exchanges through financial infrastructures.*

| infrastructure | affected actors | effect |
|---|---|---|
| data | investors | monopoly power over data, pricing and access:<br>profit through knowledge monopoly |
| indices | (passive) investors<br>listed companies<br>states | investment-decision/standard-setting power:<br>steering capital through index calculation<br>corporate governance<br>investor accessibility |
| products | listed companies<br>investors<br>states | defining/creating investment opportunities:<br>more shareholder value orientation<br>define range of possible investments<br>integration into financial circuits |
| trading | investors<br>listed companies | power over trading rules:<br>new incentive structures for (different) investors<br>impatient vs. patient capital |
| post-trade | investors<br>states | power over investability:<br>collateral requirements influence asset allocation<br>potential impact on refinancing |

*Source: Petry (2020b).*

The following sections therefore illustrate the sequential organisation of financial infrastructures[44] that enable trading in capital markets – and that correspond with exchanges' new business model. Not meant as an exhaustive account of their activities, the following sections outline how exchanges potentially exercise this power. Importantly, these observations are based on the activities of US- and European exchanges and not all exchanges exercise their power in this way as the analysis of

[44] On recent scholarship on the sequential, chain-like organisation of financial activities, see Arjaliès *et al.* (2017) and Sokol (2017); what these analyses have in common is an appreciation of the sequentiality, temporality and complexity of financial transactions, thereby 'opening up the black box' of global finance and discovering the politics within the details of finance (MacKenzie, 2005).

Chinese exchanges later in this thesis demonstrates. However, it is by providing these infrastructural arrangements for capital markets that exchanges have become powerful actors in global finance.

### 2.4.1 Market data: monopolies on knowledge

At the beginning of every trade stands an investment decision over where, when and in which products to invest. Will this stock go up or down? Has this industry (index) underperformed in the last month? Is this (country's) market overvalued? This decision is mostly based on the information available about financial products and their markets; to reduce uncertainty, calculate risks and inform investment decisions investors need market data. Especially with the rise of algorithmic trading, which accounts between 50-70% of US and European equities trading (Mattli, 2019a: 104), market data is crucial to 'inform' trading programs (MacKenzie, 2018b: 1679). As SIX Group (2020) fittingly stated, 'data is the fuel of financial markets'.

The proliferation of electronic data and computing capacity opened up completely new business fields for exchanges.[45] As Wójcik (2012: 131) noted, 'while in the mid-1980s it was an achievement for SEAQ [Stock Exchange Automated Quotation] in London to execute up to 10 trades per second […], in 2010 computers [could] generate thousands of orders per second each.' By taking on an electronic form, market data became a resource that could be utilised by exchanges who realised that they sat on a gold mine. Data became something that exchanges could sell especially as the development of algorithmic trading strategies facilitated the demand for (preferential) access to real-time market data and data analytics tools (MacKenzie *et al.*, 2012).[46]

As they run (most) organised markets, exchanges have a monopoly over the market data generated on their platforms and sell their data feeds to traders. Through these data monopolies, exchanges have power over other market actors. As SIFMA (2019: 25) noted, 'each exchange is a monopoly source of its own depth-of-book data, and broker-dealers rely on that complete set of market data to achieve best execution for their customers', for which 'exchanges charge excessive fees'. As a former

[45] Interview: sales director, global exchange (London, 12 October 2017).
[46] Interview: general manager, global exchange (Hong Kong, 5 July 2017).

exchange CEO emphasised, 'the value of an exchange [is] the price and the marketability of that price',[47] as exchanges are 'the original source' of that IP-protected data.[48] While companies like Bloomberg or Reuters are usually associated with financial information (Campbell-Verduyn, 2016), they often license market data from exchanges.[49] Exchanges have become 'content providers' (Lee, 2002), selling market data, data analytics and reporting tools to their clients. This situation led to big debates between brokers, data vendors and exchanges about the accessibility of market information and to repeated accusations by 'frustrated' brokers that exchanges are exercising 'monopoly pricing power' (Rooney, 2019).

Parallels exist hereby to big tech companies that accumulate vast domains of new knowledge *from* but not *for* market actors (Zuboff, 2019: 17) which is ultimately linked to questions of power (Zuboff, 2019: 176). Similarly, as Strange (1987: 569) pointed out when discussing US structural power, 'whoever is able to develop or acquire a kind of knowledge that is sought by others, and whoever can control the channels by which it is communicated and the access to stores of knowledge, is able to dominate'. Knowledge is power in financial markets. By deciding on market data distribution and access, exchanges are crucial in the production of knowledge about capital market activity – a position of power vis-à-vis other market participants.

### 2.4.2 Indices and benchmarks: power through numbers

Related to market data are indices and benchmarks which are based on the aforementioned market data. Indices are numerical tools that enable comparative evaluations of groups of assets over time. The purpose of indices is to display the performance of specific (and often complex) economic entities such as national stock markets. Index providers create these indices, and they have become more powerful with the continuing shift from active towards passive investment management where exchange traded funds (ETFs) and index funds simply track or reproduce stock market

[47] Interview: former CEO, global exchange (London, 8 January 2018); importantly, as intransparent venues, dark pools cannot create marketable prices but rely on exchanges' data (interview: international department, global exchange; London, 10 October 2017).
[48] Interview: data business director, global exchange (Singapore, 4 December 2017).
[49] Interview: sales department, energy exchange (London, 17 October 2017); global exchanges also acquired many data providers: Axioma (DBG), InteractiveData (ICE), Quandl (Nasdaq), LSEG's pending acquisition of Refinitiv (aka Reuters).

indices (Braun, 2016, Fichtner *et al.*, 2017). Thereby, passive asset managers (e.g. BlackRock) effectively delegate their investment decisions to index providers (see Petry *et al.*, 2021).[50] With the exception of MSCI, all large index providers are owned by global exchanges;[51] as Jan Bart de Boer, Chief Commercial Officer of ABN Amro, noted: 'What is listed, traded and included in an index is decided in the realm of exchanges'.[52]

Which companies or countries are in- or excluded from an index is based on criteria defined by index providers/exchanges (Rauterberg and Verstein, 2013), a process that is inherently political: their notions of what constitutes good corporate governance for listed companies and a favourable investment environment for national markets helps or hinders those in attracting capital, essentially deciding what is investment-worthy in global capital markets and reinforcing compliance with their methodologies (Petry *et al.*, 2021). As one interviewee stated: 'every exchange wants benchmarks, you can set the rules, […] the benchmark owner has enormous power'.[53]

Take, for example, the S&P500 index. A staggering US$3 trillion are invested in passive funds that track the S&P500 alone. In addition, these indices are also used as 'benchmarks' from actively managed funds which measure their performance against these indices and are crucial as a baseline to inform investment decisions (Arjaliès *et al.*, 2017: 38-41).[54] By rewarding compliance with capital inflows and punishing deviant behaviour with outflows, index providers are exercising power over both listed companies and countries, 'shaping the norms of what's considered acceptable in international finance' (Alloway *et al.*, 2017). The decision by major index providers to include China and Saudi Arabia in their indices, for instance, is expected to result in a 'seismic shift' of over US$120 billion in active and passive fund flows by 2020 (Robertson and Lam, 2019). With the shift towards passive investment index providers have become private authorities that 'steer capital flows' and their index decisions have important effects on listed companies' corporate governance and on countries' economic policies (Petry *et al.*, 2021).

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[50] In 2019, passive investment surpassed active investment in US stock markets (Gittelsohn, 2019).
[51] LSEG bought FTSE Russell in 2011, DBG fully acquired Stoxx in 2015, CME bought 90% of DJI, and S&P DJI was established as a S&P-CME joint venture.
[52] Observation: 'Keynote speech: Sustainable and Competitive Clearing in Europe', Eurex Derivatives Forum 2020 (Frankfurt, 28 February 2020).
[53] Interview: representative office, global exchange (Beijing, 25 October 2018).
[54] By deciding what to include into/exclude from an index as well as how to calculate these, index providers make assessments about the investment-worthiness of assets and can 'steer capital' in the same way as credit rating agencies do when they up- or downgrade entities (Sinclair, 2005).

By 2017, more than US$37 trillion active and passive assets under management tracked S&P Dow Jones Indices (DJI), MSCI and FTSE Russell, who accounted for 26.6%, 26.1% and 25.5% of global revenues in the index industry, respectively. Together with Stoxx (5%) and Nasdaq (5%) they have a market share of almost 90% (Burton-Taylor, 2018b: 8). As a senior manager from an index provider put it: 'the big index providers, they are setting standards! Now so much money follows them, […] they have a lot of political power!'[55] – or in the words of The Economist (2017), index providers 'have become finance's new kingmakers: arbiters of how investors should allocate their money.' Indices 'steer capital', thereby providing exchanges with another lever of structural power.

Next to stock indices, other benchmarks like for commodities are also traded on and owned by exchanges (Newman, 2009, Bush, 2012), such as WTI and Brent for crude oil. While most global commodities are traded OTC, these bilateral trades do not create transparent market prices, hence exchange-traded futures perform an important 'price discovery' role that participants in commodity markets have come to rely upon (Clapp and Helleiner, 2012: 186). And because liquidity is sticky, there is often only one globally recognised benchmark per product, and they are concentrated within only a handful of exchanges. When, for example, a Chinese telecom company wants to buy from a Chilean copper mine, their arrangement is usually referenced to the price of USD-denominated copper futures traded on LME in London. As the former CEO of a global exchange noted, this feeds down throughout the global economy:

> Everyone would base their price on the LME, […] in fact most of the world. I mean, someone I know went to Malaysia, down a tin mine, and he tells the tale that it had taken days to get there, and the last bit was on a donkey pretty much in the middle of nowhere… Every day, they would write up the price of LME tin, because they could get it over the telegraph, because that would determine how much they pay for the guys getting tin out of the ground. So, globally that price was vital… […] For copper, lead, aluminium, zinc, nickel and tin, [the LME] sets the world price.[56]

Instead of just being purely financial demarcations, such benchmarks and reference prices can have a real-world material impact. If LME decided to change its contract specifications or introduced a trader incentive programme to boost liquidity (and

[55] Interview: business development, index provider (Hong Kong, 27 September 2018).
[56] Interview: former CEO, global exchange (London, 8 January 2018).

trading revenues), not only would global prices of copper change but interlinked socio-economic arrangements such as workers' pay, mining companies' earnings or countries' balance-of-payments could also be affected. Hence, by administering indices and benchmarks exchanges have another lever to exercise structural power in global finance.

### 2.4.3 Financial products: facilitating investment opportunities

The next crucial step in the financial value chain are financial products. As Leyshon and Thrift (2007: 98) emphasise: 'The bedrock of financial capitalism is not the spectacular system of speculation but something more mundane; that is, financial capitalism is dependent on the […] construction of new asset streams, […] which then – and only then – allows speculation to take place'. Those assets are often created, owned and/or licensed by exchanges. While 'exchanges used to have monotonous products, now they have so many',[57] as one broker noted. No matter whether listed bonds, stocks, ETFs, futures or options, exchanges (help to) create, launch and attract liquidity for these products. They advertise their use, canvass investors with their sales teams and enlist market makers, playing a vital part in creating and defining what investment opportunities are – thereby indirectly shaping investor behaviour.

Exchanges, for instance, actively facilitate the creation of equity capital. As Wójcik (2012: 119) put it in his analysis of the Warsaw Stock Exchange, the exchange 'is definitely not a passive provider of a trading system for equity […] it takes an active role in the creation of equity, thus creating demand for its own services'. Exchanges approach unlisted companies, offer pre-IPO services that prepare them for being listed, and attend, sponsor and organise conferences and trade fairs where they advertise their services. LSE Group's ELITE programme for instance is a business network across 33 countries aiming to list prospective companies; as one interviewee stated, 'think of it almost like an academy, a business school for start-up companies, for young energetic companies that have a good growth potential'.[58] However, by actively encourage company listings, exchanges actively disseminate market-based financial practices and associated corporate governance standards such as shareholder value orientation.

[57] Interview: sales department, broker (Singapore, 1 December 2017).
[58] Interview: sales director, global exchange (London, 12 October 2017).

The creation of financial products is also linked to the aforementioned index business. Once you have a data stream and an index based thereon has been calculated, financial products can be built on this foundation. Asset managers can obtain licenses from exchanges/index providers to list ETFs on exchange-run trading platforms – and exchanges are very proactive in facilitating such product creations.[59] As Ken O'Keefe, Global Head of ETFs at LSE Group, noted: 'We sit down with ETF providers. They're looking for something that is going to better meet the needs for financial advisors, and they're turning to us for help in designing that' (cited in Chen, 2019a).

The same holds true for derivative products, where historically exchanges have been crucial for creating new assets that enable the trading of various commodities, indices, interest rates or currencies (Millo, 2007, Weitzman, 2011).[60] As Hardie (2012: 15) emphasises in his study of government debt markets, by creating such hedging or short-selling instruments for investors, exchanges facilitate speculative trading. Similarly, offshore index future trading influences state behaviour. In India the government (feared) losing control over its domestic stock markets after SGX single-handedly listed offshore-futures based on their stock markets, for instance (Petry *et al.*, 2021: 169). While the Indian regulator and exchanges have been working out a deal to move trading onshore (Shah, 2020), this highlights that through the products that exchanges make available to investors, they integrate states into financial circuits, potentially affecting national economies. Further, exchanges facilitate and enable the increasing ability to trade risk (Hardie, 2012: 42-43), thereby contributing, for instance, to the financialisation of food and other commodities (Clapp, 2014).[61] Exchanges encourage larger trading volumes of their products through market maker schemes or fee rebates for those investors who trade large volumes of these contracts.

By creating financial products, exchanges generate the necessary condition for an expansion of global finance. Whoever wants to participate in these markets needs to comply with the rulebook drafted by market infrastructure providers such as exchanges or at least play their game. Thereby exchanges are exercising structural

[59] Interview: business development, index provider (Hong Kong, 27 September 2018).
[60] With the re-emergence of global finance in the 1970s, derivative trading exploded and has transformed into sophisticated bets on the future development of asset prices and rates, often used for speculative purposes (LiPuma and Lee, 2005). While OTC derivatives are a much larger part of the overall market, exchange-traded derivatives are important as their prices inform OTC markets, especially in areas such as commodities (Newman, 2009, Bush, 2012).
[61] This is why regulations after the world food crisis 2006-2008 specifically targeted exchanges by introducing position limits (Clapp and Helleiner, 2012).

power that affects companies seeking funding, investors seeking investment opportunities and states entangled in those markets.

### 2.4.4 Trading platforms: shaping the conduct of trading

In contrast to widespread perception, 24-hour trading is not a given or possible in many asset classes, especially as products can often only be traded exclusively on one platform (Meyer and Guernsey, 2015). DAX futures for instance can only be traded on Deutsche Börse's Eurex platform unless these products are cross-listed, or in the case of company shares if they have a dual listing. While in theory listing products on several platforms is possible and is sometimes attempted to challenge and gain market share from another exchange, liquidity tends to be sticky and concentrate in one marketplace.

This provision of trading platforms for financial products has been the traditional business of exchanges.[62] Exchanges act as gatekeepers to these markets and facilitate disintermediated processes of credit allocation, establishing social relationships between market participants and enabling the flows of money between them. By organizing trading platforms, exchanges decide according to which rules trading takes place. Are there position or cancellation limits? What kind of order types can be used? Are contracts physically delivered or cash settled? By deciding about those infrastructural arrangements, exchanges decide according to which rules trading takes place, thereby shaping investor behaviour.

Exchanges can thereby facilitate very different market infrastructures. By introducing strict position and order cancellation limits, deliberately increasing margin requirements, enforcing the physical delivery of contracts or banning investors that disregard those rules from trading exchanges can, for, instance influence investment decisions and behaviour of market participants. In contrast, exchanges might also

[62] While exchanges have undoubtfully been losing ground to trading venues such as dark pools, they still prevail in providing trading platforms: 50% (Europe), 67% (US) and 88% (Asia) of equity trading are still conducted on exchanges (Reid and Jessop, 2017). The figure for Europe is actually higher (~60%) as 48% of dark pool trading is conducted on exchange-owned dark pools (e.g. BATS, Turquoise, Acquis), but are counted as off-exchange trading (Petrescu and Wedow, 2017: 4, 25). As two interviewees noted: 'if markets become volatile, liquidity in smaller marketplaces often vanishes' and there is a run to safety, 'back to the established exchanges' and that 'price formation happens on the primary exchange, that's pretty fundamental…', therefore, 'you want [such] quality liquidity' (interviews: international department, global exchange; London, 13 October 2017; and sales director, global exchange; London, 12 October 2017).

create incentive structures that make it more profitable for investors to engage in short-term speculation rather than long-term investment. This is especially likely, when the exchanges' primary motivation is to increase trading volumes which in turn maximises its own profits. Instead of mandatory physical delivery and position limits that could facilitate hedging, exchanges can rather discourage or simply not enable physical delivery as cash-settled trades are more lucrative.[63]

MacKenzie *et al.* (2012: 285), for instance, investigate the 'symbiotic relationship' between exchanges and HFTs, as the former provide the necessary infrastructure (co-location, direct market access), trading rules (position limits, new order types, e.g. flash orders) and products (data analytic tools, real-time market data) that enable high-speed trading in the first place (Lewis, 2014).[64] However, HFT strategies such as quote stuffing, front-running or the scalping of bid/ask spreads are usually to the detriment of less technologically sophisticated traders, especially large institutional investors (e.g. pension funds) or retail investors.

If market infrastructures enable (or even encourage) speculative trading, speculating actors (e.g. hedge funds) are more likely to enter and dominate the market (Hardie, 2012: 117). As Garratt and Hamilton (2016: 805) highlight 'intermediation, regulation and poor institutional incentives' crowd out long-term investors and facilitate a move towards impatient capital, influencing listed companies' corporate governance decisions. While it is technically possible to allow equal access to trading platforms, this decision lies primarily with exchanges. Hence, exchanges play an active role in deciding which kind of trading they want and encourage on their platforms (MacKenzie, 2018a: 516-518).

By deciding on issues such as market access, contract specifications and trading rules, exchanges have an important impact on how markets function. Thereby, they exercise structural power – shaping the behaviour of investors and influencing market dynamics.

### 2.4.5 Post-trade services: central clearing and collateral

Once two investors agree on a trade, post-trade infrastructures need to be in place to execute it – the most important of which is clearing transactions by clearing houses (or

[63] Interview: senior manager, commodity trading platform (Hangzhou, 22 April 2018).
[64] While proponents of HTF argue that it increases market liquidity, its opponents argue that it actually sucks up liquidity and severely threatens market stability (MacKenzie *et al.*, 2012: 288-90).

central counterparties).[65] Especially with post-crisis regulation, such as higher capital requirements for banks (Basel III), the push towards centrally clearing OTC derivatives (EMIR in EU/Dodd-Frank in US) or increased margin requirements for uncleared derivatives (IOSCO-BCBS), central counterparties have become key institutions in capital markets (Helleiner *et al.*, 2018, Genito, 2019a). By Q3-2019, central clearing of interest rate and credit derivatives (accounting for ~80% of OTC derivatives) rose to 90.0% and 81.4% of notional trading volume, respectively (ISDA, 2019). Central clearing has become a crucial feature of today's derivatives markets.

However, there has been a significant change in central counterparty ownership in recent years as exchanges acquired more and more of them in their push to becoming infrastructure providers. In 2014, exchanges owned 83% of clearing houses globally up from 55% in 2006 (Domanski *et al.*, 2015), a figure that has since only increased with CBOE and LSEG's (partial) acquisitions of EuroCCP and LCH.Clearnet. Further, clearing house activity is highly concentrated to an extent that they are deemed 'too big to fail' (Stafford, 2017) and created new interdependencies that raised regulatory concerns (FSB *et al.*, 2017). By 2014, 99% and 59% of global OTC and exchange-traded derivative activity was conducted by five clearing houses (Wendt, 2015: 13) and the top-10 accounted for 88% of clearing houses' financial resources globally (FSB *et al.*, 2017: 2), all of which are owned by exchanges (Khwaja, 2019).[66]

This provides exchanges with another facet of structural power through infrastructure. Central counterparties have unilateral decision-making power on collateral and capital requirements when clearing financial transactions, basically deciding which assets they deem safe enough to back transactions. Thereby, central counterparties can constrain how investors can allocate liquid assets (Genito, 2019a: 939). With higher mandatory margin requirements, for instance, investor demand for collateral lending has increased, and central counterparties started engaging in 'collateral transformation', i.e. lending collateral to investors from their own margin pool, thereby enabling continued trading.[67] As one interviewee noted, 'what it actually

[65] Central counterparties interpose themselves between two counterparties in financial transactions, reducing counterparty credit and liquidity risk (Domanski *et al.*, 2015: 2). While the abbreviation CCP is commonly used for a central counterparty, this is also the standard abbreviation for 'Chinese Communist Party'. In this thesis, CCP will refer to 'Chinese Communist Party' while central counterparty or clearing house will be written out.
[66] Options Clearing Corporation is jointly owned by Nasdaq, ICE and Cboe.
[67] Interview: senior manager, financial infrastructure provider (London, 10 January 2018).

does, is reducing your capital requirement quite significantly'[68] – whereby they partially help banks to circumvent post-crisis regulations.[69] By shaping financial institutions' balance sheets, central counterparties have considerable influence not only within capital markets but also on the actions of states. This could for instance be observed in the European sovereign debt crisis as LCH.Clearnet's margin calls on sovereign bonds used as collateral significantly increased the risk premium on governments' ability to refinance their debt (Banca d'Italia, 2012, Genito, 2019b).

Central counterparties have the ability to influence both investors' asset allocation as well as states and their policy decisions. By owning them, exchanges can exercise structural power through another infrastructural arrangement of capital markets.[70]

## 2.5 Exchanges in the global financial order: making the rules of the game

Whereas the previous section outlined how exchanges exercise structural power, this power is neither equally distributed nor do all exchanges exercise this power in the same way. While all exchanges create financial infrastructures, the extent of their individual power differs substantially as a clear hierarchy has emerged between exchanges, which has important consequences for the global financial order.

Instead of national marketplaces, a few global exchanges have come to dominate the exchange industry (see figure 2.5): CME Group which operates the world's largest futures market and trading platform (Globex), the largest fixed income trading platform (NEX), and which partially owns index provider S&P Dow Jones Indices (S&P DJI); ICE Group which runs NYSE, the world's largest stock market, and several derivative exchanges such as LIFFE or NYBOT, 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, and Nasdaq's technology is used by 115+ marketplaces globally; Cboe, the world's largest options exchange, which also owns BATS and EuroCCP, Europe's largest stock market and equity clearing house; Deutsche Börse Group which owns index provider Stoxx,

[68] Interview: CEO, alternative trading system (London, 11 October 2017); also, interview: APAC director, commodities exchange (Singapore, 8 December 2017).
[69] Interview: business development, global exchange (Frankfurt, 24 April 2019).
[70] Exchanges also ventured into other post-trade services, most notably custodial/settlement services (ESCDA, 2017: 11) which goes beyond the scope of this chapter.

Europe's largest derivatives market (Eurex) and Clearstream, the world's 2nd largest international central securities depository; and LSE Group which next to the London Stock Exchange owns index provider FTSE Russell and LCH.Clearnet, the world's largest clearinghouse. CME, ICE, Nasdaq and Cboe are US-based, while LSEG and DBG are headquartered in Europe; but all of them are integral to Anglo-American finance.[71]

These mostly US-based globally active companies run the largest, most prestigious and profitable markets, own the most important products, indices and technological know-how, and shape the development of capital markets globally. And while they might be challenged in individual aspects of their business model, it's their ownership of infrastructures along the whole financial value chain that locks in their competitive advantage. As a senior manager of a global exchanges stated:

> Because we own so much more of the value chain, […] we have revenues stream out of every aspect of that. […] You really want something that has synergistic… complementarity… […] Next to the stock market, we have the no.1 platform for launching and trading ETFs. Then we have the futures business, which is used for hedging those ETFs, and then off course, I mentioned all the data that flows alongside in that silo. […] That's basically how we try to shape the business, as an entire value chain where clients want to see that all on a single platform where they can have a single trading access or, more importantly, a single clearing access… So, they can do cross margining, long-short trades, cross-spreads, etc.… they want to have that all in one place because it's much more capital efficient.[72]

These 'network effects' are very difficult to achieve for newcomers.[73] This makes it challenging for smaller exchanges to compete with global exchanges whose dominant position in global markets is locked in by these synergistic effects. As another interviewee noted, 'mid-sized exchanges, such as Euronext, they are struggling to compete, to come up with their own USP [unique selling point] in order to keep people

[71] Anglo-American finance refers to the tightly interlinked financial markets of the US (mostly New York) and UK (London) that jointly dominate the global financial system and thereby also facilitate US financial hegemony (Wójcik, 2013, Fichtner, 2017: 8, Green, 2020).
[72] Interview: APAC director, global exchange (Hong Kong, 30 June 2017).
[73] Likewise, the CEO of an alternative trading system noted: 'I mean if you have a listing, then you have an index, you have the trading, you have the clearing, then you have the settlement. It makes it very difficult for a company to move away from that, so it's a very sticky business model'; the same interviewee also noted that 'their business is scalable, because 'I have exactly the same overhead if I trade one share a day as if I trade 10 million' (interview: CEO, alternative trading system; London, 11 October 2017; also, interviews: international development, global exchange; Frankfurt, 2 November 2017; sales director, global exchange; London, 12 October 2017; sales department, energy exchange; London, 17 October 2017).

from going to the bigger exchanges'.[74] One global exchange's senior manager put it like this:

> There are niche players that compete with us, but no one has the global coverage, no one works with as many market players. […] Probably today [our infrastructure] is used by 110-120 external clients and then 30 of our own exchanges, and many banks and brokers – more than 100… So, that's a unique positioning. And it's hard to get into that space, because it is very costly, and our technology is IP-protected.[75]

While traditionally, every country had an exchange of varying size, a new global hierarchy between exchanges has emerged with global exchanges at the top, complemented by a few regional players (SIX, Euronext, JSE, HKEx, SGX) and larger national exchanges (Japan, Brazil, Russia, India, China). This is also reflected in an analysis of financial industry statistics, where global exchanges account for around half of equity and derivative markets trading and industry revenues globally, dwarfing other exchanges (see table 2.3). While China – the primary focus of this thesis – now has the second largest markets globally, in terms of global reach it trails far behind these global behemoths.

An enormous concentration of marketplaces, liquidity and power has taken place as the majority of market infrastructures are controlled by a few *global exchanges* (figure 2.5). It is important to note that most of these global exchanges are US-based companies. And as they exercise structural power which affects financial market participants globally, their norms and practices of market organisation solidify US financial hegemony.[76] Thereby, these global exchanges define the rules of the game in the global financial order.

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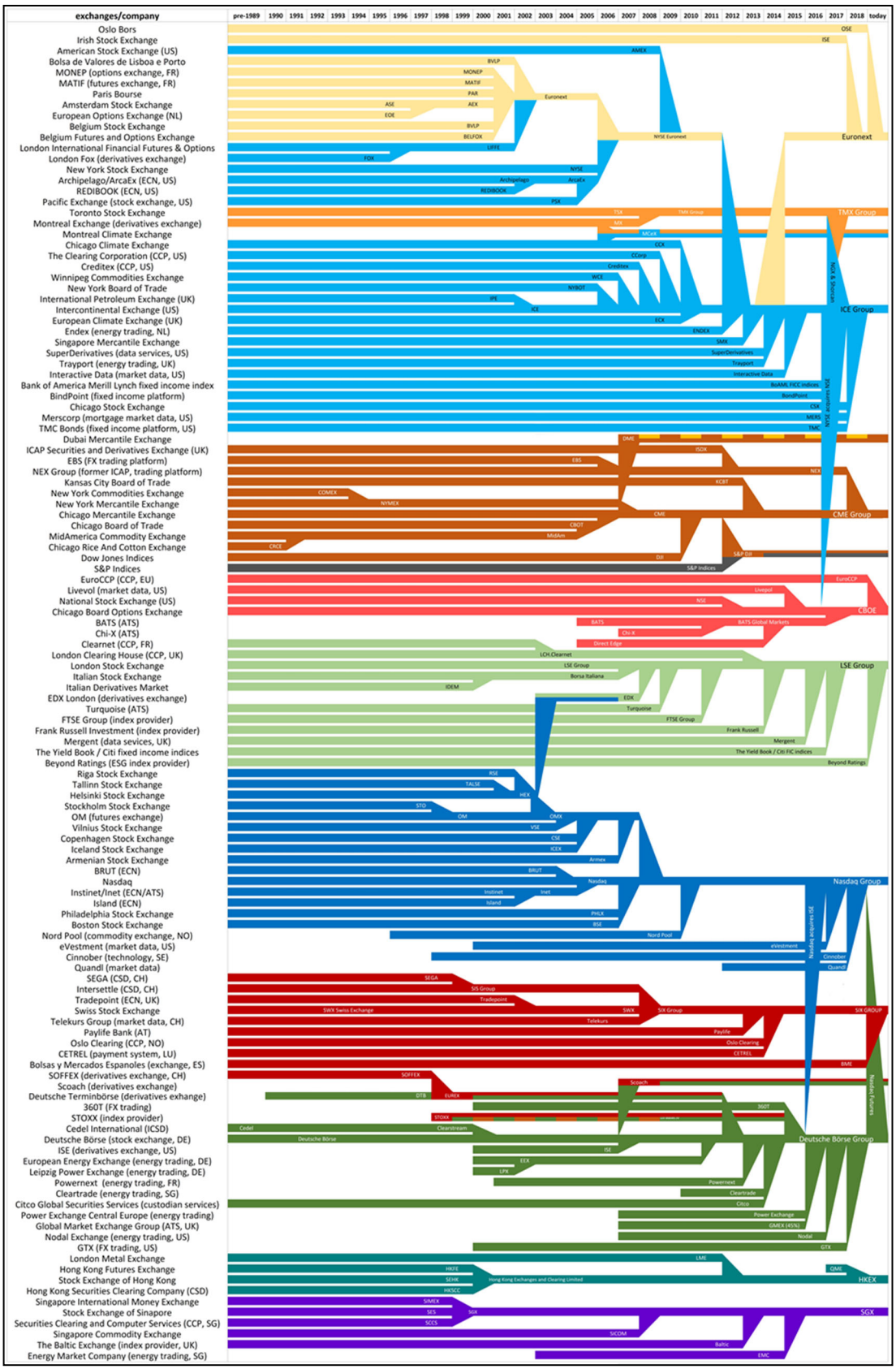
[74] Interview: research department, exchange (London, 9 October 2017); another interviewee similarly stated: 'Euronext is one example – an exchange without a strong market data or clearing business is always in a difficult situation strategically' (interview: international department, global exchange; London, 10 October 2017).
[75] Interview: general manager, global exchange (Hong Kong, 5 July 2017).
[76] In this respect, US-based global exchanges fulfil a similar role as actors that disseminate Anglo-American norms in financial globalisation as US-based credit rating agencies (Sinclair, 2005: 4).

***Figure 2.5:*** *Consolidation of global exchange industry, 1990-2018.*




*Source: financial news coverage, annual reports; author's figure.*

***Table 2.3:*** *Market shares in global stock and derivative markets, 2017.*

| | global exch. | regio exch. | India | China | Brazil | Russia | Japan | other | all ex-global |
|---|---|---|---|---|---|---|---|---|---|
| share of exchange industry revenues (% of total) | ~56 | ~11 | n/a | n/a | ~5 | n/a | ~4 | ~26 | ~44 |
| derivatives exchange trading volume (% of total) | 45.3 | 4.30 | 13.0 | 12.2 | 7.20 | 6.30 | 1.5 | 10.2 | 54.7 |
| derivatives exchange open interest (% of total) | 55.9 | 11.8 | 1.8 | 2.30 | 15.0 | 2.20 | 1.3 | 9.6 | 44.1 |
| derivatives exchanges (n=53) | 6 | 5 | 3 | 4 | 1 | 1 | 4 | 30 | 47 |
| stock exchange market capitalisation (% of total) | 47.5 | 9.0 | 5.1 | 10.3 | 1.1 | 12.4 | 0.8 | 13.8 | 52.5 |
| stock exchange EOB value of trading (% of total) | 54.6 | 8.0 | 1.4 | 20.2 | 0.8 | 5.4 | 0.2 | 9.4 | 45.4 |
| exchange groups (n=83) | 5 | 5 | 2 | 2 | 1 | 1 | 1 | 67 | 78 |

*Source: FIA (2017), WFE (2017), Burton-Taylor (2018a); China excludes Hong Kong.*

Global exchanges also shape how capital markets work elsewhere as they have been both impacted by financial globalisation but have themselves also turned into important agents thereof, spreading the development of capital markets globally. While the role of the state and international financial institutions (Lavelle, 2004), domestic political coalitions (Zhang, 2009) and pressures from global markets (Cerny, 1989) have been highlighted as push factors for capital market development, exchanges also play an important role in these processes (see Botzem and Dahl, 2014). Although ideas that countries need functioning capital markets might diffuse easily, the knowledge, know-how and technical expertise of how to actually build and run the financial infrastructures of capital markets is not readily available. Especially in developing countries, this expertise is not necessarily situated in government institutions (Lavelle, 1999: 211).

Rather global exchanges have been crucial in training regulators, investors and 'local' exchange operators in how advanced financial markets work. As a global exchanges' marketing director stated, 'not only are we looking to grow and innovate in the developed market, but basically the emerging markets space is a fundamental strategy – new market development and international strategy is a big focus for [us]'.[77] Exchanges export their financial technologies and 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 help create

[77] Interview: sales director, global exchange (London, 12 October 2017).

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.[78] Through the provision of financial infrastructures, global exchanges create, connect and shape marketplaces globally.

Nasdaq, for instance, provides its technology to '110+ market infrastructure organisations and 160+ market participants in 50 countries',[79] LSE Group's Millennium platform is implemented by over 40 exchanges,[80] Deutsche Börse Group technology is used by over 30 exchanges and it facilitates various cross listings and joint ventures,[81] while CME Group also has multiple cooperation agreements and ownership stakes with emerging market exchanges helping to develop financial products or enable their trading on its 24h-trading platform Globex.[82] Aiding processes of market development, from 1980 to 2005 the number of countries with stock exchanges nearly doubled from 59 to 117 (Weber *et al.*, 2009).[83]

Such knowledge transfer between exchanges is crucial for facilitating capital market development. It also highlights the importance of knowledge and the existence of knowledge asymmetries between providers of market infrastructures – with global exchanges diffusing their way of organizing markets globally. As Dixon (2014: 16) emphasises, 'when major financial service providers establish operations in another country, they bring with them particular modes of conduct and potentially different forms of expertise' which drives the transformation of these financial systems. Asked about the role of global exchanges for capital market development, one interviewee replied: 'I'd say pretty important. In developing countries, certainly, they wouldn't get off the ground if they didn't have some kind of help… it's the technology as well, I mean where do you get the technology from if you don't have another exchange to provide it?'[84] As Weber *et al.* (2009: 1319) emphasise, exchanges have become a 'core

[78] While primarily commercially driven, there is also an almost missionary element to these activities as global exchanges see it as their task to spread the gospel of efficient markets across the globe (Weitzman, 2011).
[79] See: https://business.nasdaq.com/market-tech/ (last accessed 21 June 2020).
[80] See: https://www.lseg.com/http%3A//www.lseg.com/areas-expertise/technology (last accessed 21 June 2020).
[81] See: https://deutsche-boerse.com/resource/blob/31764/2ae61c511fef41b901e2656b4ce9fa90/data/db-dbg-p-z-v-hp_en.pdf (last accessed 11 September 2020).
[82] See: http://www.cmegroup.com/international/ (last accessed 21 June 2020).
[83] The interaction between Chinese and global exchanges with respect to technology and knowledge transfer is analysed in Chapter 5.
[84] Interview: research department, exchange (London, 9 October 2017).

technology of financial globalisation'. Capital markets do not emerge out of a vacuum, but actors propel their development whereby global exchanges are crucial.

Through creating and organizing financial infrastructures, global exchanges have become agents of financial globalisation that facilitate the development of capital markets. By connecting evermore investors, providing them with more investment opportunities, and internationalizing financial products and markets, global exchanges facilitate the globalisation of disintermediated financial practices in a way that increases the structural power of finance over states and societies. During this process, global exchanges 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*.[85] By continuously organising capital markets, global exchanges reproduce the contemporary US-dominated neoliberal global financial order.[86] The integration of Chinese capital markets into the global financial order must hence be analysed within this context.

## 2.6 Conclusion: exchanges as market organisers

Exchanges are one of the institutional foundations of contemporary capitalism. However, they have so far not been understood as important actors in IPE literature. More than mere marketplaces, stock and derivative exchanges are powerful actors and as the organisers of capital markets they are crucial to understand capital markets and their transformation. Hence, by analysing exchanges as market organisers instead of marketplaces, this thesis does not only aim to contribute to the literature on China's financial markets, but also to the broader literature on the politics of global finance. Today exchanges are global corporations with a huge variety of business activities both acting within and organizing, governing, shaping capital markets. Their business is to provide large parts of global financial infrastructures – from market data, indices and reference prices, to creating and facilitating the trading of various financial products such as stocks or derivatives, to post-trading activities such as central clearing. By providing these infrastructural arrangements for capital markets, exchanges enable

[85] On rule-makers and rule-takers in global orders, see also Levi-Faur and Jordana (2005: 7-8).
[86] It is not surprising that these rule-makers are based in the Global North; as de Goede (2019: 4) notes, contemporary financial infrastructures are significantly influenced by colonial legacies which includes the aforementioned development of colonial stock exchanges.

the functioning of these markets, but this also puts them in a position from which they can exercise structural power affecting companies, investors and states entangled in these infrastructures, by 'changing the range of choices open to [those actors] without apparently putting pressure directly on them' (Strange, 1988: 31). Further, this power has been concentrated in the hands of a few global exchanges who today dominate the majority of global capital market infrastructures, shaping markets in their image and thereby reproducing the contemporary US-dominated global financial order.

So far, this chapter provided an overview of exchanges, their transformation and how they have become powerful actors in global finance. By focusing on the micro-level of financial infrastructures, it illustrated why the actions of exchanges matter for the politics of global finance and the continuous reproduction of the global financial order. However, as the typology of exchanges in Section 2.3 highlighted exchanges, their transformations and roles within capital markets are not uniform. The following chapter therefore utilises *institutional logics* as a second conceptual tool to understand the differences between global and Chinese exchanges and the diverging roles they occupy within capital markets, how this translates into a differential organisation of capital markets and creates different market outcomes. Exchanges (and the capital markets they organise) are always situated within specific institutional contexts. As the following chapter demonstrates, rather than rule-takers, Chinese exchanges construct their own financial infrastructures that function according to a different institutional logic with important implications for their integration into the global financial order dominated by global exchanges.

## 3 Capital markets, exchanges and the institutional logic of Chinese state capitalism

As outlined in the introduction, China's capital markets have developed and internationalised rapidly since the global financial crisis. Thereby, they are integrating into the contemporary global financial order where global exchanges act as rule-makers for capital markets. However, as this thesis demonstrates, China's capital markets function fundamentally different from those markets organised by global exchanges. Whereas the previous chapter explored the important role of exchanges in organising capital markets through the provision of financial infrastructures, this chapter utilises the concept of institutional logics to analyse their *differential organisation of capital markets* (Zysman, 1994, Deeg and Jackson, 2006).

When studying capital markets, IPE debates often refer to global or international markets (Chaudoin and Milner, 2017, Cohen, 2017, Bortz and Kaltenbrunner, 2018) or they investigate changes in and differences between national capital markets (Zhang, 2009, Hardie, 2012, Rethel and Sinclair, 2014). Often, these differences are tied to discussions about different types of investors (Froud *et al.*, 2007, Goyer, 2007, Deeg *et al.*, 2016), the transformation of key market actors such as banks (Ertürk and Solari, 2007, Hardie and Howarth, 2013) and their role in economic governance (Braun *et al.*, 2018, Sgambati, 2019). Similarly, interactions between domestic and global markets have largely been analysed by looking at the impact of global investors (Harmes, 1998, Maxfield, 1998, Roos, 2019, Rommerskirchen, 2020) and how these are restricted by regulations such as capital controls (Haggard and Maxfield, 1996, Dierckx, 2013, Grabel and Gallagher, 2015, Alami, 2019). However, the differential organisation of capital markets has not yet been analysed in great detail in IPE. This chapter argues that this divergence is rooted in the different institutional embeddedness of capital markets and their organisers (i.e. exchanges). By situating exchanges and their market organisation activities through financial infrastructures (micro-level) into specific institutional contexts (meso-level), the concept of *institutional logics* allows us to better understand differences between global and Chinese exchanges, the diverging roles they occupy within capital markets, differences in how they structure the infrastructural arrangements of markets and the resulting divergent market outcomes as well as the resulting implications for China's integration into the global financial order (macro-level).

How exchanges are governed, by whom they are owned and which constraints and incentives they face matters a lot for the kind of markets that they are creating. Global exchanges are *neoliberal corporations* owned by shareholders and their mandate is generating private profit. Consequently, they facilitate the development of *neoliberal capital markets*. However, capital markets do not automatically have to privilege the creation of profit for private actors over other (socio-)economic outcomes, and the dynamics and social outcomes of capital markets can differ significantly. In contrast to 'global' exchanges, China's exchanges are *state-owned entities*. This different institutional setting influences how exchanges organise markets. The chapter hence places Chinese (stock and derivatives) exchanges within China's state-capitalist institutional context and conceptualises their crucial role in shaping the infrastructural arrangements of Chinese capital markets according to the institutional logic of state capitalism.

Importantly, these variegated capital markets play different roles in their respective economic systems and lead to different socio-economic outcomes with important political implications. In China's *state-capitalist capital markets*, Chinese exchanges exert *control* by monitoring, regulating and intervening into capital markets, and direct capital market outcomes towards the accomplishment of certain economic and political objectives linked to *national development*. These two sub-logics of China's state capitalism define the features of Chinese capital markets, both within China and internationally. Instead of a market development process informed by a neoliberal institutional logic, constraining state power and reproducing the US-dominated global financial order, what we see in China is a financialisation process where the state actively tries to manage capital markets and their social outcomes. Analysing institutional logics enables a reconceptualisation of global and Chinese capital markets as 'neoliberal' and 'state-capitalist'. Rather than focusing on investors or capital controls, this perspective enables a better understanding of the politics inherent to China's integration into the global financial order (macro-level). This analytical framework created a more nuanced picture of both the development and internationalisation of China's state-capitalist capital markets as well as the context (neoliberal global financial order) in which this development is taking place.

The chapter proceeds as follows. Section 1 introduces the concept of institutional logics for the study of capital markets and the neoliberal global financial order. Section 2 then discusses the historical development of China's capital markets

and its diverging path from neoliberalism, which section 3 discusses using the concept of state capitalism and its importance to understand China's political-economic system. In Section 4, Chinese exchanges and their market organisation practices within this institutional context are analysed. Section 5 concludes and introduces the empirical analysis in the following chapters.

## 3.1 Institutional logics and the (neoliberal) global financial order

### 3.1.1 Institutional logics and the differential organisation of capital markets

Drawing on the concept of institutional logics, this chapter proposes to investigate the differential organisation of markets through exchanges. This differential organisation was already hinted at by John Maynard Keynes (1936: 142) who proposed that markets operated on a continuum between facilitating economic activity and speculation:

> If I may be allowed to appropriate the term speculation for the activity of forecasting the psychology of the market, and the term enterprise for the activity of forecasting the prospective yield of assets over their whole life, it is by no means always the case that speculation predominates over enterprise. As the organisation of investment markets improves, the risk of the predominance of speculation does, however, increase. […] When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done.

This, Keynes (1936: 143) argued, was especially the case in the US which he set in contrast to the UK where capital markets had a different institutional setup which discouraged speculation.[87] Similarly, for Polanyi (2001 [1944]), rather than a decoupled entity, the market was an 'instituted process' anchored in other social institutions and practices. What connected their thinking was that *how* markets are organised has important consequences for their societal outcomes.

Following the likes of Keynes (1936) and Polanyi (2001 [1944]), economic sociology literature has shown that – in contrast to the premise that markets are uniform – these are instead 'embedded in distinct sets of social and political institutions' (Ebner and Beck, 2008: 4). Markets are social phenomena that are embedded in and influenced by man-made institutional arrangements (Granovetter,

[87] Keynes (1936: 143) identifies these as 'the jobbers' "turn", the high brokerage charges and the heavy transfer tax payable to the Exchequer, which attend dealings on the London Stock Exchange' which discourage speculation by making it costlier and by reducing liquidity.

1985, Fligstein, 2001), where states (Fligstein, 1996) and/or private actors (Abolafia, 1996) facilitate the organisation of markets. This was also noted by Vogel (2018) who argues that rather than retreating, government action has been crucial in the development or 'crafting' of markets. In contrast to the neoclassical understanding that markets are generated spontaneously (Hayek, 1988, Lindblom, 2001), 'markets do not emerge out of a vacuum' (Ahrne *et al.*, 2015: 9); they are rather organised by particular institutions, and how and by whom markets are organised matters. As the previous chapter outlined, for capital markets this function is mainly fulfilled by exchanges as they create the infrastructural arrangements that enable the functioning of capital markets. By deciding the 'rules of the game' and acting as gatekeepers in capital markets, deciding who gets in, what is traded and how trading is conducted, exchanges are crucial to shaping capital markets.

But both capital markets, and exchanges specifically, are embedded and shaped by their institutional environment. The exchange typology developed in Chapter 2 (see table 2.1) corresponds with different institutional settings in which exchanges operate, consequently leading to the creation of differentiated markets.[88] As Deeg and Jackson (2006: 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: 245-246). Hence, by making some forms of action more likely or reasonable (Biggart, 1991), given the existing institutional structure a particular institutional logic emerges that is distinct from other institutional contexts (Thornton and Ocasio, 2008).[89] While all financial markets are prone to instability and subsequent crises (Minsky, 2008 [1986], Kindleberger and Aliber, 2011 [1978]), the institutional setting in which capital markets are situated greatly influences their functioning (Knafo, 2009, Hardie, 2012, Knafo, 2013, Gotoh and Sinclair, 2017). So, while functionally all capital markets share some basic characteristics (e.g. that they are characterised by market-based mechanisms of coordination between buyers,

[88] While this thesis briefly outlines the institutional setting for exchanges as neoliberal corporations, the main focus is on the specific case of China (see Section 3); whereas Table 2.1 notes that exchanges as bureaucratic/state entities also existed elsewhere (OECD, 2018: 12-13), this goes beyond the scope of this thesis and is addressing in the conclusion under future research areas.

[89] The concept of institutional logics thereby shares similarities with the phenomenon of organisational isomorphism, i.e. the tendency of organisations within an institutional environment to resemble each other because of similar constraints and resources (DiMaggio and Powell, 1983); however, as Biggart (1991: 222) further argues this isomorphism results from the application of common institutional logics which 'are the ideational bases for institutionalised authority relations'.

sellers and investors),[90] applying the concept of *institutional logics* (Deeg & Jackson, 2006; Zysman, 1994) to capital markets reveals how the institutional embeddedness of markets and market organisers shapes these markets, leading to different market dynamics and outcomes. Hence, instead of looking at capital markets as homogenous entities, this chapter proposes to look at capital markets as variegated (Petry, 2020c).

Importantly, these variegated capital markets play different roles in their respective economic systems and lead to different socio-economic outcomes with important political implications. Exchanges hereby act as transmission mechanisms facilitating these different forms of how markets work, explaining differential market outcomes (Beckert, 2009, p. 264). Consequently, how exchanges (i.e. market organisers) are governed, by whom they are owned and which constraints and incentives they face matters a lot for the kind of markets that they are creating. The next sub-section therefore situates the previously analysed transformation of global exchanges within the institutional logic of neoliberalism and discusses its implications for studying the global financial order.

### 3.1.2 Global exchanges, neoliberal logic and the global financial order

The formation of global financial orders has been an important research topic within IPE (Langley, 2003, Germain, 2009, Drezner and McNamara, 2013, Huotari and Hanemann, 2014), which Drezner and McNamara (2013: 156) define as 'the rules, norms, and procedures that govern cross-border money and finance'. Importantly, their construction does not only include regulatory arrangements such as the Basel Accord, but also more broadly the financial practices and structures promoted by various actors such as credit rating agencies (Sinclair, 2005), international financial institutions (Wade and Veneroso, 1998, Babb and Kentikelenis, 2018) or institutional investors (Lazonick and O'Sullivan, 2000, Fichtner, 2013). As the previous chapter argued, (global) exchanges as organisers of capital markets are another important group of actors in this process. The previously discussed transformation of global exchanges is intricately linked with these global reconfigurations of finance and the subsequent

[90] Importantly, this mechanism must not necessarily be utilised, as the examples of captive buy and hold investors in bond markets (Fry, 1997) or block holdings by strategic investors in equity markets demonstrate (Morin, 2000). While these capital markets are illiquid, small institutional reforms can easily break up these rigid structures easily and increase liquidity significantly as the case of German equity markets showed (Höpner and Krempel, 2004).

transformation of the global financial order from Keynesian 'embedded liberalism' towards neoliberalism.

For a long time, capital markets existed in coordinated market economies such as Germany or Japan where they served as platforms for dense (and rather rigid) networks of cross-shareholdings that enabled long-term investment and corporate strategies (Zysman, 1983, Dore, 2000, Hall and Soskice, 2001, Vitols, 2001). The institutional setup of pre-Big Bang capital markets in the UK points towards similar differences (Augar, 2001), which was more in line with the post-war economic paradigm of 'embedded liberalism' (Ruggie, 1982). In this age of this 'gentlemanly capitalism' (Augar, 2001), the *exchange as a stock-broker club* existed in an institutional context and a historical period in which finance was heavily regulated, subordinated to the real economy and constrained by the actions of states (Russell, 2008).[91] As Helleiner (1996: 4; emphasis in original) noted, with the Bretton Woods system states 'constructed a decidedly *non*liberal financial order'. This, however, changed since the 1980s as economic coordination became more market-based, in a universal development across political economies (Rajan and Zingales, 2003, Carroll and Jarvis, 2014b).

With the ascent of neoliberalism, over the last 30 years finance has re-emerged as an important force in the global economy (Helleiner, 1996). Importantly, capital markets have transformed globally according to a neoliberal script provided mainly by US-based financial interests (Panitch and Konings, 2009, Carroll *et al.*, 2019, Gabor, 2020). Germany's system of cross-shareholdings ('Deutschland AG'), the prime example of capital markets that functioned according to a non-liberal logic (Jackson, 2001, Vitols, 2001) was dissolved and replaced by 'Anglo-Saxon' style capital markets (Höpner and Krempel, 2004). In this process, Deutsche Börse itself became a neoliberal corporation and subjected to neoliberal logic, as for instance the push for short-term profit orientation instead of strategic investments through its activist hedge fund shareholders demonstrated (Watson, 2005).[92] Capital markets globally, but especially in Europe and the US, became increasingly neoliberal.

[91] The exchange as *dealer-broker club* predates the embedded liberalism period; analysing its changing relationship and position within previous global financial orders is beyond the scope of this thesis.

[92] In Japan, in contrast, capital markets seemed to resist pressures to conform with neoliberal norms (Kamikawa, 2013, Gotoh and Sinclair, 2017).

This contemporary neoliberal global financial order is facilitated by the US-led (post-)Washington Consensus (Sheppard and Leitner, 2010: 188, McNally, 2013) and underpinned by a synchronic conception of financial markets which in the imagination of political and economic elites function as well-oiled machines that are only upset by external shocks (Sinclair, 2011: 125). As Langley (2003: 3) notes, global financial orders are historically constructed, resting on 'hierarchical social and power relations' and a core characteristic of the contemporary order is the constant reification of markets as central institutions in the organisation and governance of the global economy. While there has been some rethinking among policy and elite circles, e.g. with the advent of macro-prudential regulation (Baker, 2013), the global financial crisis has largely been a 'status quo' crisis (Helleiner, 2014) and has not fundamentally changed or challenged the contemporary neoliberal order (Crouch, 2011, Moschella and Tsingou, 2013).

In the neoliberal global financial order, the ostensive purpose of capital markets remains the creation of 'efficient' outcomes by enabling the generation of (private) profit. This is achieved by the principles of 'free markets' and 'free flows of capital' which are (or should be) responsible for the allocation of economic resources without state intervention (Crouch, 2011: 17, McNally, 2013: 36).[93] Even if states attempt to use financial markets for governance purposes, within this setup private financial actors maintain power over states through infrastructural entanglements (Braun, 2018, Braun and Gabor, 2020). Moreover, by underpinning the global financial order capital markets facilitate and perpetuate existing power relations and hierarchies within global capitalism (Bortz and Kaltenbrunner, 2018) – and most importantly, reproduce US financial hegemony (Strange, 1987, Norrlof, 2010, Panitch and Gindin, 2012, Fichtner, 2017).

In Western economies – which often form our frame of reference when it comes to capital markets – exchanges have become *neoliberal corporations*. As outlined in Chapter 2, these Western/global exchanges dominate global capital markets and are publicly traded, profit-driven companies, themselves subject to the laws of the market, have to make profitable business decisions to increase shareholder value and serve the global investment community in an increasingly competitive environment, while simultaneously wielding substantial power over global markets. However, this

[93] Payne and Gamble (1996: 15) for instance view the structural power of internationally mobile capital as the formative aspect of the new global economic order.

is an important contradiction at the heart of exchanges because their roles as market actors and market organisers have conflicting incentives.[94] Not only have exchanges' business models become more short term-oriented, this also has effects on the markets they organise. As exchanges' revenues depend on investors trading in their markets, they have an incentive to develop these markets in ways that increase trading activity (and thereby speculation and volatility).[95] This is because these global exchanges are situated within an institutional setting informed by a neoliberal logic, and actively facilitate and disseminate ideas of how capital markets are supposed to work through shaping the infrastructural arrangements of markets. As de Goede (2019) fittingly argues, 'financial infrastructures are frozen power relations.' These mainly US-based global exchanges have been shaping the structures and dynamics of capital markets around the globe and by exercising structural power over other actors, they assure compliance with the rulebook inscribed into the infrastructural arrangements of the capital markets they organise. Thereby, they reinforce and reproduce the contemporary global financial order.

Rather than 'natural' markets, the capital markets they create are based on neoliberal ideas (Eagleton-Pierce, 2019). Neoliberal is here defined as a political concept, an ideology of governing economic life; as Mudge (2008: 706-707) notes, 'neo-liberalism is built on a single, fundamental principle: the superiority of individualised, market-based competition over other modes of [economic] organisation'. While states are tasked with the role of creating markets in neoliberalism,[96] they should not intervene into these markets once established (Chang, 2002b, Peck and Tickell, 2002).[97] Their task is rather to enable policies such as deregulation, privatisation, trade and financial liberalisation, lower taxes, and shrink the size of the government (Beeson and Islam, 2005). The underlying neoliberal

[94] As the NYSE (cited in Macey and O'Hara, 2005: 572) stated in a 2003 white chapter while still mutually-owned, 'the [cooperative ownership] structure [of the NYSE] seeks to maximise the efficiency, reliability and integrity of the market, rather than to maximise profit as in the public company model'.

[95] This is for instance exemplified by global exchanges facilitating HFT (MacKenzie, 2018a, 2018b) or speculative financial products (Millo, 2007); Chapter 4 discusses these differences between the infrastructural arrangements of Chinese and global capital markets in greater detail.

[96] Vogel (2018: 43) for instance argues that the US as 'the world's "freest" market economy is the most governed'.

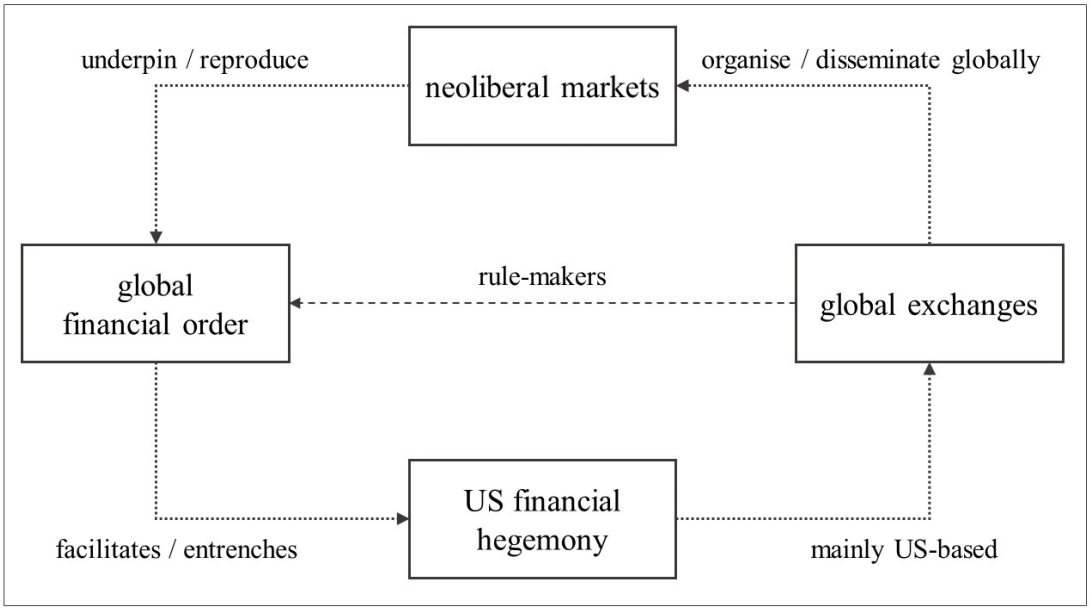
[97] Peck and Tickell (2002: 384) hereby differentiate between 'the active 'destruction and discreditation of Keynesian-welfarist and social-collectivist institutions' as roll-back neoliberalism and roll-out neoliberalism as the 'purposeful construction and consolidation of neoliberalised state forms, modes of governance, and regulatory relations'.

institutional logic that informs the functioning of these capital markets depoliticises those markets, proposes a ('supposed') separation between state and capital markets, and puts a significant degree of trust and power in the collective agency of private financial actors to achieve 'efficient' outcomes by maximising (private) profit (Major, 2012). While the state is not absent, its priority is enabling private profit creation instead of other socio-economic outcomes, cementing the power of private finance capital (Harvey, 2005, Slobodian, 2018). Of course states do sometimes intervene in neoliberal markets, but this is rather the exception than the rule.

The markets organised by these (mainly US-based) global exchanges that dominate and perpetuate the global financial order should therefore be conceptualised as *neoliberal capital markets*. Similar to other US-based financial institutions, global exchanges thereby play an important role within the neoliberal, global financial order in facilitating and entrenching US power (Helleiner, 1996: 13, also Sinclair, 2005: 4, Panitch and Gindin, 2012). As Konings (2007: 49-50) noted with respect to Eurodollar markets 'the creation of a highly integrated and liquid financial structure [through US financial institutions] enhanced America's structural power in international finance.' Similarly, by organising neoliberal capital markets and disseminating them globally, global exchanges act as rule-makers that reproduce the neoliberal global financial order which again served to entrench US financial hegemony (figure 3.1).[98] This reconceptualisation of global capital markets enables a more nuanced analysis of China's integration into global finance by highlighting the specificities of the context within which this integration takes place.

[98] As Schwartz (2019: 496) notes, rather than coercion routine compliance with these rules facilitates US infrastructural power by enabling resource extraction; some aspects are for instance that they ensure the dominance of US financial players (Wall Street banks, asset managers, hedge funds) through the market infrastructures they create, the market practices they facilitate benefit arms-length contractual economic coordination in liberal market economies such as the US, they enable pricing power over the world's key benchmarks (e.g. WTI and Brent for oil) and that these contracts that are also USD-denominated.

***Figure 3.1:*** *Global exchanges in the neoliberal, US-dominated global financial order.*




*Source: author's figure.*

However, capital markets do not automatically have to privilege the creation of profit for private actors over other (socio-)economic outcomes. The dynamics and social outcomes of capital markets can differ significantly, and this divergence is rooted in the different infrastructural arrangements of capital markets which emerges out of the institutional settings these markets and their organisers (i.e. exchanges) are situated within. Instead of a market development process informed by a neoliberal institutional logic, which constrains state power and reproduces the neoliberal, US-dominated global financial order, what we see in China is a financialisation process where the state actively tries to manage capital markets and their social outcomes. As the following sections illustrate, this is because the development of capital markets in China is situated within a very different institutional setting – that of state capitalism.

## 3.2 The historical development of capital markets in China

While the development of China's capital markets only really took off after the global financial crisis, which is the main focus of this thesis, the seeds for their development had been sown early on. This short historical section therefore highlights some of the key junctures in the development of Chinese capital markets which differ significantly from the development of Western exchanges outlined in Chapter 2 and which have

been crucial in defining their current institutional structure, embeddedness and logic. The first section describes the early development of Chinese capital markets up until the Communist revolution in 1949. The second section analyses the reopening and early development of China's capital markets after the reform period from 1990 to 2000. The third section outlines developments since 2009 and sets the stage for the empirical analysis in the following chapters.

### 3.2.1 Until 1949: capital markets in China before and after the opium war

Chinese capital markets have a long history. Like in many ancient cultures, pre-modern forms of derivative markets also existed in China. As early as 2000 BCE, Chinese rice producers and merchants arranged contracts to establish the future price of rice deliveries (Wasendorf, 1985; cited in Hou, 1997). During the Song dynasty (960-1279 CE), the government then created a system that vaguely resembled a 'forward' market which 'allowed the state to collect and resell goods (grain or tribute) and use the funds at its disposal to procure goods at the most convenient time and place' with the aim to 'secure adequate grain for its citizens and stabilise the agricultural market against excessive market speculation' (Hou, 1997: 176). Here, the imperial government already used markets to steer economic activity, a harbinger of contemporary Chinese capital markets.

Similarly, pre-modern equity markets date back a long time. Their first manifestations reach back as early as the 3rd century CE (Carlen, 2016), and during the Tang dynasty (618-907 CE) the 'association of partners' (*chiu-ho huo-pan*) – where two investors jointly engaged in a business venture – had long become a mainstay of Chinese commerce. With the intensification of domestic and international trade, Chinese merchants soon became more specialised and organised. During the Song dynasty these partnership arrangements were subsequently widened to a larger number of investors (Ebrey and Walthal, 2012: 131). So-called 'agent merchants' (*ching-shang*) attracted passive investment (*dou-niu*) to finance large-scale trading operations and enterprises (*ho-pen*) in setups characterised by a separation of owners (shareholders) and managers. These enterprises were the predecessors of modern 'joint-stock companies' that emerged in Europe during the 16th century (Carlen, 2016: 97, 111-112).

However, the scale of these activities was limited to a small group of merchants, funding often came from extended family/kin groups that acted as 'internal capital markets', and consequently there were few formalised structures through which these activities took place (Rosenthal and Wong, 2011: 165). It was only in the aftermath of the mid-19th century opium wars, when the previously closed-off Chinese economy had been forced into the global economic and financial system, that 'modern' stock exchanges emerged in China. After the 'Treaty of Nanking' in 1982 allowed Westerners to establish international settlements in several Chinese ports, Shanghai soon became the largest commercial and financial centre of East Asia. Since the late 1860s, shares of locally active international companies were first privately traded and listed in local business newspapers, followed by the establishment of the 'Shanghai Sharebrokers Association' by French, British and American businessmen. By 1904, this foreign-owned association became the Shanghai Stock Exchange, the first 'modern' stock trading organisation in China (Ji and Thomas, 2003).[99]

Simultaneously, a second, parallel Chinese market for company shares gradually emerged as domestic companies started issuing shares in 1872 (Goetzmann *et al.*, 2007). Similar to early European trading in 'coffee houses', initially, trading of Chinese company shares took place informally as 'teahouse trading', until the end of the Qing dynasty ushered in a more rapid development of Chinese capital markets. In 1914, the 'Shanghai Chinese Brokers' Association' was officially established and the newly founded government of the Republic of China enacted China's first *Securities Exchange Law*. All this was followed by the establishment of the Shanghai Security and Commodity Exchange in 1920 and the Shanghai Chinese Security Exchange in 1921 which merged in 1933 to form the then largest stock and futures market in Asia.[100]

Shanghai had become the centre of China's financial system and was deeply integrated into global financial infrastructures. Radio and cable connected the stock markets in Shanghai and New York, enabling cross-continental trading with orders

[99] Similar developments were unfolding in Hong Kong, where British businessmen established the Hong Kong Stockbrokers' Association in 1891 which was reorganised and renamed into Hong Kong Stock Exchange in 1914 (see: https://www.hkexgroup.com/About-HKEX/Company-Information/About-HKEX/History-of-HKEX-and-its-Market?sc_lang=en; last accessed 12 March 2020).

[100] Simultaneously, smaller exchanges for the trading of Chinese shares were also established in Beijing, Ningbo, Wuhan, Chongqing and Qingdao (Chen, 2006).

arriving within 16 minutes – basically a pre-modern HFT network.[101] Shanghai's role as an international financial centre, however, did not necessarily benefit China. Similar to other exchanges that were established in the global periphery at the time, this was essentially a colonial venture (Moss, 2003: 10, Lavelle, 2004: 27). The Shanghai of the 1920s and 1930s was often dubbed the 'Paris of the Orient', however, it had also become a cesspool of pleasure, decadence and money for Western powers. As the *Financial Times* (Wagstyl, 2020) puts it:

> Before the second world war, Shanghai was a byword for money, adventure and glamour. It was nominally under Chinese sovereignty, but 40,000 foreigners lived in an international settlement where local laws did not apply. They prospered first from the deadly opium trade and later from dominating China's commerce, finance and tourism. Shanghai's undisputed masters were [foreign] businessmen.

The Chinese governments had little control over the financial markets that developed within its borders which were often used by Western companies to raise funds and (foreign) speculators fuelled subsequent financial bubbles.[102] As Kauffman (2020: 78) notes, Shanghai was essentially a 'republic of [foreign] merchants'. It left a deep scar in the Chinese national psyche, became a symbol for China's 'century of humiliation' and laid the seeds for a mistrust towards the unchecked activities of foreign enterprises and financiers within China that still resonates today.[103] This changed with the Communist revolution in 1949 and the transformation towards a planned, socialist economy. As one Hong Kong-based investment advisor noted, 'they destroyed [financial] infrastructures systematically' (also Gamble, 1997: 182-183).[104] Capital markets – the epitomisation of liberal capitalism – were closed and would not reopen until the end of the century.[105]

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[101] See: https://www.goldmansachs.com/our-firm/history/moments/1990-shanghai-stock-exchange-reopens.html (last accessed 12 March 2020).
[102] On the dominance of foreign banks at the time, see also Helleiner and Wang (2019: 216-218).
[103] Interview: commodities product development, global exchange (Singapore, 1 December 2017).
[104] Interview: executive director, investment advisor (Hong Kong, 6 July 2017).
[105] As Tobin (2011) noted, while domestically capital markets were abolished, Chinese banks' continuing relationship with Hong Kong preserved some of the linkages to and knowledge about developments in international financial markets; still, capital markets were non-existent domestically until the reform period.

### 3.2.2 1980-2000: the re-emergence of Chinese capital markets

After 1978, China began to reform its economy under Deng Xiaoping, transitioning from a socialist planned economy towards an economic system where markets played a more important role and that was markedly more capitalist (see Section 3.3). As part of this development, capital markets were gradually introduced into the new 'socialist market economy'. The aim of the newly established stock markets was primarily to aid in the reform of China's state-owned enterprises (SOEs) that increasingly struggled in the new economic environment,[106] while commodity markets were introduced to decrease price fluctuations for agricultural and industrial products as the fixed price system was gradually relaxed. After the development of a booming OTC market in the trading of company shares during the 1980s, the government decided to create 'official' stock exchanges, which resulted in the establishment of the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) in 1990 (Lyu, 2015). The idea was that these regulated markets could be monitored more easily and intervened in by the government. During his Southern Tour in 1992, Deng Xiaoping explained his reasoning for developing capital markets as follows:

> Are securities and the stock market good or bad? Do they entail any dangers? Are they peculiar to capitalism? Can socialism make use of them? We allow people to reserve their judgement, but we must try these things out. If, after one or two years of experimentation, they prove feasible, we can expand them. Otherwise, we can put a stop to them and be done with it. We can stop them all at once or gradually, totally or partially (Deng, 1992/1994).
>
> […] Some people insist stock is the product of capitalism. We conducted some experiments on stocks in Shanghai and Shenzhen, and the result has proven a success. Therefore, certain aspects of capitalism can be adopted by socialism (as quoted by Mok, 1995).

Similarly, discussions were under way about creating commodity futures markets after physical commodity markets had been introduced in the 1980s. On 10 February 1988, Premier Li Peng wrote in a personal letter to Ma Hong, Director of the State Council's Development and Research Centre: 'Please consider whether you can organise several comrades to study the foreign futures system and if such system could be applied […] for food purchases and sales […] to protect the interests of both producers and

[106] As one interviewee noted, the initial purpose of capital market development in China was to 'solve the problem of SOE funding' (interview: managing partner, law firm; Beijing, 18 October 2018).

consumers and maintain the stability of the market price'.[107] As Chen Jinhua, Chairman of the State Commission on Economic Structure Reform, stated in 1990 their proclaimed aim was: 'to improve the wholesale market, to explore futures trading, and to serve the construction of socialism with Chinese characteristics'.[108] As a result, China's first commodity futures exchange was established in Zhengzhou in 1990 followed by dozens of other futures exchanges as well as the creation of the first official *Futures Rules with Chinese Characteristics* (具有中国特色的真正意义上的期货规则) in 1992.

This paved the way for China's re-engagement with the world of finance, and the 1990s marked a period of experimentation and learning for the Chinese authorities. While, globally, most exchanges significantly changed through digitisation, internationalisation and marketisation, these processes unfolded differently in China. From the start, all Chinese exchanges were launched as electronic markets and they were shielded from international competition.[109] Their governance also somewhat differed from global exchanges. While Chinese exchanges were not privately listed, at the time the individual exchanges were also not tightly embedded in state-capitalist structures (as they would be later on), but were marketised to some degree as they needed to create revenues for their municipal owners. The municipal governments in Shanghai and Shenzhen had considerable influence over the new stock exchanges, their regulation, the approval of listings and appointment of personal (Yatsko, 2003, Heilmann, 2005a). Similarly, local authorities established evermore futures exchanges, of which more than 60 existed by 1994 that traded hundreds of contracts and competed with each other. The central government had little control over exchanges, whereas they represented a large revenue source for municipal governments which controlled them and subsequently encouraged large trading volumes and regulated them very lightly.[110] As Hou (1997: 176) noted there was an 'ambiguous regulatory climate' and a 'lack of central coordination and regulation', so much that 'data for even the exact number of futures exchanges [that existed] in China

[107] Observation: Letters displayed in Zhengzhou Commodity Exchange Exhibition Hall (October 2019).
[108] Observation: Calligraphy painting by Chen Jinhua displayed in Zhengzhou Commodity Exchange Exhibition Hall (October 2019).
[109] Until the mid-2000s, their internationalisation was very limited, they themselves were not internationally active and a few international investors could participate in their markets (Chapter 6); early forms of integration with the global finance such as the 'B-share' market are discussed in Chapter 5.
[110] See Montinola *et al.* (1995) on the decentralised nature of the early market reforms in China.

[at the time] is unavailable'. There was no national securities law, only rules with vague reference to 'Chinese characteristics' and a patchwork of regulations from the PBoC, CSRC and municipal governments with lots of room for regulatory arbitrage. As a Hong-Kong based exchange executive described China's rapidly growing and inconsistently regulated capital market: 'at that point, it was sort of the Wild East'.[111]

The government facilitated financial market development as its initial intention was to use exchange-traded markets to facilitate state policies: commodity markets were supposed to guide the allocation of agricultural and industrial goods; stock markets were supposed to help reform SOEs, fund industrial development and infrastructure projects; and financial futures markets should aid the development of China's nascent government bond market. However, exchanges were not yet integrated into state-capitalist institutional structures, and these markets soon became a speculative casino. As all forms of gambling were (and still are) forbidden in China, bank deposits provided only negative yields and there were very few channels to invest newly found wealth, a small but rapidly growing number of Chinese citizens started to trade on exchanges which were opened to retail investors in 1994 (Hertz, 1998, Dal Maso, 2015). In addition, China's emerging financial industry jumped into the game as banks, brokers and other (financial and non-financial) companies started to trade themselves in these newly established markets, where trading soon became feverish and highly leveraged.

This combination of frenzied trading activity, patchy regulation and oversight of exchanges and their facilitation by the government in loose attempts to use markets for government policy soon resulted in failures and scandals (Walter and Howie, 2001). Thereby, the early development of Chinese capital markets was quite similar to that of Chinese capitalism more generally in which control over market reforms was decentralised during the beginning of reform-processes (Montinola *et al.*, 1995, ten Brink, 2019). In this initial period when capital markets were created, they seemed to develop along the lines of neoliberal markets rather than according to a distinctly Chinese or state-capitalist institutional logic. However, early failures led the authorities to tie capital markets and exchanges more closely to the emerging institutional structures of state capitalism.

[111] Interview: strategy department, exchange (Hong Kong, 30 June 2017); this term was, for instance, also used by the *Wall Street Journal*, see Opdyke and Santini (2005).

The early 1990s were marked by recurring manias, panics and crashes, to use Kindleberger's words, across asset classes, from the stock market to green beans.[112] The turning point in this period of stock market fever (股票热) marked the mid-1990s bond futures scandal. To support the development of the government bond market, in 1992 the central authorities allowed SSE to list bond futures, the first ever financial derivative contract launched in China since the CCP came to power in 1949 (Reuters, 2013). The government hoped that the futures would spur public interest in buying more government bonds (Yatsko, 2003: 65) as well as reduce the interest rate risk that the country faced (Chen and Zhou, 2009). However, the scant regulation of the market led to an explosion of trading activity as investors could borrow margins from banks and brokers also extensively engaged in proprietary trading. Trading in bond futures soon accounted for 3/4 of the exchange's total trading volume. By January 1995, the daily average trading volume of bond futures regularly surpassed RMB100 billion (US$12 billion) while the underlying bonds only traded at around RMB100 million (US$12 million), a small fraction thereof.

The crash came on 23 February 1995. On that day, trading soared to RMB854 billion (US$102 billion) – 80% of which was based on one 3-year government bond futures contract (no. 327). A group of brokers led by Shanghai Wanguo Securities,[113] China's biggest brokerage at the time and created by Guan Jinsheng, 'the godfather of China's securities industry', wanted to short the market. As a response, the Ministry of Finance asked its investment company, China Economic Development Trust and Investment Corp., to take a long position in order to prevent a disruption of the underlying government bond market (Yatsko, 2003: 65-69). At this stage, while the Chinese authorities themselves participated in the market, they played according to its rules. In the final minutes of the trading day, Wanguo doubled down on its bet, shorting bond futures worth RMB1.46 trillion – the equivalent of 1/3 of China's GDP in 1994. Wanguo succeeded and made a profit of RMB1 billion (Siu, 2013: 461). Essentially, Guan Jinsheng did in the Chinese bond futures market what George Soros had done three years earlier with the British Pound.

'Incident 327', however, marked a turning point in the Chinese regulators' understanding of and relationship with capital markets. They abandoned the

[112] Interview: international department, Chinese exchange (China, 14 October 2019).
[113] Some reports use Wanguo's English name Shanghai International Securities Company (SISCO).

(neo)liberal rulebook of how markets were supposed to work. The local regulators announced the cancellation of the final eight minutes of trading as Wanguo, they argued, had manipulated the market during this period. After that, the central authorities swooped in: the CSRC closed down the bond futures market indefinitely, forced the head of the SSE to resign, and sentenced several brokers to prison, including Wanguo's CEO Guan Jinsheng. As Yatsko (2003: 67) noted, 'China's high-flying experiment with bond futures had crashed to earth'.

The bond futures scandal severely influenced the direction of the development of Chinese capital markets. First, it marked a shift to centralise regulatory and decision-making power over China's exchanges in Beijing under the auspices of the CSRC (Greene, 2004: 24). Over the course of the following years, exchanges became much more integrated into the regulatory and state apparatus (also, Heilmann, 2002). This coincided with a general trend in the development of China's political economy, where political authority over market reforms was recentralised in the hands of the central government after the earlier reform phase had resulted in a decentralisation thereof (ten Brink, 2019: 100). Second, and more fundamentally, the scandal triggered a process of rethinking the role and functioning of capital markets within the context of China's emerging state capitalism. As a veteran of China's capital markets noted in an interview:

> The conception of speculation changed over time. 30 years ago, there was no volume… they tried to attract more volume and were very excited when it took off. But then the conception changed, and they wanted to reduce risk. […] This was in 1995 when there was a lot of risk and exchanges had to close. They learned that it is not all about volume but about quality as well.[114]

While in the early 1990s, capital markets were gradually developed resembling a neoliberal blueprint, the failure of bond futures was a watershed moment that revealed the potential downsides of free, unregulated financial markets. The regulators concluded that the markets had developed too quickly without sufficient supervision, risk management and government control (Guo, 2013). Rampant speculation in the commodity futures markets in mid-1990s (Ng, 2004), the GITIC bankruptcy[115] in 1999, recurrent financial crises globally such as the Asian Financial Crisis 1997-1998,

[114] Interview: research department, Chinese exchange (Shanghai, 14 May 2018).
[115] GITIC (Guangdong International Trust and Investment Corporation) was an SOE and the countries 2nd largest investment company; after losing billions of dollars in property and stock market speculation, it was forced into bankruptcy in 1999.

the Dot-Com Bubble in 2001-2002 and (later) the Global Financial Crisis of 2007-2009 as well as the effects of liberalisation developments in Russia and Japan in the early 1990s further hardened the regulators' suspicion of 'neoliberal' capital markets and their potentially destabilising effects.[116] The head of a Hong-Kong based broker summarised these earlier developments of Chinese capital markets as follows:

> So, there was a phase of several years, 2-3 years, there's really high fever in the market, there are several major credit issues related to quite a few of the products, the major one is the bond futures crash. […] And then the government was saying, 'Look, enough is enough. Let's just suspend everything and then we will start from scratch'.[117]

China's experiments with Western-style, neoliberal capital markets had failed. As Deng Xiaoping (1992/1994) had noted a few years earlier, 'we can stop them [exchanges] all at once or gradually, totally or partially'. The subsequent development of China's capital market was hence conducted in an incremental, cautious fashion (Hou, 1997). The bond futures scandal marked the beginning of a search for an alternative model of how to integrate capital markets into China's evolving socio-economic system of state capitalism. One interviewee summarised this shift as follows:

> Do you need a Western-standard capital market? Or do you develop your own Chinese-standard capital market? I think that's actually what China is trying to do now. Because in the past 20 years, […] the regulators looked at what's happening in the external markets, and then you see a lot of good examples, but you also see financial crises… And then, over time […] the Chinese government and regulators realise that they don't necessarily need to use the Western model. […] So, through the process, the regulators, the elite class has gained confidence and has decided to find a best way for them, maybe not the traditional definition of Westernised capital markets… […] Maybe in our [Western] words, from our external view it's not a 'real' capital market… but does it matter as long as at the end, the result is there?[118]

After the initial 'Exploring and Starting Stage' (探索起步阶段) that was characterised by scandals and rampant speculation, the mid-1990s ushered in the 'Cleaning-Up and Rectification Stage' (清理整顿阶段) of Chinese capital markets.[119] In an effort to

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[116] Interviews: executive director, investment advisor (Hong Kong, 6 July 2017), hedge fund manager (Shanghai, 16 April 2018), research department, Chinese exchange (Shanghai, 14 May 2018) and hedge fund manager (Shanghai, 24 September 2019).
[117] Interview: managing director, broker (Hong Kong, 7 July 2017).
[118] Interview: business development, global exchange (Hong Kong, 10 July 2017).
[119] In November 1993, the State Council issued a 'Notice on Firmly Stopping the Blind Development of Futures Markets' and then a 'Notice on Further Rectification and Regulation of Futures Market' in August 1998.

centralise control over exchanges, many trading venues were merged or closed. From 60+ futures exchanges in the early 1990s, by 1998 only three were left: Shanghai Futures Exchange, Dalian Commodity Exchange and Zhengzhou Commodity Exchange. Similar to the two stock exchanges, the three remaining futures exchanges were placed under CSRC control.[120] They basically started from scratch with 12 listed products down from close to 1000 a few years earlier. As one interviewee noted, 'from that time onwards, 1998-1999, that's when what we call the new futures market of China was established'.[121] In 1999, the 'Regularised Development Stage' (规范发展阶段), the third development phase of China's capital market development was initiated which resulted in the current organisational structure of Chinese capital markets (see figure 3.2).[122]

At the turn of the millennium, trading activity on China's re-organised exchanges was rather sluggish, restrictions such as high margin requirements were in place, there was little financial innovation and few products to trade. These new Chinese capital markets were marked by the establishment of a tighter monitoring and intervention system that enabled the exchanges – which had become part of the CSRC and taken on roles as 'front-line regulators' – to manage markets more effectively according to the government's wishes.[123] With a system in place that enabled the control and management of capital markets as well as directing them towards policies deemed important for national development, the authorities became more comfortable again with growing these markets – but this time in a decidedly more state-controlled fashion and more closely aligned with state objectives. The 10th Five-year Plan approved by the 4th session of the CCP's 9th National Congress in 2001 hence explicitly proposed 'to steadily develop the futures market' to enhance national development according to state policy (cited in Liu and Wang, 2016). In the early 2000s, the government re-evaluated the futures markets and concluded that they needed to more decidedly serve real economic development.[124] Similarly, for stock markets, a senior manager from a Hong Kong-based global exchange noted:

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[120] Observation: Information displayed at Zhengzhou Commodity Exchange Exhibition Hall (October 2019).
[121] Interview: managing director, broker (Hong Kong, 7 July 2017).
[122] Since 1997, a 'National Financial Work Conference' was also held every five years to assess the state of China's financial markets and determine their future development.
[123] The details of this system are discussed in Chapter 4.
[124] Interview: international department, Chinese exchange (China, 14 October 2019).

> I would say around the mid-2000s the domestic Chinese markets started […] to modernise and put in place certain set of rules and an environment where people could trade. […] In this phase, […] you kind of see the trading volumes in Shanghai and Shenzhen picking up substantially, to a point where today on a good day those markets can outdo New York on a trading volume basis.[125]

From the mid-2000s onwards, futures markets in China also began to pick up. As the China-expert from a global exchange noted, 'it was between 2005 and 2010 that the Chinese government became more comfortable with our business, derivatives, and they created all these new products'.[126] In fact, trading volume on both stock and futures exchanges increased massively in this period (FIA, 2018). By the end of the 2000s, exchanges had become more important, more integral but also more integrated elements of China's state-capitalist economy.

### 3.2.3 Since 2009: Chinese capital markets after the global financial crisis

While China with its closed capital account was itself not directly affected by the financial crisis that engulfed the interlocking balance sheets of global (i.e. Western) banks in 2007-2009, the crisis revealed other downsides of the neoliberal, contemporary global financial order. On the one hand, China's pre-crisis growth largely rested on the West (especially the US) buying enormous amounts of Chinese products and indebting themselves in the process which was financed by China accumulating foreign reserves (Ferguson and Schularick, 2009). But the crisis revealed the imbalances of this export-oriented growth model as Chinese exports to the EU and US significantly decreased, and in the foreseeable future, neither the US nor Europe would be buying the same amounts of Chinese goods. On the other hand, the crisis revealed China's vulnerability to a US dollar-centred global monetary and financial system. The unilateral decision of the US to pursue quantitative easing for instance led to a devaluation of Chinese foreign reserves. As one Chinese regulator noted, 'with these pressures from the US, the Chinese authorities realised that they needed to have an impact [in global finance]'.[127] As a result, two strategies emerged that would propel capital markets into the heart of China's growth model: rebalancing the domestic economy (Pettis, 2013) and the internationalisation of the RMB (Prasad, 2016).

[125] Interview: strategy department, exchange (Hong Kong, 30 June 2017).
[126] Interview: international department, global exchange (London, 10 October 2017).
[127] Interview: research department, regulator (Beijing, 30 October 2018).

Simultaneously, two other shifts within China's political economy occurred. First, during the 2000s the Chinese middle class had grown from 2% of the population in 1999 to 39% by 2013.[128] They had disposable income to fuel consumption- and service-sector led growth, but also needed to invest their assets to save for retirement and to accumulate wealth (see Chapter 4). Second, instead of the factory of the world, China engaged in continuous efforts to climb up the value chain and create global champions. This meant a shift from lower quality labour-intensive production of goods facilitated by an inflow of foreign capital (FDI), towards medium-to-high quality production of more capital- and knowledge-intensive goods (and services) that was facilitated by an internationalisation of Chinese companies (e.g. 'Made in China 2025', 'Going Global'). From an importer of capital, China became an exporter of capital (ten Brink, 2015: 666). Propelled by these macro-economic shifts, capital markets organised by Chinese exchanges became central to implementing the authorities' national development policies between 2009-2019. It is this context in which Xi Jinping asked the financial sector 'to serve the real economy, contain financial risk and facilitate economic reform'.[129] It is this context in which the CCP's 18th and 19th National Congress officially declared that financial markets had a 'decisive role' to play in allocating resources and facilitating growth in the Chinese economy. As the next section highlights, China's capital markets have increasingly become more important in China's political economy, a socio-economic system that differs significantly from the global neoliberal policy paradigm. Rather than neoliberalism, China is characterised by state capitalism.

## 3.3 Capital markets and state capitalism

### 3.3.1 China's state capitalism: a (literature) review

In recent years, a large literature has emerged around the concept of state capitalism as a central feature for successful catch-up industrialisation, economic coordination and national development (for an overview, see Alami and Dixon, 2020). Moving beyond the fact that states and capitalism have historically been in an intimate relationship (List, 1841, Gerschenkron, 1962) the state capitalism literature focuses on

[128] See: https://chinapower.csis.org/china-middle-class/ (last accessed 30 March 2020).
[129] Speech: 5th National Financial Work Conference (Beijing, 14 July 2017).

a more recent empirical phenomenon – the increasing intensity of government direction and steering in economic processes, especially in emerging markets (Musacchio and Lazzarini, 2013, Naughton and Tsai, 2015, Kurlantzick, 2016).

In contrast to earlier forms of state-led economic development in the late-19th (US, Germany) and mid-20th century (Stalinism, fascism, developmental states), contemporary state capitalism relies less on prohibitive tariffs (1st wave) or centralised command structures to coordinate economic development (2nd wave)[130] but more on market-based economic coordination which, however, is controlled, steered and/or influenced by the state (ten Brink and Nölke, 2013, Nölke, 2014). This contrast between more centralised developmental states and China's economic system has also been summarised by Hsueh (2011: 267):

> In short, China departs from the developmental state by embracing foreign competition and know-how, rather than protecting domestic private industry; pursuing sectoral reregulation based on a strategic value logic, rather than working closely with private industry to achieve national development goals; and privileging bureaucracies and state-owned companies over private actors when strategic assets are at stake.

However, characterisations of China's political-economic system have been fraught with conceptual ambiguity. China has been called a 'regulatory' state which, while opening up to foreign investment strategically directs these in ways that maintains its control over economic activity (Hsueh, 2011). Duckett (1996) has labelled China an 'entrepreneurial state' because the state utilises markets to foster economic growth, while Wang (2015) described China as a 'shareholding state' where despite listing companies the state maintained controlling interests as majority shareholder. Some scholars use the official Chinese formulation 'socialist market economy' (Sigley, 2006), whereas others have more specifically highlighted the capitalist nature of China's economic system (Coase and Wang, 2012, Gruin, 2019a, ten Brink, 2019). As Huang (2012a: 620) noted, in contrast to socialist market economy which implies market-driven but equitable economic development, the term 'state capitalism' highlights 'the essentially capitalist nature of the [socio-economic] system' where markets are important but 'the state plays a very large role' through intervening into the economy and state-ownership.

[130] Such as the Ministry of International Trade and Industry (MITI) in Japan (Johnson, 1982).

Some scholars have thereby highlighted the political nature of China's capitalism (Milanovic, 2019), conceptualising China as cadre capitalism (Heilmann, 1996, Gottwald, 2011) or authoritarian capitalism (Witt and Redding, 2014, Gruin, 2019b, Knaack and Gruin, 2020). Others have rather focused on the organisational setup of the economy, by focusing on the importance of social networks ('guanxi capitalism', McNally, 2011), the competition-driven nature of domestic economic activity (Ten Brink, 2010) or the role of the state in the economy ('state capitalism', Huang, 2012b, McNally, 2013, Milhaupt and Zheng, 2015, Tsai, 2015) and how state institutions permeate all aspects of economic life ('state-permeated capitalism', Nölke, 2015, Otero-Iglesias and Vermeiren, 2015). While focusing on different aspects of China's socio-economic system, these discussions demonstrate that the variegated, constantly form-shifting but nevertheless influential role of the state in managing economic activity has been a central feature of China's political economy ever since the reform and opening period (Breslin, 2011: 1328).

With respect to the study of the financial system, this thesis utilises the concept of state capitalism because it creates a helpful contrast to the neoliberal global financial order. State capitalism captures a state-market configuration that differs significantly from neoliberalism and thereby offers a good entry point for a comparison informed by IPE discussions about states and markets. The state capitalism concept thereby places more emphasis on the role of the state[131] as opposed to the Chinese Communist Party (CCP)[132] and is less idiosyncratic than concepts such as Sino-capitalism (McNally, 2012, 2015). Thereby, these findings are potentially generalisable and applicable in the study of other state-capitalist economies (Nölke *et al.*, 2020).

The institutional logic of China's state capitalism is not simply one of command-and-control but rather a combination of top-down state coordination and control paired with bottom-up entrepreneurship and market competition (McNally, 2015, Naughton and Tsai, 2015). This fusion of market- and state-led forms of coordination has led to debates on whether China has in fact become neoliberal (Wu, 2010, Weber, 2018). While some argue that China's state capitalism has adopted elements of neoliberalism (McNally, 2013, So and Chu, 2015, McNally, 2020), this

[131] The state is pervasive and essential in the functioning of China's political economy; but rather than one unified and monolithic entity, the Chinese state is comprised of different, often competing interests (Lin, 2001, ten Brink, 2019).
[132] While forming the Chinese state, the CCP is not always congruent with its other institutional structures, such as the bureaucracy or regulatory apparatus.

chapter argues that merely adopting market-mechanisms – facilitating capital market development in the case of this thesis – does not make China neoliberal.[133] China's economic policies have rather been 'neoliberal-looking' (Duckett, 2020) and many conclude that Chinese state capitalism represents an alternative to and functions quite differently from neoliberalism (Liew, 2005, Lo, 2007, Nonini, 2008, Breslin, 2011, Horesh and Lim, 2017), especially with respect to discussions on finance (Vermeiren and Dierckx, 2012). As Evans and Sewell (2013: 60) emphasise, Chinese politics of market development are 'a far cry from neoliberal politics as epitomised by the United States'.[134] In neoliberalism, states are tasked with the role of creating markets but they should not intervene into these markets once established (Harvey, 2005, Slobodian, 2018) as individualised, market-based competition is viewed as superior to other forms of economic organisation (Mudge, 2008). In China, in contrast, markets are mechanisms of economic coordination but constantly managed by the state through state guidance, the party system, regulations as well as more heavy-handed interventions. In that sense, rather than neoliberal, China is more ordoliberal (Lagerkvist, 2015, Sum, 2019).[135] Thereby, the two main objectives of state capitalism are maintaining state *control* and facilitating *national development*.

The state-market relationship that has emerged in post-1978 China is fundamentally different from the neoliberal hegemonic consensus. As illustrated in the previous section on the historical development of China's capital markets, this is also the case in Chinese finance.

### 3.3.2 The role of finance in Chinese state capitalism

In theoretical discussions about state capitalism, finance plays a major role. However, state capitalism in this context is often defined in juxtaposition to capital markets, which are understood as the epitomisation of (neo)liberal capitalism. Some scholars

[133] As Weber (2018: 229) notes, only because 'China is following a logic of governance that is distinct from that of neoliberalism, […] does not mean that capitalist competition is less fierce than elsewhere'; hence, the question is not whether China enacted market-based reform but whether these follow a neoliberal institutional logic.

[134] While neoliberal ideas have taken hold in parts of Chinese elites (Breslin, 2006), this has not significantly impacted the institutional structures of China's financial system, the focus of this analysis.

[135] In contrast to neoliberalism, in ordoliberalism 'the state has an important and legitimate role in creating and governing the market through contractual, juridico-political, and moral means and ensuring market competition' (Sum, 2019: 383).

even suggest that state capitalism emerged as a response to financial globalisation as developing countries vowed to decrease their dependence on global finance (Kurlantzick, 2016: 87-88). Kaplan (2016) for instance shows how state-capitalist banks have become a source of patient capital for cross-border finance, while Carney (2015) depicts the 'stabilizing role' of state capitalism amidst financial globalisation, and Naqvi (2019) analyses how the renationalisation of finance increases governments' policy space. Proponents of liberal, 'free' markets therefore argue that there might be state capitalism in China, but not 'true capitalism' (Miron, 2015), and that state capitalism is characterised as the predominance of the state over markets and an impairment of market mechanisms (Kurlantzick, 2016). The 'rules, norms, and procedures' that govern China's state capitalism seem at odds with global capital markets (McNally and Gruin, 2017). However, as this thesis demonstrates, state capitalism and capital markets are not incongruent or mutually exclusive, but capital markets in China rather function fundamentally different from neoliberal markets.

State control over finance is a key characteristic of China's state-capitalist economy (Wang, 2014: 117, Tsai and Naughton, 2015: 116-119). As Heilmann (2005a) emphasises 'China's financial industry [is] heavily politicised, and Communist Party bodies play a key role in this.' Shih (2007) for instance highlights how different factions within the CCP influenced monetary policy and banking practices, while others have highlighted interactions between local and central government actors in financial policies (Heilmann, 2005a, Shih, 2010). While some regulatory institutions actively promote liberalisation and internationalisation such as the central bank (Bell and Feng, 2013) others like the ministry of finance have a more conservative approach (Walter and Howie, 2012, see also, Li, 2018a). What these studies highlight is that Chinese finance is highly politicised.

However, when it comes to detailed empirical studies on (Chinese) finance, most state capitalism literature focuses on banks as a means of financing economic growth (Musacchio and Lazzarini, 2013, Kaplan, 2016, Nölke *et al.*, 2020), which have historically been the main providers of corporate financing for catch-up industrialisation in state-capitalist economies (Zysman, 1983). The existing literature on China's financial system has, for instance, analysed the relationship between Chinese banks and the Chinese state (Heilmann, 2005b, Andreosso-O'Callaghan and Gottwald, 2013, Breslin, 2014), how banks were crucial for internationalising Chinese

companies (Gottwald, 2011), their own internationalisation (Schlichting, 2008) or their role in efforts to rebalance China's economy (Gruin, 2013).[136]

Historically, capital markets only played a minor role in China's state capitalism (Heilmann, 2002, Greene, 2004). While after 1978 China introduced market-led reforms under Deng Xiaoping and gradually transformed from a planned to a market economy, China's financial system was largely exempt from liberalisation measures (Naughton, 2007) as most financial institutions remained state-owned and bank lending was politically directed (Breslin, 2014). While gradually developing from the 1980s onwards (see section 3.2), China's stock market was initially rather insignificant for the economy as a whole. The stock markets was a 'policy-driven market' (Heilmann, 2002), and scholars analysed how the regulators decided which firms were listed in the stock market (Naughton, 2015) or that majority of company shares were not tradeable or held by state institutions (Wang, 2015). Others analysed the stock market's position within China's state institutions (Heilmann, 2005a, Lyu, 2015) or how institutional change facilitated by Chinese elites initiated market reforms (Tan, 2004, Bell and Feng, 2009). Further, China's financial system was completely shielded from global markets and foreigners had only very limited access (Breslin, 2007, Töpfer, 2017). While pressures to open and liberalise the financial system had arisen since China's WTO entry in 2001 (Bowles and Wang, 2013), most scholars agreed that changes until 2009 had been in a piecemeal fashion and more often window-dressing than actual reform (Walter and Howie, 2012, Andreosso-O'Callaghan and Gottwald, 2013).[137] China's financial system was dominated by state-owned banks as well as shadow banking (Tsai, 2002, Gruin, 2013, Breslin, 2014).

However, since the global financial crisis of 2007-2009, capital markets gradually become a more important pillar of China's socio-economic system (see Section 3.2.3). During the Third Plenary Session of the 18th National Congress of the Chinese Communist Party in 2013, the Chinese government officially declared that markets had a 'decisive role' to play in allocating resources and facilitating growth in the Chinese economy, a position that was reaffirmed during the 19th Congress in 2017.

[136] Next to the banking system, the emergence of a large shadow banking sector was also analysed in many discussions on recent changes in China's financial system (Tsai, 2015, The Economist, 2016, Gabor, 2018).

[137] However, as Bell and Feng (2009) noted, in the mid-2000s the state's 'grabbing hand' increasingly turned into a 'helping hand', from state predation towards a more entrepreneurial form of market organisation.

With the ongoing Reform and Opening process (e.g. 'Made in China 2025', 'Going Global'), rebalancing China's economy towards internal consumption, the service sector and investment-driven growth as well as envisioning a different role for China in the global monetary and economic order (e.g. RMB internationalisation, Belt and Road Initiative), the Chinese authorities decided to give finance a leading role for national development and 'serve the real economy'.[138] Consequently, the financial sector expanded rapidly (table 3.1).

***Table 3.1:*** *Capital market development in China since the global financial crisis.*

| **Indicator** | **2003-06** | **2014-17** |
|---|---|---|
| total value of stocks traded (% of GDP) | 27.2% | 193.2% |
| market capitalisation of listed companies (% of GDP) | 24% | 70% |
| number of listed domestic companies (total) | 1285 | 3485 |
| GDP contribution of financial sector (in %) | 5.0% | 9.0% |
| market-based versus bank-based activity | 20% | 86% |
| securities financing by firms (% of Total Social Financing) | 5% | 30% |
| Foreign portfolio investment inflows (Chinese bond/stock market) | $2 billion | $128 billion |
| China in global derivative markets (% of global ETD trading volume) | 1% | 16% |

*Source: Lu and Sweeney (2012), Huang and Lardy (2016), FIA (2017), Gabor (2018), World Bank (2018).*

Between 2003-2006 and 2014-2017,[139] the average total value of stocks traded increased from 27.2% to 193.2% of GDP, the average number of listed domestic companies and their market capitalisation almost tripled from 1285 companies in 2003 to 3485 in 2017 and 28% to 67% of GDP, respectively. Simultaneously, the ratio of market- versus bank-based activity increased from 0.2 to 1.09[140] (World Bank, 2018). From less than 5% in 2002, securities market financing by Chinese firms increased to 30% of Total Social Financing by 2016 (Lu and Sweeney, 2012, Gabor, 2018) and the financial sector's contribution to GDP almost doubled from 5% in 2007 to 9% in 2015 (Huang and Lardy, 2016). Similarly, China increasingly opened up to global finance

[138] Speech: Xi Jinping, 5th National Financial Work Conference (Beijing, 14 July 2017).
[139] These average periods are used to smooth out yearly fluctuations and showcase the pre- and post-crisis development level of Chinese capital markets; see also Karwowski and Stockhammer (2017).
[140] Measured as ratio of stocks traded to credit provision as % of GDP (Karwowski and Stockhammer, 2017).

after being virtually closed off from global markets. In the early 2000s, foreign investment in Chinese bonds and equities amounted to only US$2 billion. By 2018, this had surged to US$60 billion in equity markets and US$68 billion in bond markets (World Bank, 2018). Further, between 2002 and 2016, China's derivative markets grew from accounting for <1% to 16% of global futures trading (FIA, 2017). While not yet on par with highly financialised economies such as the US,[141] it becomes clear that 'many phenomena of financialisation [are] observable in China' (Pauls *et al.*, 2016: 45). Capital markets have become a crucial part in China's political economy, contributing to the increasing financialisation of China's political economy (Dal Maso, 2015, Wang, 2015, Wang, 2017, Gruin, 2019b).

Importantly, the current transformation of China's financial system is not uniform. The ongoing financialisation process is variegated and unfolds across nearly every aspect of economic life – ranging from P2P-lending (Wang, 2018), the shadow banking sector (Tsai, 2015, Gabor, 2018, Knaack and Gruin, 2020), corporate governance (Wang, 2015), the financialisation of everyday investors (Dal Maso, 2015), management practices (Chong, 2018), real estate (Theurillat *et al.*, 2016), social credit scoring systems (Gruin, 2019b) or the development of the economy as a whole (Pauls *et al.*, 2016). Some aspects of this variegated financialisation unfold outside of government control, sometimes initially outside of the purview of the authorities, some are temporarily tolerated or even actively encouraged by them (Wang, 2017, Knaack and Gruin, 2020). However, at some point the authorities often attempt to reign in developments that are deemed socially counterproductive – prominent examples include the clampdowns on P2P-lenders amid growing worries about Ponzi-schemes (Leng and Tham, 2019), developers in the wake of the housing bubble (Yang, 2017), or the deleveraging of shadow banking and attempts to shift these activities towards capital markets (Gabor, 2018). The authorities attempt to steer financial development, as their rule relies on the support of a growing middle class and the promise of continuous economic growth (Heurlin, 2016) – which can both be achieved but also hindered by financial markets. The development and internationalisation of capital

[141] In comparison, for the United States (2014-2017) the average market- versus-bank activity was 0.93, the value of stocks traded 220.8% and market capitalisation 150.5% of GDP (World Bank, 2018). It accounted for 33% of global futures market trading (FIA, 2017), and finance/insurance contributed 7.5% to GDP (see: https://www.selectusa.gov/financial-services-industry-united-states; last accessed 17 September 2020).

markets are thereby facilitated to fix existing and newly emerging contradictions within China's state-capitalist economic system.

While some authors highlighted China's gradual transition towards market-based finance (Gabor, 2018, Gruin, 2019a, Petry, 2020a), many contemporary analyses still subscribe to the prevailing understanding that (state-owned) banks are the main actors in China's financial system (Lardy, 2012, Naughton and Tsai, 2015, Nölke *et al.*, 2015, Allen *et al.*, 2017, ten Brink, 2019). Capital markets have only been systematically analysed with regard to the state ownership of listed companies (Musacchio and Lazzarini, 2013, Wang, 2015, Kurlantzick, 2016). However, capital markets *have* become more important in China since the global financial crisis, as China's financial system is 'currently undergoing momentous change' from being dominated by state-owned banks towards a more diversified system characterised by 'substantial market independence' (Naughton, 2018: 479).

As Alami and Dixon (2020: 19) note, 'financialisation and globalisation may push states to develop new institutions, policy tools, and forms of intervention in order to continue performing tasks and functions that they have long performed'. With the increasing importance of capital markets for China's state capitalism, the link between state capitalism and capital markets requires closer scrutiny. As the next section demonstrates, rather than a break with China's state capitalism, the development and increasing role of capital markets represents a continuation of China's existing socio-economic system as the institutional logic of state capitalism becomes ingrained into the DNA of its capital markets through the market organisation activities of Chinese exchanges.

## 3.4 Institutional logics in action: capital markets in China's state capitalism

With the transition from a planned to a market economy, new calculations and strategies emerged in China for exercising state governance (Sigley, 2006). Since the beginning of reforms, China's state capitalism has thereby relied on both socialist authoritarian practices (e.g. the nomenklatura system) and market-based practices (Tsai, 2015, Sum, 2019). Especially, since Chinese authorities actively pursued financial development as part of China's opening up and liberalisation strategy and more broadly the transformation of its political economy, financial markets have

become an ever more important channel to govern the economy (Collins and Gottwald, 2014, Li, 2018a, Gruin, 2019a). As Fligstein (1996: 660-661) argues, the formation of markets is part of the process of state-building – in the case of China's capital markets they enable the perpetuation of state capitalism.

In China the understanding of finance as well as its role within the political-economic system are fundamentally different from the Western world. While the Chinese authorities have recognised and facilitated the usefulness of market-based mechanisms of economic coordination (Duckett, 1996), they also see the downsides of free financial markets after experiencing several financial scandals domestically in the 1990s as well as intensely studying financial crises and their social and political impacts on other states and societies (e.g. in post-USSR Russia, Japan or the Asian Financial Crisis).[142] 'Free' markets are seen as something not quite to be trusted, endogenously crisis-prone, socially unproductive and leading to a loss of control over the economic system if not strictly regulated. As McNally (2013: 38-39) argues, there is a 'considerable distrust of markets and full-out economic liberalisation', the state rather engages in a 'pragmatic use' of markets, managing markets for specific policy goals. This also applies to capital markets. While capital markets are growing in importance, this occurs within the context of China's socio-economic system of state capitalism in which the CCP aims to maintain its control over socio-economic development, in part by managing policy uncertainties through the financial sector. In this process, one can observe an 'exten[sion of] the reach of financial capital, but simultaneously consolidating the persistently illiberal authority of the CCP over the use of that capital' (Gruin, 2016: 27).

As this thesis demonstrates, the Chinese authorities attempt to partially control financialisation processes, not through command-and-control measures but by utilising exchanges as 'pivotal points' through which to manage and steer capital markets (Petry, 2020a: 218). Zysman (1983: 298) notes that 'the structure of finance contributes to the state's capacity to act in the economy'; this is also the reason why exchanges are the main vehicles of financial opening and liberalisation, and not OTC markets. Exchanges are regulated markets in the double sense. They regulate markets but they can themselves also be much more easily regulated due to their centralised, transparent market structure; much more so than other market structures such as

[142] Interview: hedge fund manager (Shanghai, 16 April 2018).

fragmented dark pools or uncleared, bilateral OTC derivatives trading before the global financial crisis where there are no central entities that constitute and organise the marketplace.[143]

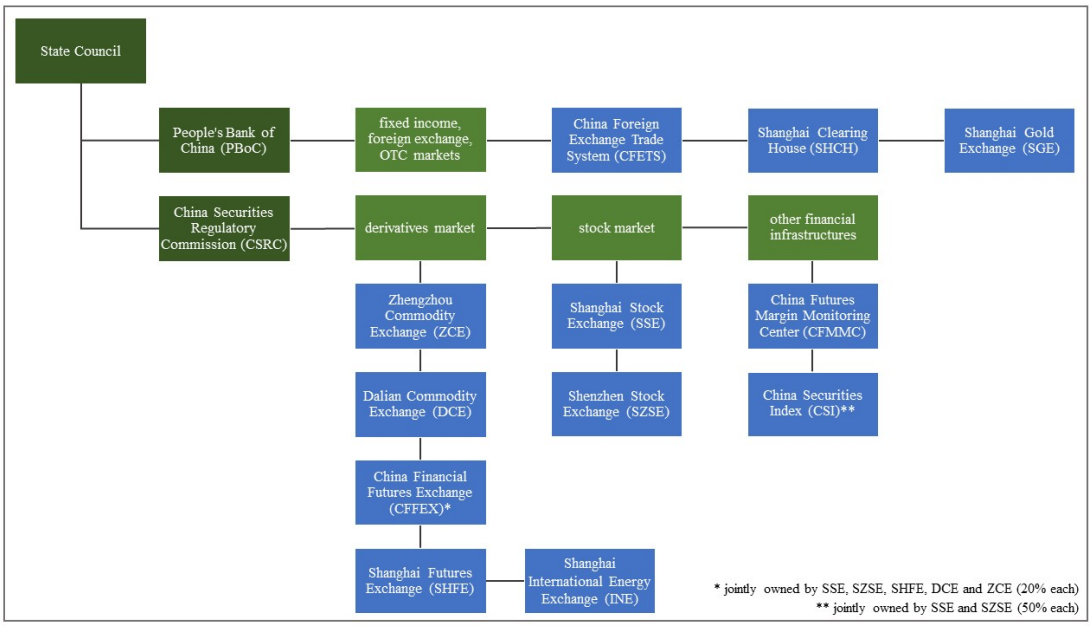
By analysing the policies and practices of exchanges in managing capital markets, we can gain insights into how the Chinese authorities aim to steer China's financial development and mediate contradictions emerging from China's rapid capitalist development (discussed in detail in Chapter 4). Thereby, capital markets can be understood as a site where the authorities exercise 'statecraft [through] financial control' which enables them to govern social and economic life (Sum, 2019: 386). Control in this context should be understood both as exerting *state control within financialisation* by monitoring, regulating and intervening into capital markets, as well as exerting *state control through financialisation* by directing capital market outcomes towards the accomplishment of certain economic and political objectives linked to national development. This is achieved through Chinese exchanges shaping the infrastructural arrangements of Chinese capital markets according to the institutional logic of state capitalism. This institutional logic is not simply one of command and control but 'relies on a unique duality or dialectic whereby state-capitalist features are balanced by […] a variety of hybrid institutional arrangements' (McNally, 2015: 709, also Naughton and Tsai, 2015). Embedded within China's system of state capitalism, Chinese capital markets also follow this institutional logic.

Of course, millions of profit-driven speculating investors exist in China that create manias, panics and crashes like in any capital market, as their historical development illustrated. Ever since 2015, China has had more stock market traders than CCP members (Zhang, 2020). But while profit creation for private finance capital is the primary underlying principle in neoliberal markets, importantly, in China the state intervenes into capital markets to steer them into 'productive' tracks that facilitate state objectives, and this steering role of the state is engraved into the institutional setup of capital markets. The defining difference between neoliberal and state-capitalist logic is not the existence of markets *per se* but rather the principles that underlie market organisation (profit creation vs state objectives) and the actors that dominate/shape these markets (private finance capital vs state institutions).

[143] Even most of China's OTC derivative and FX trading is conducted via CFETS, a centralised trading platform (interview: senior management, insurance company; Shanghai, 16 October 2019).

While investors act as entrepreneurs in capital markets, 'certain levers of state control remain intact' (McNally, 2015: 715). Western/global exchanges are *neoliberal corporations* owned by their shareholders. In China, they are *state-owned entities*. As the organisers of capital markets, exchanges have the ability to control how markets work by shaping their infrastructural arrangements, hence they remain in government control.[144] As one Chinese regulator noted, 'the infrastructural arrangements [are important] because this is where you can control the market'.[145] By shaping market infrastructures, they facilitate two institutional sub-logics of state-capitalism: they extend the state's ability to exercise *control* within and through capital markets and they direct market outcomes towards the accomplishment of *national development* policies.[146] In contrast to being 'marketized', exchanges in China are rather 'politicised' and there are four important aspects to this.

***Figure 3.2:*** *Organisational structure of Chinese capital markets.*




*Source: author's figure.*

First, since the 1990s 'Cleaning-Up and Rectification Stage' (清理整顿阶段), the Chinese exchanges are government agencies and part of China's regulatory apparatus

[144] As Klein and Pettis (2020: 122) note, 'the Chinese financial system is dominated by state-owned entities, which gives the party leverage to help companies that promote its objectives and to punish those that do not'; as market organisers, Chinese exchanges also fulfil this function.
[145] Interview: research department, regulator (Beijing, 12 September 2019); also, interview: hedge fund manager (Shanghai, 24 September 2019).
[146] This is discussed in greater detail in the empirical Chapters 4-6.

for supervising and managing the financial system (figure 3.2), whereby the exchanges are often described as 'front line regulators' (前线监管). Shanghai Stock Exchange (SSE), Shenzhen Stock Exchange (SZSE), Shanghai Futures Exchange (SHFE), Dalian Commodity Exchange (DCE), Zhengzhou Commodity Exchange (ZCE), China Financial Futures Exchange (CFFEX) and Shanghai International Energy Exchange (INE) as well as the China Futures Margin Monitoring Centre (CFMMC) and China Securities Index (CSI) – which together organise China's stock and derivative markets – directly report to and work with the China Securities Regulatory Commission (CSRC). Fixed income, FX and OTC markets such as Shanghai Gold Exchange (SGE), Shanghai Clearing House (SHCH) and China Foreign Exchange Trading System (CFETS)[147] are instead part of the People's Bank of China (PBoC). CSRC and PBoC in turn themselves directly report to the State Council, i.e. the Chinese government.

Second, the exchanges are deeply embedded in the CCP's *nomenklatura* system (Edin, 2003); doing a good job at the senior management of exchanges – i.e. directing markets towards state policies – is an important steppingstone for party officials to eventually get promoted to work in higher positions.[148] As Heilmann (2005b: 2) notes 'the financial industry can therefore justifiably be treated as an integral part of the political system'. Personnel exchanges (secondments) between the exchanges and regulators are a common feature of their organisational setup,[149] and exchange CEOs are also appointed by the authorities (see also Heilmann, 2005b). Instead of profit/shareholder value, the performance of exchanges, their personnel and management are measured by their contribution towards policy goals. Whereas for Western exchanges power was initially concentrated in the hands of the members and the exchanges themselves had little agency of their own before turning into *neoliberal corporations*, the Chinese exchanges are *state entities* subordinated to the Chinese regulators and their task is to facilitate state objectives. Hence, the exchanges are embedded within the structures that permeate China's state capitalism (Lyu, 2015, ten Brink, 2019).

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[147] CFETS provides the infrastructure for China's interbank lending, OTC derivatives and FX trading. While not officially called an exchange, CFETS fulfils the same functions and its overseas counterparts in most of its cooperation agreements are global exchanges such as CME or Deutsche Börse. While Hong Kong Exchanges and Clearing (HKEx) is not officially a Chinese exchange, it is unique in that it shares characteristics of both Chinese and global exchanges; HKEx's role in China's financial opening is discussed in Chapter 5.

[148] Interview: business development, global exchange (Hong Kong, 10 July 2017).

[149] Interview: research department, Chinese exchange (China, 18 October 2018).

Third, the Chinese exchanges also occupy a different position within the financial system itself. While global exchanges are subject to competition from each other, from banks and various alternative trading systems, as governmental institutions in a state-capitalist economy, Chinese exchanges are not under threat of foreign (hostile) takeovers (Aggarwal and Dahiya, 2006) and consequently not in such 'a marketplace for marketplaces' (Castelle *et al.*, 2016). Instead, Chinese exchanges have considerably more authority over and within the marketspace; as one Hong Kong-based global exchange employee mentioned, 'when we international exchanges invite for an event, RSVP might be 50% and in the end 20% show up. If an exchange in China invites you over, you send your CEO – and if he is busy, you send your second in command'.[150] Or as another interviewee working in a global exchange's China team noted: '[in China] the exchange is at the top of the food chain'.[151] Rather than direct control, part of their power over the marketplace also derives from what McNally (2011) calls 'deliberate ambiguity'. In China, there are, for instance, no laws that specifically delineate the trading of securities, derivatives or HFT in a comprehensive way.[152] These practices are rather assessed by the Chinese regulators and exchanges, assessments that might change overnight and with lots of room for discretionary decisions. Hence, their power in that sense is not only instrumental but structural in that they indirectly influence behaviour of other actors. Further, while there is some degree of competition between Chinese exchanges for who gets to list which product, instead of being market-driven this is a negotiated process between the Chinese exchanges and regulators and the individual exchanges have their assigned sectors and quasi-monopolies: in the stock market, SSE lists Chinese blue-chips while SZSE focuses more on SMEs, start-ups and tech companies. In derivative markets, strategically important commodities, especially metals, are traded on SHFE, soft commodities such as sugar are traded on ZCE with DCE somewhere in the middle, and financial futures are traded on CFFEX. In that sense, rather than market players, Chinese exchanges fulfil the function of market authorities (Rethel and Sinclair, 2012).

Fourth, by managing capital markets the Chinese exchanges act as intermediaries between the Chinese state, society and (global) finance. Thereby, the

[150] Interview: business development, global exchange (Hong Kong, 7 July 2017).
[151] Interview: business development, global exchange (Taipei, 7 July 2017).
[152] The new *Securities Law* that partially regulates these capital market activities was only introduced in March 2020 but does contradict the existing institutional logic of Chinese capital markets (see Clark, 2020).

exchanges themselves have a slightly schizophrenic role. On the one hand, their senior management is appointed by the authorities and has close ties with the regulators and the CCP (the 'party people'). On the other hand, a substantial part of the exchanges' operational staff is recruited from financial institutions (the 'market people').[153] This differentiation between the 'commercial system' and the 'inner system' is very important for the organisational setup of exchanges and also leads to interesting inter-organisational dynamics.[154] Within the exchanges, different ideas for how markets are supposed to work exist between those groups. Employees hired from the financial sector often float more neoliberal ideas while those with closer ties to state and party – who usually make the decisions – push for more state control and intervention. Exchanges also approach the regulators with innovative ideas and lobby for their approval – i.e. the creation of new infrastructures such as introducing options, tweaking rules or calculating new indices – but these infrastructural arrangements are negotiated so that they comply with state-capitalist logics.[155] While Chinese capital markets are constantly evolving, this is done incrementally and with small experiments conducted or monitored by the exchanges – learning how markets work and facilitating their growth/development while maintaining control and directing them. Financial innovation in this sense conforms with Deng Xiaoping's often invoked slogan to 'cross the river by feeling the stones' (摸着石头过河),[156] depicting the cautious, incremental approach to reforming China's economy (Goldstein, 1995, Zhang and Chang, 2016) where policy experimentation played an important role (Heilmann, 2008).

Chinese exchanges are based within a different institutional setup compared to global exchanges. This in turn has important consequences for the way capital markets are organised – what global finance and the Chinese government want markets to do is not the same. In contrast to neoliberal markets, capital markets in China are organised in a way that is not aimed towards generating profit but markets are much more entangled with state institutions and via exchanges the state is able to utilise capital markets as a government tool. Chinese exchanges organise markets by

[153] It is important to note that while the Chinese exchanges also hire from international financial firms, they mostly hire Chinese nationals and only employ a handful of non-Chinese nationals.
[154] Interviews: business development, global exchange (Hong Kong, 7 July 2017), business development, global exchange (Hong Kong, 19 September 2018), international department, broker (Shanghai, 25 September 2019) and general manager, global exchange (Hong Kong, 5 July 2017).
[155] See, Li (2018a) on Chinese exchanges as norm entrepreneurs.
[156] This phrase was used very often in interviews to explain China's opening process, e.g. interview: international department, Chinese exchange (Shanghai, 11 May 2018).

designing market infrastructures that aim to facilitate *control* within markets by monitoring, regulating and intervening into markets and by directing market outcomes towards *national development* objectives linked to state policies – both within China and abroad: from protecting Chinese retail investors and 'serving the real economy' to facilitating China's commodities pricing power and controlling foreign investor access. Rather than neoliberal, the capital markets organised by China's state-owned exchanges can hence be conceptualised as *state-capitalist capital markets*. While profit is the main principle underlying both global exchanges' activities as well as the markets they organise, in the case of Chinese exchanges, control and national development are the main principles of market organisation (see table 3.2).

***Table 3.2:*** *Institutional setting of neoliberal vs state-capitalist markets.*

| indicator | neoliberal capital markets | state-capitalist capital markets |
|---|---|---|
| exchange type | 'exchange as neoliberal corporation' | 'exchange as state entity' |
| exchange motivation | marketised (profit-driven) | politicised (policy-driven) |
| target group of exchanges | international investment community, shareholder | state, CCP, regulators |
| relation between exchanges / state | exchanges exert power over states via infrastructures | state exerts power via infrastructures provided by exchanges |
| relation between exchanges / regulators | exchanges independent, self-regulated | exchanges subordinated to regulator |
| mode of coordination | arms-length, contractual | social networks (nomenklatura etc.) |
| understanding of markets | market creation as main goal | market management as main goal |
| role of private actors | trust in private actors to achieve efficient outcomes | mistrust of private actors, state monitoring and intervention |
| temporality | short-term (profit) | long-term (state objectives) |
| **institutional logic** | **'efficient' outcomes through enabling private profit creation** | **control of market / direction of market outcomes towards national development** |

*Source: author's table.*

While this section brings forward ideal-typical conceptions of state-capitalist and neoliberal capital markets, empirical realities are more complex.[157] Often there are multiple, sometimes competing objectives underlying processes of market organisation and management. Control and state guidance of capital markets in China is never absolute, and China's capital market development is also characterised by

[157] Notably, this thesis only analyses *Chinese* state-capitalist capital markets; as the thesis conclusion points out, institutional logics in other state-capitalist economies and how they influence capital markets require further analysis.

misguided attempts to intervene into markets, failed policy experimentation or external pressures influencing the decisions of Chinese authorities. Sometimes implemented control efforts fall short of their objectives, regulatory reach is incomplete, there are workarounds in some areas or policy experimentations fail. After all, neither the Chinese state, nor its central institutions such as the CCP are monolithic or all-mighty entities (ten Brink, 2019). Similarly, neoliberal markets are neither purely laissez-faire as considerable hybridity and entanglement between states and financial markets exists (Braun, 2018, Braun *et al.*, 2018), nor are all *exchanges as neoliberal corporations* uniform and divergences between them and their markets exist. Further, both neoliberal or state-capitalist capital markets are populated by profit-driven investors and prone to speculative dynamics.

However, what can be observed is that a fundamentally different way of thinking about, managing and governing capital markets has emerged in China (also, Sinclair, 2011). Consequently, these markets are permeated by but also reproduce the institutional logic of Chinese state capitalism which results in very different market structures and consequently different societal effects. Rather than a break with China's state capitalism, the activities of the Chinese exchanges help to sustain and facilitate China's socio-economic system by extending state control within and through capital markets. The exchanges thereby facilitate and attempt to shape the financialisation of China's political economy in accordance with its system of state capitalism at the same time as China's capital markets are increasingly integrating into global finance.

While this thesis focuses on China, as Yeung (2009: 202) emphasises 'the rise of East Asia provides fertile research ground for us to "theorise back" at dominant IPE theories in the "North."' Drawing on insights from comparing Chinese and global exchanges and their market organisation activities enables a better understanding of the institutional embeddedness of markets and to reconceptualise capital markets as variegated with important implications for the politics of global finance and analysis of the global financial order.

## 3.5 Conclusion: China's state-capitalist capital markets

While China's capital markets have rapidly developed in recent years, this chapter argued that due to their institutional embeddedness within China's political-economic

system of state capitalism, the capital markets organised by Chinese exchanges function differently from and fulfil a different political-economic role than the neoliberal capital markets that reproduce the global financial order. The chapter first introduced the concept of institutional logics that enables an analysis of the differential organisation of capital markets. Situated within the global shift towards neoliberalism, 'global' capital markets created and globally disseminated by global exchanges which reproduce the US-dominated contemporary global financial order should be conceptualised as neoliberal capital markets. This stands in contrast with the emergence of capital markets in China, where markets and exchanges are embedded within an institutional context of state capitalism. While this institutional logic is not static, it produces very different market dynamics and outcomes. Rather than constraining state power and privileging the creation of profit for private actors over other (socio-)economic outcomes, by organising markets according to state-capitalist logic, exchanges in China facilitate the state's ability to control capital markets and to direct market outcomes towards the accomplishment of national development policies that aim to perpetuate China's state capitalism. The Chinese exchanges thereby act as intermediaries between the Chinese state, society and (global) finance by actively managing capital markets.

Utilising the concepts of *financial infrastructures* (micro-level) and *institutional logics* (meso-level) provides an analytical framework to study China's integration into the global financial order (macro-level) through the lens of exchanges (see figure 1.2). This framework enables a reconceptualisation of Chinese and global capital markets as state-capitalist and neoliberal capital markets. This allows a more accurate analysis of how the development and internationalisation of China's state-capitalist capital markets takes place within the context of the US-dominated neoliberal global financial order that is reproduced by neoliberal capital markets organised by and in which global exchanges are the rule-makers.

The next three empirical chapters therefore analyse the development and internationalisation of the state-capitalist capital markets organised by China's exchanges that try to strike a balance between the sub-logics of control and national development, shedding light on China's integration into the global financial order. First, capital markets in China are analysed domestically, showing how Chinese exchanges develop capital markets that represents a distinct *alternative* to neoliberal capital markets. Second, the integration of China's state-capitalist capital markets with

global markets is analysed, demonstrating that this integration (largely) conforms with state-capitalist logic, demonstrating their *resistance* towards pressures to conform with neoliberal capital markets. Third, the push to internationalise China's state-capitalist capital markets is analysed, that is the expansion of state-capitalist logic of running markets in international cooperations and other countries. This is especially important with respect to questions of power in the global economy as this indicates how Chinese state-capitalist capital markets not only resist but also actively *challenge* the neoliberal capital markets that underpin the US-dominated global financial order.

## 4 Capital market development in China: an alternative to neoliberal capital markets

This chapter focuses on the domestic development of China's capital markets, highlighting how Chinese exchanges facilitate this process through their creation and management of capital market infrastructures. While China's capital markets have rapidly developed in recent years, they function differently from and fulfil a different role than 'global' markets. Instead of a neoliberal institutional logic, the capital markets organised by Chinese exchanges follow a state-capitalist institutional logic. Hereby, exchanges act as intermediaries between the Chinese state, society and finance by actively managing capital markets. They attempt to exercise and maintain state power both within and through financialisation processes that unfold in China's state-capitalist economic system. The chapter demonstrates how the Chinese authorities attempt to partially control these processes, not through command-and-control measures but by utilising exchanges as 'pivotal points' through which to manage and steer capital markets.

By shaping the infrastructural arrangements of markets, they facilitate two institutional sub-logics of state-capitalism: they extend the state's ability to exercise *control* within and through capital markets and they direct market outcomes towards the accomplishment of *national development* policies. While the exchanges' control and direction of capital markets is neither absolute nor always effective, this chapter demonstrates a different way of thinking about and actively managing capital markets in China where financialisation is not necessarily linked to neoliberalism.[158] Rather than a break with China's state capitalism, the activities of the Chinese exchanges help to sustain and facilitate China's socio-economic system, attempting to shape the financialisation of China's political economy in accordance with state capitalism.

Since the global financial crisis, one could observe a gradual transition towards more market-based forms of finance and especially capital markets in China (see table 3.1). However, the growing importance of market-based finance in China does not represent a shift towards neoliberalism but rather a perpetuation of Chinese state capitalism through financial means (Petry, 2020a: 215). As previously noted, the development of Chinese state capitalism is a contradictory process; as Zeng (2016:

[158] As discussed in Chapter 3, Chinese exchanges are *state entities* and their performance and personnel are measured by their contribution towards policy objectives because they are deeply embedded within the institutional structures that permeate China's state capitalism (Lyu, 2015); this is in stark contrast to global exchanges with are *neoliberal corporations*.

181) put it 'there is a fundamental contradiction between generating economic success by utilizing quasi-capitalist economic policies and the fact that this is a communist party that supposedly justifies its rule by being the vehicle to deliver a communist society'. Consequently, rapid capitalist development in China created both social and economic tensions.[159] The Chinese authorities basically stay in power because they are able to resolve (or at least mediate) these tensions (also, Breslin, 2006: 115). Properly managed capital markets can thereby both help to mediate but could also exacerbate these tensions if left unfettered. This also becomes clear in a speech given by Xi Jinping in 2017, who noted that the tasks of China's financial sector were '[to] better serve the real economy, containing financial risks and deepening financial reforms'.[160] Capital markets further facilitate social stability by enabling and managing the participation of Chinese retail investors as continued economic growth and wealth accumulation are crucial aspects of the CCP's legitimacy.[161] These four policies are at the heart of the domestic development of Chinese capital markets (table 4.1).

***Table 4.1:*** *National development policies: neoliberal vs state-capitalist capital markets.*

| | **neoliberal capital markets** | **state-capitalist capital markets** |
|---|---|---|
| real economy | efficient allocation through free markets; private financial innovation encouraged | assessment of 'social usefulness' of finance; financial innovation state-controlled |
| social stability | finance is 'beneficial' (mortgage, pension) | finance as a double-edged sword; potentially beneficial and harmful |
| company / economic reform | shareholder value orientation | creation of national champions/ prestige |
| financial risk / (in)stability | passive monitoring, private risk management; speculation encouraged | active monitoring/management of risk; speculation discouraged (e.g. trading rules) |
| **institutional logic** | **'efficient' outcomes through enabling private profit creation** | **control of market / direction of market outcomes towards national development** |

*Source: author's table.*

The exchanges thereby effectively act as intermediaries that manage these tensions and the relationship between the Chinese state, society and capital markets. They organise market infrastructures in a way that establishes constraints and incentives for market

[159] This is also acknowledged by the Chinese authorities themselves; in 2017, during the 19th National Congress of the Communist Party of China Xi Jinping for instance noted: 'what we now face is the contradiction between unbalanced and inadequate development and the people's ever-growing needs for a better life' (as cited in Liang, 2017).
[160] Speech: 5th National Financial Work Conference (Beijing, 14 July 2017).
[161] On the importance of protecting retail investors, see for instance CSRC Chairman Xiao Gang (2013); also CSRC (2014).

actors to behave in certain ways. On the one hand, the Chinese exchanges attempt to control the financial and social risks emanating from increasing financialisation, on the other hand they attempt to facilitate national development through the active management of markets.

After chapter 3 discussed how Chinese exchanges are situated within the institutional setting of state capitalism, this chapter investigates the empirical implications of this setup by analysing the domestic development of capital markets in China. Shaped by their state-capitalist institutional logic, the Chinese exchanges consequently organise capital markets to facilitate specific state objectives. Section 1 focuses on their engagement with China's financial sector and their goal to prevent overspeculation in markets (*financial risk*). Section 2 analyses their intermediary role towards Chinese society as they stabilise the socio-political system (*social stability*). Section 3 explores their role for national economic development as finance ought to 'serve the *real economy*'. Section 4 analyses their relationship towards the non-financial sector and their role in the *economic reform* and restructuring of China's companies. Section 5 summarises the analysis of the domestic development of Chinese capital markets and distils key points of how they represent an alternative to the neoliberal markets of the global financial order.

## 4.1 Financial risk: controlling (in)stability through financial infrastructures

While capital markets can facilitate economic development, they also create new vulnerabilities, as speculation and increasing financial risk are an integral part of such financialisation processes (Hardie, 2012: 20). Controlling and managing these risks is an important task for the Chinese exchanges. While all states certainly have the objective to prevent 'overspeculation', what sets China apart is the constant intervention into and active management of capital markets through its state-owned exchanges in order to contain this negative aspect of China's increasing financialisation.

As one Hong Kong-based Chinese broker noted, 'Chinese markets are the only markets where the exchanges don't encourage speculation; because they are worried about the risk'.[162] This is a stark contrast to how global exchanges organise neoliberal

[162] Interview: international department, broker (Hong Kong, 26 September 2018).

markets. While 'foreign exchanges have to press every single dollar out of their business'[163] and 'try to attract as much trading as possible',[164] the objective for China's exchanges is to control trading volumes.[165] One Chinese exchange representative put it this way:

> You know, in China the exchanges do not have the purpose of earning profit, not like CME or foreign exchanges. […] But we work for the CSRC, the government. […] Sometimes, if [the market] is too liquid, if the trading volume is too large, *we earn too much money* and we start to worry about the market. We don't want to earn a lot of money. […] *But we need to control the risk*, the market risk, that is the first thing.[166]

The build-up of financial risk through too much speculative trading activity is a major concern for the Chinese authorities as financial risks can easily transform into social risks through rising unemployment or hampered economic growth which would undermine the party's legitimacy which is (partially) based on the promise of continued growth (Breslin, 2006: 115-116).[167] Controlling this risk is thus essential for the stability of China's state-capitalist system and in order to minimise financial risk, a monitoring and intervention system was established with a level of regulatory oversight and intervention unthinkable in global markets. As Charles Li, CEO of the Hong Kong Exchange (HKEx), stated: 'While Europe is struggling with MiFID II, in China you have MiFID 10'.[168] Hereby, the exchanges 'act as the policy translators'[169] – they are 'the focal point through which the state regulates and organises the market'.[170] By organising the infrastructural arrangements of Chinese capital markets according to a state-capitalist logic, the exchanges act as intermediaries between the Chinese state and domestic finance.

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[163] Interview: consultant, Chinese exchange (Shanghai, 9 May 2018).
[164] Interview: consultant, Chinese exchange (Shanghai, 24 April 2018).
[165] As another interviewee explained: 'Chinese exchange leaders don't like crazy volumes, because crazy volumes mean risks for them rather than revenue' (interview: business development, global exchange; Hong Kong, 7 July 2017; also, interviews: research department, Chinese exchange; Shanghai, 14 May 2018; and sales department, broker; Singapore, 1 December 2017).
[166] Interview: international department, Chinese exchange (China, 1 November, 2018), emphasis added; regarding the 'we earn too much money' comment, several interviewees pointed out that Chinese exchanges have 'stupid high trading volumes' (interview: consultant, Chinese exchange; Shanghai, 9 May 2018), so much that 'they don't even have [or need] sales teams' (interview: business development, global exchange; Hong Kong, 19 September 2018).
[167] Breslin (2006) identifies ideology, economic performance and social stability as the three sources of the CCP's legitimacy.
168 Observation: 'Global Exchange Leaders' Panel, FIA Asia Derivatives Conference (Singapore, 29 November 2017).
[169] Interview: business development, global exchange (Hong Kong, 19 September 2018).
[170] Interview: research department, regulator (Beijing, 12 September 2019).

While populated by profit-driven, speculating investors, state-capitalist institutional logic is engrained in market infrastructures through which exchanges shape how markets work. Exactly because controlling financial risk and insuring stability are major tasks for the exchanges, the financial infrastructures of Chinese markets are 'designed with control in mind'[171] and 'the motivation is to reduce trading activity'.[172] As market organisers, the Chinese exchanges define the rules of the game – (1) setting, (2) monitoring and (3) enforcing the rules according to which Chinese capital markets function.

### 4.1.1 Setting the rules of the game: (market) data, trading rules and margins

The rules set out by the Chinese exchanges differ substantially from how global exchanges organise their markets. From market data, trading rules and platforms to post-trading arrangements, Chinese financial infrastructures function differently as capital markets fulfil a different role within state capitalism (table 4.2).

***Table 4.2:*** *Financial infrastructures in neoliberal vs. state-capitalist capital markets.*

| | **neoliberal capital markets** | **state-capitalist capital markets** |
|---|---|---|
| market data | continuous flow, costly, differential access | snap-shots, free, little/no discrimination |
| regulatory oversight | limited, privatised (dark pools, etc.) | extensive, see-through monitoring system |
| market access | unequal access (co-location, DMA) | equal access (co-location limited, no DMA) |
| account structure | omnibus (little oversight) | individual (complete oversight) |
| margin requirements | portfolio margining, margin offsets | full margining, no offsets, margin monitoring |
| delivery | (mostly) cash-settled | (mostly) physical delivery |
| position limits | very few, only in certain products | extensive, strictly enforced, all products |
| trading rules | few order limits, countless order types | strict order (cancellation) limits, hedging quotas |
| trading speed | (ultra)high frequency trading encouraged | no day trading for stocks, slow for futures |
| non-compliance | few sanctions | orders cancelled, brokers called, fee increase |
| exchange motivation | marketised (profit-driven, shareholders) | politicised (policy-driven, state institutions) |

*Source: author's table.*

[171] Interview: emerging market strategist, global exchange (London, 11 January 2018).
[172] Interview: consultant, Chinese exchange (Shanghai, 24 April 2018).

There are, for instance, great differences in how exchanges manage market (data) access as they decide which data is available to investors and whether there are speed or information asymmetries. In global exchanges, market data is available as continuous streams and can be bought with different time delays (MacKenzie *et al.*, 2012, Meyer and Guernsey, 2015). This provides advantages for those professional traders who can operate faster trading systems, are able to co-locate their servers in exchanges' data centres or get direct market access (DMA), that is to plug directly into exchanges without going through a broker. Thereby, global exchanges create financial infrastructures that facilitate HFT (MacKenzie, 2018a). In contrast, on Chinese stock exchanges, market data only comes as snapshots (4 times per second), while DMA or co-location are not allowed. As a result, no speed asymmetries exist between investors and transaction volumes are decreased. In addition, everyone using the stock exchanges' market data (which is free) has to be registered on an exchange-operated platform. As a data expert from a global stock exchange noted: 'It's the only way when you want to get the data – you have to be registered – they really want to monitor who's doing what and where'.[173]

On futures exchanges, data also comes in snapshots (2-4 times per second) and as with the stock exchanges, normal market data is free.[174] Here, HFT is allowed but restricted. Importantly, the exchanges 'don't encourage investors to dabble too far into high frequency, so they don't provide real high frequency quotation' by limiting data to snapshots instead of real time.[175] While co-location is possible, DMA is not, so that every trade that enters an exchange has to go through the risk control of a Chinese broker[176] (foreign brokers are prohibited from operating in China).[177] In addition, whereas in global markets, connectivity is created by specific data vendors (e.g. Fidessa, Colt), in China there is one Application Programming Interface (API) – the trading programme – that connects all four futures exchanges. As a London-based financial data vendor noted:

[173] Interview: data business director, global exchange (Singapore, 4 December 2017).
[174] Some of the futures exchanges (ZCE, DCE and CFFEX) actually sell level 2 market data, which comes as two snapshots per second (interview: international department, broker; Shanghai, 26 April 2018).
[175] Interview: international department, broker (Shenzhen, 18 May 2018).
[176] Interview: international department, broker (Hong Kong, 26 September 2018).
[177] This chapter focuses exclusively on Chinese financial institutions; the role of foreign financial institutions within Chinese capital markets is discussed in Chapter 5.

> In any other part of the world, you would have different APIs for the exchanges, and […] as a vendor we would then put pipes into each exchange separately and so on… In China they have got this sort of consolidated model, […] they kind of have this one pipe into all four exchanges. It's a single API, and that operates like a vendor, and is operated by the exchanges.[178]

And while up to 40% of equity market trading in Europe and the US is conducted off-exchange (on market fragementation, see Mattli, 2019a), dark pools or ATS do not exist in China. All trading is conducted on exchanges.[179] That means that the exchanges can observe the whole market; as one exchange representative put it: 'China looks at the rest of the world and the problems that we've been having post-financial crisis and opacity and derivatives markets and CDS [credit default swaps] and things like that… and they say, "well, we don't have these problems, because we see everything that happens in the market".'[180] The exchanges are the only game in town. The absence of multiple APIs, different marketplaces, differential data speed and DMA thereby largely eliminates speed asymmetries between market participants, limiting the HFT activities.[181]

The Chinese exchanges further decide over which order types are available as well as over the levels of order (cancellation) and position limits,[182] thereby changing the incentive structures for certain types of trading. In contrast to global exchanges, only very few order types are available on Chinese exchanges.[183] Order (cancellation) limits are also kept relatively low in futures markets. This further limits HFT which often relies heavily on massive order flows/cancellations. As one interviewee noted: 'How many orders you can cancel, how many orders you can send per minute, that matters, because HFT needs to test the market, right? […] And there are measures in place to control that'.[184] This is not to say that HFT does not exist in China – in fact it

[178] Interview: business development, financial infrastructure provider (London, 9 January 2018).
[179] Interview: product development, exchange (Frankfurt, 2 February 2018); similarly, there is also comparatively little OTC derivative trading in China (see section 3).
[180] Interview: strategy department, exchange (Hong Kong, 30 June 2017); also, observation: 'Global Exchange Leaders' Panel, 13th FIA Annual Asia Derivatives Conference (Singapore, 29 November 2017).
[181] Very limited speed advantages can be gained by using different trading software or hardware (interview: international department, broker; Shenzhen, 18 May 2018). However, this stands in no comparison to Europe or the US where HFT is enabled by sophisticated networks of transcontinental microwave towers or fibreoptic cable (MacKenzie *et al.*, 2012); also, interview: managing partner, asset manager (Shanghai, 15 May 2018).
[182] Position limits are discussed in detail in section 3.
[183] Interview: international department, broker (Shenzhen, 18 May 2018).
[184] Interview: business development, global exchange (Hong Kong, 19 September 2018); also, interview: international department, financial infrastructure provider (Shanghai, 9 May 2018).

emerged in 2014 and has been growing since in Chinese futures markets.[185] But it is less widespread and much more constrained than in global markets.[186] Neither strictly forbidding HFT nor actively facilitating HFT, the Chinese exchanges follow a more cautious, exploratory approach, by letting it develop within a controlled environment. As a Chinese asset manager put it: 'they want to try it, but in a very contained sandbox-like way'.[187]

Similarly, post-trading aspects of the financial infrastructure are also designed to limit speculative activity. In both stock and futures markets, margins, for instance, have to be pre-funded and must be posted with the broker.[188] The exchanges thereby engage in 'pre-trade checking'[189] to ensure, people have enough cash to cover their trades. As the emerging market strategist of a global exchange explained:

> In China, you can only sell if you have the security, and you can only buy if have the money. In the [global markets] you have two days to settle, and you can buy and sell without having anything… […] And that has huge implications all over the place! In which types of transactions you can execute, obviously… in the cost of this transaction, because if you need to have the money the day before, there's a cost to that… you need to have the security immobilised in your account…[190]

In addition, no portfolio margin offsetting exists in futures markets that would lower margins on aggregate trading positions. Whereas global exchanges use portfolio margining to decrease their clients' capital requirements,[191] in China margin is charged for every contract and up-front, plus margins are usually very high.[192] This capital-intensive, comparatively 'expensive' system of margin calculation is another deliberate move to discourage speculation.[193]

Through their active management of markets, the Chinese exchanges have taken over the operation of even larger parts of the 'plumbing' of financial markets than global exchanges – and in a more comprehensive way to both monitor and

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[185] Interview: international department, broker (Shanghai, 25 September 2019).
[186] Interview: international department, broker (Shanghai, 26 April 2018).
[187] Interview: product development, asset manager (Hong Kong, 3 July 2017).
[188] Interview: international department, broker (Shanghai, 26 September 2018).
[189] Interview: international department, exchange (Hong Kong, 21 June 2017).
[190] Interview: emerging markets strategist, global exchange (London, 11 January 2018).
[191] CME's portfolio margining software SPAN is for instance widely used by exchanges globally (interview: business development, global exchange; Hong Kong, 19 September 2018).
[192]For iron ore futures margins are for instance 8% plus a buffer added by the broker (interview: international department, broker; Shanghai, 22 September 2019); also, observation: 'Opportunities in Chinese Derivative Markets' Panel, FOW Derivatives World Asia 2018 (Hong Kong, 11 April 2018).
[193] The stock exchanges also introduced t+1 settlement which makes intraday trading impossible, effectively preventing HFT.

exercise control over trading behaviour. By setting the rules of the game, the Chinese exchanges significantly influence market dynamics and investor behaviour.

### 4.1.2 Monitoring the game: see-through system, CFMMC and surveillance

More than simply setting the rules of the game, the Chinese exchanges created financial infrastructures that enable the monitoring of trading activities to detect possible rule violations. This is mainly conducted through the so-called 'pass-through' or 'see-through monitoring system' (穿透式监管), a sophisticated trading and clearing surveillance system gradually established after the bond trading scandal of 1995.[194]

As one Chinese exchange representative noted, 'the system is called *see-through* because we can see through individual investors' accounts – if something happens in the market, we know who did it'.[195] Similarly, a consultant for a Chinese exchange stated: 'They built this system where they can see everything, they can see everything! […] They can break it down by broker, by exchange, by product, by investor, everything'.[196] This again can be traced back to the state-capitalist logic that informs the infrastructural arrangements of China's capital markets which creates significant differences to the neoliberal markets organised by global exchanges.

In most global markets, exchanges use an omnibus account system, which enables them to monitor brokers or clearing members but not individual investors.[197] The Chinese exchanges, in contrast use a segment account scheme – the so-called 'one household, one account' system (一户一码制度).[198] This means that every single market participant has a unique identification number.[199] Basically, as one interviewee noted, 'every trade has an identifier on it, and that identifier ties back to who the end-investor is […] and that must tie back to at least a Chinese identity card'.[200] This means

[194] From the mid-1990s onwards, the exchanges and CSRC started monitoring market behaviour; after its creation in 2006, the CFMMC took over most of the CSRC's monitoring activities.
[195] Interview: international department, exchange (Hong Kong, 21 June 2017).
[196] Interview: consultant, Chinese exchange (Beijing, 29 October 2018).
[197] Interviews: international department, broker (Shenzhen, 18 May 2018) and product development, exchange (Hong Kong, 12 July 2017). While this changed slightly with the introduction of Legal Entity Identifiers (LEIs) through MiFID II in Europe, the level of surveillance pales in comparison to the Chinese system.
[198] Interview: representative office, global exchange (Beijing, 25 October 2018).
[199] Interview: consultant, Chinese exchange (Shanghai, 24 April 2018).
[200] Interview: business development, financial infrastructure provider (London, 9 January 2018).

that (in theory) there is 'absolute transparency at any given point in time'[201] in Chinese markets as the exchanges can trace every single trade back to the original investor (and a Chinese ID card).[202] As James Fok, HKEx's Head of Strategy, noted: 'In global markets, that information is just not available, it's not available very easily in real time, […] many of these inquiries can take days, weeks or even months'.[203] This 'see-through monitoring system' is operated by the Chinese exchanges which monitor their own markets and by the China Futures Margin Monitoring Centre (CFMMC) which observes trading activities across exchanges.

The CSRC established the CFMMC in 2006 to 'timely get futures market information' that is otherwise dispersed between different exchanges with the aim to 'monitor customer fund flows to see whether customers do shady things on the exchange or broker side'[204] in order 'to prevent risk accumulation'.[205] Thereby, the CFMMC collects data on open interest, trading volume, positions or margins across all exchanges, mostly in real time while some is calculated after the end of trading.[206] If traders violate the rules 'after the daily market close, they will reconcile the account, then they will find out […] and then you have a problem'.[207] This system has also been constantly improved to incorporate new market practices, for instance, by extending it to HFT. From June 2019 onwards, anyone trading with an algorithm must file IP, MAC-address and server details with the CFMMC. The CFMMC then adds a programme that collects and transmits data about your algorithm; as one Chinese broker noted, 'to better control trading behaviour […] see-through regulation now also incorporates HFT'.[208] Despite policy experimentation with financial innovations such as the advent of HFT, the exchanges' monitoring system has constantly evolved to maintain control over market behaviour, thereby following a state-capitalist logic of market organisation.

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[201] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar organised by the British Chamber of Commerce (Hong Kong, 29 June 2017).
[202] Interview: research department, regulator (Beijing, 30 October 2018).
[203] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).
[204] Interview: product development, Chinese exchange (Shanghai, 27 September 2019).
[205] Interview: research department, Chinese exchange (China, 18 October 2018).
[206] Observation: 'China Futures Market Development' Panel, FOW Derivatives World Asia (Hong Kong, 11 April 2018).
[207] Interview: hedge fund manager (Shanghai, 16 April 2018).
[208] Interview: international department, broker (Shanghai, 25 September 2019); also, interview: emerging markets strategist, global exchange (London, 11 January 2018).

For their own markets, the exchanges constantly monitor trading activities through 'transaction supervision departments' (交易监察部), with the aim of detecting suspicious trading activities that could indicate market manipulation or insider trading (figure 4.1).[209] The stock exchanges monitor the trading of all listed stocks and regularly investigate whether accounts of market manipulation occur. When, for instance, a company's stock quickly rises while trading volume does not rise accordingly, the exchange will suspect insider trading which can lead to an investigation of said company by the exchange. The exchanges thereby engage in real-time, 'front-line monitoring' with 200 people tasked with monitoring market behaviour at each SSE and SZSE. More time-intensive investigations would often be reported to the CSRC's 'investigation bureau' (稽查局/稽查大队) which investigates further: 'If the CSRC think this is fishy they will either send their "investigation team" [稽查大队/稽查总队] to the respective company/broker or invite them to the CSRC to explain themselves'.[210]

***Figure 4.1:*** *Zhengzhou Commodity Exchange Monitoring Centre.*


*Source: Picture taken in the Zhengzhou Commodity Exchange Exhibition Hall, October 2019.*

The futures exchanges also surveil their markets to assess whether there is too much trading. The key figure they thereby monitor is the trading volume-to-open interest ratio to determine whether illicit trading activities take place or whether there is 'over-speculation' in certain products.[211] If trading volume increases while open interest

[209] Interviews: research department, regulator (Beijing, 30 October 2018), international department, exchange (Hong Kong, 21 June 2017) and research department, Chinese exchange (China, 18 October 2018).
[210] Interview: research department, regulator (Beijing, 30 October 2018).
[211] Interviews: consultant, Chinese exchange (Shanghai, 9 May 2018), international department, broker (Shanghai, 22 September 2019), international department, Chinese exchange (China, 1 November 2018) and business development, global exchange (Beijing, 7 November 2018); they might also analyse 'any risk in the back system, investor structure, and also look at the economy […] and the

remains low, this is an indication of more speculative and fewer hedging activity as hedgers would open new contracts (open interest) while speculators would simply trade (volume). As a former Chinese exchange employee noted, 'if that was e.g. over 200% there would be a problem'.[212]

If there was too much speculative trading in a product, the exchanges would first attempt to regulate trading on the macro-level by increasing intra-day execution fees or margins for those contracts.[213] While commission fees for over-night trades might be RMB10, they could be RMB100 for intraday-trading.[214] These macro-level interventions often function as an early warning – as 'a sign to the market that the exchanges have noticed that and people should rather stop doing shady business'.[215] In a second step, the exchanges will call the top-traders or their brokers, telling them to stop trading for the day; and 'exchanges always have a list of the top 20 or 30 traders by trading volume [who] they can call'.[216] As one former Chinese exchange employee told me: 'You have no idea how many calls I gave to these large accounts, telling them to stop trading! […] But it's not written down anywhere, it's just window guidance'.[217] This 'window guidance' (窗口指导) is an important element and constant feature of how Chinese exchanges manage markets.[218] One interviewee working at a Chinese exchanges' strategy department described it as follows: 'window guidance… [that's] informal communication between exchanges and market… no emails, normally just a phone call to the management of securities firms, "let's have some tea together"…'.[219] Through this informal communication, the exchange will push traders into a certain direction – 'you are not crossing the line yet, but you are very close, and this is our

pricing in the Chinese market, at the commodities prices, [or] the arbitrage price between the commodity price and the future price.' (interview: international department, Chinese exchange; China, 14 October 2019).

[212] Interview: business development, global exchange (Beijing, 7 November 2018).

[213] Interview: consultant, Chinese exchange (Shanghai, 24 April 2018).

[214] Interview: international department, broker (Hong Kong, 26 September 2018); another example is that when A50 ETF Option price became very volatile in February 2018, the SSE stopped accepting new clients that wanted to use algorithmic trading; old clients could still do algo trading, but all new clients had to trade manually (interview: international department, broker; Shanghai, 26 April 2018).

[215] Interview: hedge fund manager (Shanghai, 24 September 2019).

[216] Interview: international department, broker (Shanghai, 25 September 2019).

[217] Interview: business development, global exchange (Beijing, 7 November 2018).

[218] Interview: hedge fund manager (Shanghai, 24 September 2019).

[219] Interview: strategy department, Chinese exchange (Shanghai, 24 September 2019); especially since 2015/16, 'drinking tea' (喝茶) has become an expression for being called by to regulators (interviews: business development, global exchange; Hong Kong, 19 September 2018; international department, global exchange; Taipei, 13 July 2017).

warning'.[220] As 'front-line regulators' in China's state-capitalist capital markets, the exchanges 'want to pre-manage the market before anything goes wrong'.[221] Through a level of oversight unthinkable in neoliberal markets, the exchanges try to prevent the build-up of financial risk that would increase tensions in the financialisation of China's state capitalism.

### 4.1.3 Policing the game: abnormal trading, rule violations and failure

The Chinese exchanges do not only set and monitor the rules of the game. They also actively enforce these rules vis-à-vis market participants, using their extensive monitoring system to examine whether there is any so-called 'abnormal trading activity' (异常交易) in their markets.[222]

The official definitions of such abnormal trading include: 'self-trades' (>5 per day), 'frequent order cancellations' (>400-500 per day), 'frequent cancellation of large-amount order', 'excessive trading' (reaching intraday position limits) and 'controlling several accounts'[223] – that is if traders use other (e.g. their relatives') ID cards to open additional accounts.[224] The exchanges then punish non-compliance in several escalation stages. For a first time breach, brokers are contacted who 'shall promptly forward the Exchange's alert notice to the Client and educate, guide, dissuade, and prevent the client from engaging in rule-breaking trades'.[225] The Chinese brokers hereby play the role of intermediaries. They will talk to their clients and tell them to refrain from certain activities, because they do not want the exchanges to call them and complain – because 'if the exchanges call, you have a problem… If you are

[220] Interview: international department, global exchange (Taipei, 5 July 2017); another interviewee noted: 'It's one thing to follow regulations, but still you can't go against the regulator, even if it's legally possible' (interview: CEO, asset manager; Hong Kong, 28 June 2017).
[221] Interview: business development, global exchange (Beijing, 19 September 2019).
[222] The exchanges also report these abnormal transactions on a monthly basis (see for instance: https://mondovisione.com/media-and-resources/news/dalian-commodity-exchange-deals-with-116-abnormal-transactions-in-q4/; last accessed 8 April 2020).
[223] For a detailed list of these measures, see Appendix IV.
[224] This used to be a prominent way to get around regulations, especially in the run-up to the 2015 stock market crash (interview: product development, exchange; Hong Kong, 12 July 2017).
[225] See Appendix IV; also confirmed by several interviews: international department, broker (Shenzhen, 18 May 2018), international department, broker (Hong Kong, 26 September 2018), international department, broker (Shanghai, 25 September 2019) and business development, broker (Beijing, 12 September 2019).

called by the exchanges, you did not properly do your job'.[226] This also creates responsibilities for brokers to ensure their members' compliance as rule violations would fall back on them.[227] If breached for a second time, clients will be placed on a watch-list and the exchange will notify them directly. If breaching the rules for a third time, the exchange will suspend the traders' account.[228] As one Chinese broker noted, 'when you read Futures Daily [a financial newspaper], every day there will be announcements of this or that company who has been suspended from trading because of rule violations, it happens every day'.[229]

If they really messed up, traders can also lose their trading license all together,[230] their trades can be annulled (or in rare cases even declared illegal), also retrospectively, or they can be sentenced to prison. While these are rather exceptions to the rule, the exchanges 'are going to make an example of 2-3 bad apples' so that the market behaves again.[231] This follows the Chinese saying to 'kill a chicken to scare the monkeys' (杀鸡儆猴), a move by the central authorities to punish a few selected players as a signal to deter specific discretionary behaviours (Mei and Pearson, 2014). This is also because the exchanges are embedded within state-capitalist institutional structures. The exchanges are incentivised to follow through with these measures as they 'want to protect their listed products and the investors trading in their markets […] before the regulator gets angry'[232] – otherwise the CSRC might decide to delist 'speculative' products (as in the case of bond futures in 1995). Such failures would reflect badly on the career development of exchange officials. As a consultant for Chinese exchanges noted, these harsh measures therefore have a 'preventive/pre-emptive effect, stopping these things from happening in the first place'.[233] First because (most) investors and brokers aim not to cross this line, second as the exchanges have incentives to actually enforce rules.

However, this system is far from perfect and the exchanges sometimes fail to achieve their goals or their risk management activities are not always effective as demonstrated by the 2015/16 stock market crash. Starting in July 2014, China's stock

[226] Interview: business development, broker (Beijing, 12 September 2019); also, interview: international department, broker (Shanghai, 26 April 2018).
[227] Interview: hedge fund manager (Shanghai, 16 April 2018).
[228] Between one and six months, depending on which rules were broken; see Appendix IV.
[229] Interview: international department, broker (Shenzhen, 18 May 2018).
[230] Interview: international department, broker (Hong Kong, 26 September 2018).
[231] Interview: APAC sales director, global exchange (Hong Kong, 30 June 2017).
[232] Interview: international department, broker (Shanghai, 25 September 2019).
[233] Interview: consultant, Chinese exchange (Beijing, 29 October 2018).

market went on a continuous rally, partially fuelled by the PBoC's loosening of monetary policy, partially by the CSRC's attempts to re-introduce margin financing after its ban in 1995. As a result, the stock market rose by 150% between June 2014 and June 2015, before it turned and fell by 32% within a month, followed by another 18% decline in January 2016 (Lee, 2015, Lahart, 2016).

But even the exchanges' management of such failures reveals a different way of managing markets that has emerged in China. First, the regulators called in the 'national team' (国家队) – a group of state-owned asset managers and brokers – to stabilise the market. As the CEO of a Hong Kong-based asset manager noted, 'the government just gives goals to the large asset owners, including asset managers – you can't sell anymore… that's not a rule and not written down, but you better not try to ignore that [chuckles]'.[234] Overall, they 'helped keep a stock market crash from turning into a collapse' (Yang, 2018) by buying at least RMB1.5 trillion (US$234 billion) worth of Chinese equities,[235] representing at least 6% of China's stock market (Wildau, 2015).

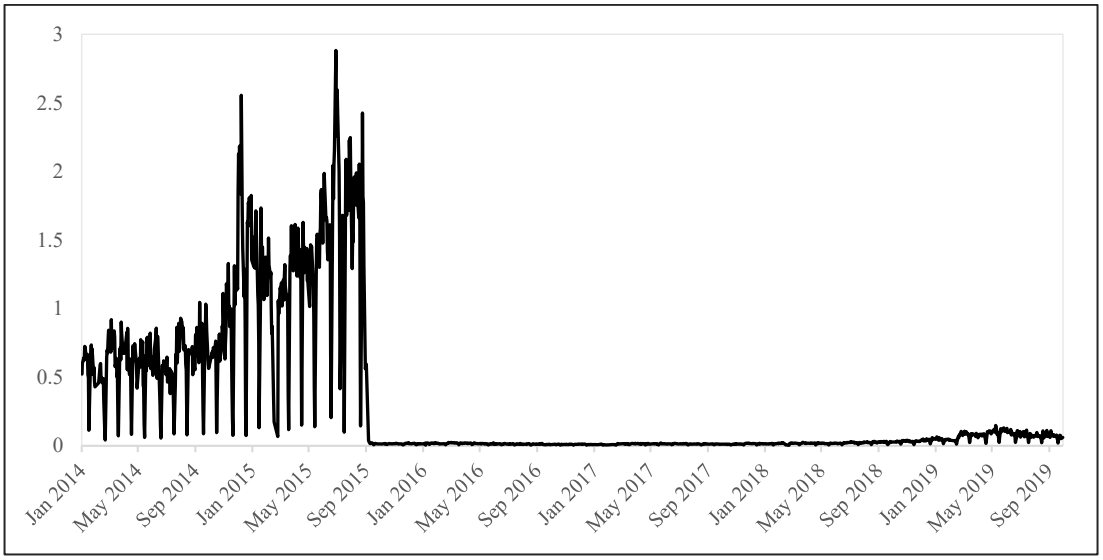
To further stem the crisis, measures were put in place considered 'draconian by Western standards'.[236] There was a crackdown on margin lending operations and investigations were started into 'malicious short-selling'. In June 2015, the exchanges temporarily restricted the shorting of stocks; as one Chinese hedge fund manager stated: 'some institutions were even asked to forfeit their shorting position – we were one of them [laughs]'.[237] In addition, the CSRC punished over 760 institutions and individuals in 2015, both with incredibly high fines as well as prison sentences – not for necessarily doing illegal things but operating in a grey area that was seen as exacerbating the crisis.[238]

The most radical measure was CFFEX's shutdown of the CSI 300 futures market. After being the world's most-traded equity index futures in 2015, it was 'killed'[239] over night after fears that it would exacerbate the stock market downturn. Between 25 August and 2 September 2015, CFFEX increased pre-fundable margins

[234] Interview: CEO, asset manager (Hong Kong, 28 June 2017).
[235] Similarly, 'local teams' (地方队) of financial institutions orchestrated by provincial/municipal governments were encouraged to provide capital support to recue listed local companies whose stocks have come under pressure (Yang, 2018).
[236] Interview: product development, exchange (Frankfurt, 2 February 2018).
[237] Interview: hedge fund manager (Shanghai, 24 September 2019).
[238] Interview: executive director, investment advisor (Hong Kong, 6 July 2017).
[239] Interview: business development, financial infrastructure provider (London, 9 January 2018).

from 10% to 40%, raised intraday execution fees 100-fold to 23 basis points, lowered position limits from 500 to 10 contracts per day, investigated non-complying investors and suspended them from trading. As an interviewee who heads the China operations of a global exchange noted: 'That was incisive! Overnight the whole market and all that trading volume more or less collapsed by 99%'.[240] Such a swift, politically motivated market intervention through state institutions would be very unlikely in neoliberal capital markets where market infrastructures are privatised and distanced from the state (figure 4.2).

***Figure 4.2:*** *Daily trading volume for CSI 300 futures market, 2014-2019.*




*Source: CFFEX trading data (in million contracts).*

Apart from drastic market intervention measures, failing to prevent overspeculation also has severe consequences for exchange personnel. After the 2015 crash, for instance, several high-level exchange and regulatory executives were ousted; as one interviewee noted, 'there was a complete reshuffle of all the senior people at the different exchanges'.[241] The most prominent case was CSRC Chairman Xiao Gang (see also Kang and Yao, 2016, Naughton, 2017). He was 'a more pro-reform guy' and under his tenure capital markets were gradually liberalised, with the introduction of index futures, margin trading and short-selling. However, 'he made some bad calls […] in how he tried to manage the market and that had bad consequences for

[240] Interview: APAC director, global exchange (Hong Kong, 30 June 2017).
[241] Interview: business development, global exchange (Hong Kong, 12 July 2017).

him…'.[242] His successor is considered to be much more conservative and sceptical of hasty liberalisation efforts.[243] As success for China's market organisers is evaluated based on facilitating state objectives such as containing risk, this demotion system aims to keep exchange employees 'vigilant' and not stray too far from their public mission.[244] Mirroring the 1995 bond futures scandal, it becomes clear that the reactions to such failures are not individual incidents but form a pattern that is informed by state-capitalist logic of market organisation.

With a growing role of capital markets in China's economy, Chinese exchanges have designed the infrastructural arrangements of their capital markets according to a state-capitalist logic and in a way that aims to exercise control within and over capital markets. Market infrastructures are designed to monitor and prevent overspeculation, control the build-up of risk and alleviate volatility that is often seen as inherent to financialisation (Hardie, 2012, Palley, 2013). Of course, control is never absolute, and the exchanges and regulators sometimes fail at this task as demonstrated by the 2015 market crash. However, through exchanges the state aims to control some of the negative and potentially destabilising repercussions of financial development, thereby integrating capital markets into and making them compatible with China's state-capitalist economic system.

## 4.2 Social stability: the societal relevance of Chinese capital markets

Capital markets are also used as a way to facilitate social stability in China. In the absence of a sufficient public social security system and a simultaneous strain on the familial social security system due to the legacy of the one-child policy and a (consequently) aging population – investing into the stock market serves as a partial fix to these tensions created by China's state capitalism.[245]

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[242] Interview: product development, asset manager (Hong Kong, 3 July 2017).
[243] As a result of the crash, the CSRC also lost power in the regulatory regime; while theoretically on the same level, in practice the PBoC 'calls the shots' and has become much more powerful 'because the CSRC boss failed to see the 2015 crisis coming' (interview: CEO, financial industry association; Shanghai, 25 April 2018; also, interview: research department, regulator; Beijing, 30 October 2018).
[244] Interview: research department, Chinese exchange (China, 18 October 2018).
[245] In 2018, according to the China Academy of Social Sciences the deficit in China's existing pension system stood at about RMB 600 billion (US$89.1 billion); further, the savings rate decreased from 51% to 46% of GDP between 2008-2018, indicating a shift towards investing and consumption (Le Couédic *et al.*, 2019).

As one interviewee noted, '[current levels of] pensions will not be enough for people to sustain… look at the huge inflation rate and at the property prices, they are going up every year… So, people have to take care of themselves…'.[246] As a result, investing into the stock market was actively promoted by the state, facilitating the creation of a stock trading culture and a financialisation of everyday life (Dal Maso, 2015, Ren, 2020). Already in the 1990s, slogans such as 'getting rich is glorious' animated millions of retail investors to invest into stocks (Hertz, 1998, Walter and Howie, 2001) as Chinese investors were looking for ways to invest their income. In 2018, the investable wealth of retail investors in China amounted to US$24.3 trillion, whereof the general public, upper-middle class and rich Chinese accounted for US$9 trillion, US$6 trillion and US$9 trillion, respectively (Banerjee *et al.*, 2019: 8).

After several scandals in the shadow banking sector where opaque products were sold to retail investors, the Chinese authorities are trying to move investor assets from shadow banking and P2P-lending platforms into stock markets that can be better controlled and monitored. As a Hong Kong-based investment advisor noted:

> I think it's a good, strong argument that you should not let unsophisticated investors get involved in products they don't understand. […] OTC products [such as] structured WMPs [wealth management products] are much more opaque… Actually, allowing them to trade on a market where you've got a visible price that goes up, goes down, but you can always see the price, market data is free… I think it's a pretty strong argument.[247]

Consequently, the promise of a Chinese dream, socialism with Chinese characteristics and social stability are all intricately linked with the performance of the stock market; as the CSRC Chairman noted in 2013: 'Capital markets could bring insecurity into the social make of China' and therefore they require 'very tight control'.[248]

From less than 30 million trading accounts in 2006, more than 140 million individual investors traded in China's stock markets by 2015 (figure 4.3), and between 70-90%[249] of overall trading was conducted by these mom and pop investors. As a

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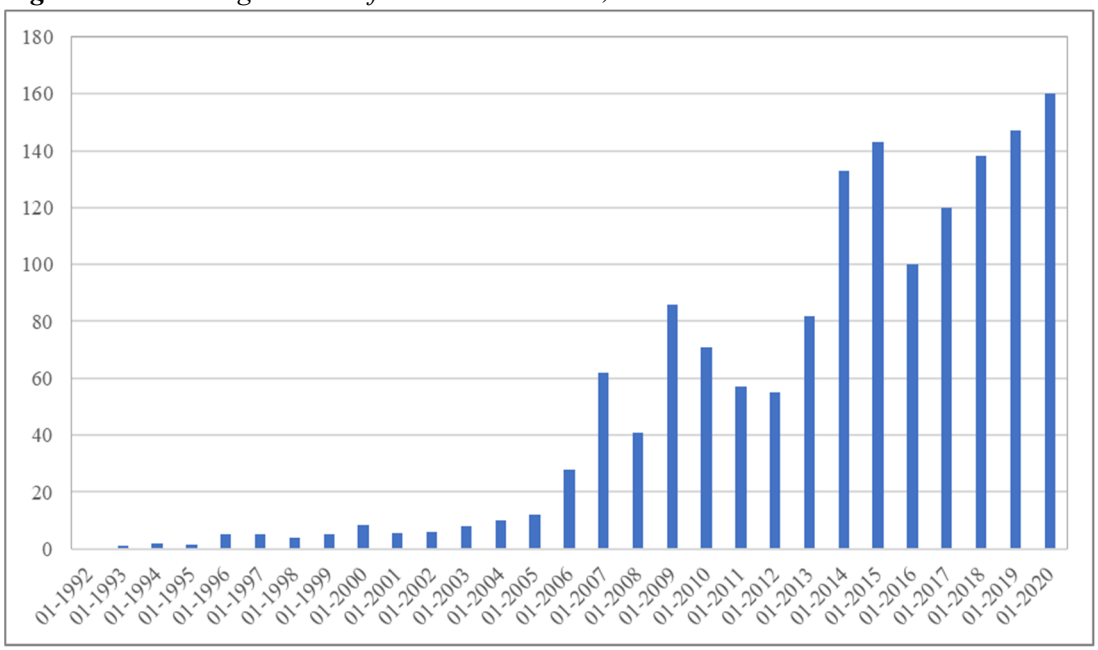
[246] Interview: product development, exchange (Hong Kong, 12 July 2017); also, interview: managing director, broker (Hong Kong, 7 July 2017).
[247] Interview: executive director, investment advisor (Hong Kong, 6 July 2017); WMPs (wealth management products) refer to a popular asset from the shadow banking sector that was mostly sold to retail investors (interview: strategy department, exchange; Hong Kong, 30 June 2017).
[248] Interview: data business director, global exchange (Singapore, 4 December 2017).
[249] Estimates for the number of retail investors vary as some smaller professional investors might trade disguised as a retail person, partially because retail accounts do not have to pay income tax on stock returns (interviews: APAC director, global exchange; Hong Kong, 30 June 2017; business development, global exchange; Beijing, 7 November 2018); however, even counting in these fake

result, the performance of the stock market occupies a much more politically sensitive space than in many other countries.

***Figure 4.3:*** *Growing number of investors in China, 1992-2020.*




*Source: China Securities Depository and Clearing Corporation; number of stock trading accounts.*

These retail investors represent a double-edged sword for the Chinese authorities. As one Chinese exchange representative noted, 'the retail investors are our advantage and also our disadvantage [and] many around the world envy the Chinese market for its liquidity [because] they create so much volume'.[250] These retail investors made China's markets the world's second largest, despite having a comparatively 'underdeveloped' financial sector and little foreign investor participation. However, they also bring a lot of volatility into Chinese capital markets. While stock markets turnover velocity was 80% and 120% on NYSE and Nasdaq in 2017, on SSE and SZSE it stood at 150% and 240%, respectively. James Fok, Head of Strategy at HKEx, commented these figures by stating that 'basically you have a bunch of retail punters trading like mad… basically a bunch of human HFTs trading like crazy'.[251] The CEO of a Hong Kong-based asset manager explained this behaviour with an anecdote:

accounts, most experts agree that the vast majority of the market (~70%) is retail-based, considerably higher than in the US or UK with 10% and 20%, respectively (Chu *et al.*, 2018: 4).

[250] Interview: international department, Chinese exchange (Shanghai, 26 September 2019).

[251] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017); one interviewee formerly working for a global exchange before

> Retail-dominated in China means, retail-retail – it's the end-investor, the papas and the mamas who close their food stall at the end of the day and start trading… that's actually not true, they trade throughout the day on their phone [laughs]. It's like really retail-retail, that's 70-80% of the market. That's just very news-driven… but is it real news? Something can spark a stock to go up and down, which might in the end be a rumour. We had some fantastic examples last year. A stock in the end actually got suspended because they couldn't find the Chairman… The Chairman was gone, nobody knew where the Chairman of the company was [laughs]. So, the stock went down, "Have you seen the Chairman?", "No, no, no" [laughs] and within a few hours all of China knew that nobody could find the Chairman, and the stock plummeted. In the end the stock exchange said, "okay suspended – we don't know where the Chairman is"… I think it's brilliant [laughs]![252]

Retail investors – also known as 'Chinese mamas' (中国大妈) – were described in many interviews as 'children', 'financially illiterate', 'irrational' and 'gamblers' who traded via their smartphones (often during their normal job) and are 'driven by rumours'.[253]

However, more than just 'uninformed', 'gambling' traders, their participation in stock markets is an important factor that legitimises the political rule of the CCP. As the literature on 'responsive authoritarianism' highlights, party-based authoritarian regimes such as China often rely upon the support of a growing middle class to remain in power (Heurlin, 2016). Sum (2019) refers to this as the 'performance legitimacy' of the Chinese authorities, who 'want the market to go up, to look prosperous [and be seen as] their accomplishment'.[254] This dilemma is described by one Hong Kong-based, former broker:

> The authorities in mainland China don't want all their newly wealthy to be vulnerable to that type of activity. So, they are trying very hard to limit the damage that could be wreaked by sophisticated financial services practitioners on what are relatively inexperienced, knowledge-less new wealthy.[255]

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moving to a Chinese trading platform noted, however, that this characterisation of Chinese investors as crazy speculators is a question of *Deutungshoheit* – global exchanges similarly rely on speculators as well, but in the form of 'sophisticated' algorithmic traders (interview: senior manager, commodity trading platform; Hangzhou, 22 April 2018).

[252] Interview: CEO, asset manager (Hong Kong, 28 June 2017); this anecdote probably refers to the missing Fosun Chairman, see Forsythe (2015).

[253] Interviews: business development, global exchange (Beijing, 19 September 2019), hedge fund manager (Shanghai, 24 September 2019), international department, exchange (Hong Kong, 21 June 2017), executive director, investment advisor (Hong Kong, 6 July 2017), product development, exchange (Hong Kong, 20 June 2017), business development, financial infrastructure provider (London, 9 January 2018) and private equity manager (Hong Kong, 5 July 2017).

[254] Interview: hedge fund manager (Shanghai, 24 September 2019).

[255] Interview: executive director, investment advisor (Hong Kong, 6 July 2017).

Consequently, next to controlling financial risk, the Chinese exchanges organise the infrastructural arrangements of China's capital markets in ways that accommodate the social risks emerging from retail investor participation. As social stability is an important source of the CCP's legitimacy (Breslin, 2006: 116), this is an important policy objective within Chinese state capitalism. This also reveals the aforementioned and at times contradictory and internally inconsistent nature of state-capitalist institutional logic. On the one hand the state aims to control financial (in)stability (section 1), on the other hand it has interwoven social stability with capital market participation which in turn potentially decreases financial stability. Aiming to mediate this tension, the exchanges attempt to (1) protect retail investors through financial infrastructures and (2) facilitate the education and professionalisation of Chinese investors.

### 4.2.1 Protecting the market: retail-directed market infrastructures

Protecting retail investors is an important task for the authorities.[256] They therefore use their above-mentioned system of risk monitoring and market management in a delicate balancing act between allowing retail investors to participate in capital markets but also to reduce the volatility that they bring to markets, professionalise/educate retail investors and to protect them from themselves (e.g. getting burned in market swings) as well as others (e.g. 'predatory' professional investors).[257] As one interviewee working for a global exchange's China business development team put it:

> I feel that the Chinese regulators are sometimes like parents, they have to take care of their little kid, retail investors are like the last, youngest, little kid. Whereas the institutions are relatively alright […] because they have risk management and stuff […], the kid can be doing nonsense, he doesn't know what he's doing, he's not reasonable… But once he got hurt and then he's crying, the parent has to do something about it, right?[258]

[256] The 3rd Plenary Session of the CCP's 18th National Congress clearly indicated to 'optimise […] the protection of legitimate rights and interests of investors and especially small and medium-sized investors' (CSRC, 2014); small and medium-sizes investors are defined as investors with less than RMB 500,000 ($70,000) investment volume.
[257] Interviews: international department, exchange (Hong Kong, 21 June 2017) and business development, global exchange (Beijing, 19 September 2019).
[258] Interview: business development, global exchange (Hong Kong, 7 July 2017); another interviewee used a similar analogy: 'In China, the government is doing things as a family, to the benefit of the

The stock market has a 'social function'[259] and 'if retail investors get burned in the market, this is not good for the government'.[260] The authorities do not want investors 'protesting in front of the CSRC or PBoC' because they lost money in the stock market.[261] As one interviewee noted, 'at a grander scale it is about social stability, that's the final objective [of market regulation]'.[262] To tackle this issue, the regulators would 'set an example' with a firm that engaged in market manipulation or insider trading, because 'then the little children feel better now because the government is doing something, otherwise they go protest… If you've lost a lot of money… […] So, it's society's harmony that the [exchanges] try to preserve'.[263] Therefore, since their reform in the late-1990s, the markets organised by Chinese exchanges are designed to protect retail investors[264] – effectively acting as intermediaries between the Chinese state and society. To be clear, this was not always the case. As one Chinese hedge fund manager noted:

> 10-20 years ago, you could make a lot of money in the market with such business, manipulating prices et cetera. But now, the exchanges have developed and have much better systems. Back then, it was a jungle… it still is, but it's not so barbaric anymore. […] I always advise friends to not do anything stupid, because [now] the Big Brother will know sooner or later.[265]

After several scandals in the 1990s in which brokers misused client funds, exchanges started to extensively monitor brokers' activities and to clamp down on fraudulent behaviour such as market manipulations or insider trading. Consequently, as one Chinese private equity manager noted, '[today] some of the policy [and infrastructure] is actually more in favour of the retail investors than the institutionals'.[266] The exchanges, for instance, require companies to make announcements that have an impact on share prices after trading hours. In contrast to global markets, where announcements need to be made asap, the rationale in China is to not disadvantage retail investors as these usually work during trading hours and therefore cannot quickly

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whole family – this is also seen in markets' (interview: business development, global exchange; Beijing, 19 September 2019).

[259] Interview: managing partner, asset manager (Shanghai, 15 May 2018); also, interview: sales department, global exchange (Hong Kong, 27 September 2018).

[260] Interview: business development, global exchange (Beijing, 19 September 2019).

[261] Interview: managing partner, asset manager (Hong Kong, 27 June 2017).

[262] Interview: business development, global exchange (Hong Kong, 19 September 2018).

[263] Interview: business development, global exchange (Hong Kong, 7 July 2017).

[264] Interview: international department, Chinese exchange (Shanghai, 11 May 2018).

[265] Interview: hedge fund manager (Shanghai, 24 September 2019).

[266] Interview: private equity manager (Shenzhen, 22 June 2017); also, interview: business development, global exchange (Hong Kong, 10 July 2017).

react to this information.[267] The stock exchanges also do not sell real-time market data which would give professional investors an advantage over retail investors. As mentioned, market data is instead published in bundles, which as one China-based foreign asset manager stated' [is] good for lay people, but bad for professional investors'.[268] This is also because exchanges are not primarily motivated by profit (i.e. selling market data) but rather by maintaining social stability, as speed advantages 'would be unfair for retail investors' because they cannot easily react to real-time market information, instead 'they would be cheated by the sophisticated investors […] who would pay a lot of money to get faster information'.[269]

The stock exchanges also deliberately decided to stop intraday trading after 1995.[270] On the one hand, this was established to keep retail investors from trading too much and to protect them from market movements. As an interviewee working for the international department of a Chinese exchange told me: 'Yes, we have t+1. […] In the past we tried t+0, but you know… many retail investors will trade all the time… so, we introduced some limitation for them. […] The regulator thinks that with t+0 we would add risk… […] that some investors will trade too frequently, and it will not be good for the market'.[271] On the other hand, this setup makes HFT trading impossible in the stock market. First, so that sophisticated traders cannot gain an edge over lay traders. Second, because there is already so much liquidity in China's stock market due to the many retail investors, that 'encouraging HFT would be like adding fuel to the fire – and that is nothing the authorities want to see'.[272]

Protecting retail investors is engrained into the financial infrastructures of China's capital markets that follow a state-capitalist logic. Thereby, the exchanges maintain social stability and control social risks emerging from an increasingly financialised Chinese state capitalism.

[267] Interview: emerging markets strategist, global exchange (London, 11 January 2018).
[268] Interview: managing partner, asset manager (Shanghai, 15 May 2018); also, interview: business development, global exchange (Hong Kong, 7 July 2017).
[269] Interview: international department, Chinese exchange (Shanghai, 26 April 2018).
[270] Interview: research department, Chinese exchange (China, 6 November 2018).
[271] Interview: international department, Chinese exchange (Shanghai, 26 April 2018).
[272] Interview: consultant, Chinese exchange (Shanghai, 24 April 2018).

### 4.2.2 Educating the market: professional investors/investor professionalisation

Another aspect is the education and professionalisation of retail investors as the entrance of more professional traders has accelerated trading losses of retail investors, especially in futures markets.[273] The term 'cutting grass/chives' (割韭菜) is often used to describe this situation, because as one Chinese exchange official explained, 'individual investors are so vulnerable, winning against them is as easy as cutting grass [and] also like grass retail investors grow very fast when the market goes up, all go into the market and are then "harvested"'.[274] While in the 1990s and 2000s, retail investors were actively encouraged to invest into the Chinese markets (Dal Maso, 2015, Wang, 2017), the government wants them to trade less as their trading losses undermine social stability.[275] To counter this, the exchanges follow three policies: facilitating investor professionalisation, reducing retail investor access for specific market segments, and institutionalising the investor base.

First, as Wójcik (2012: 121) noted in his analysis of the Warsaw Stock Exchange, one important activity of exchanges is to educate investors which he notes 'is particularly important in the context of a country where stock market did not exist for over half a century before 1991'. Therefore, the Chinese exchanges have special departments 'dealing with the protection, professionalisation and education of retail investors'[276] which conduct roadshows, seminars or create educational videos.[277] Especially as new products such as options are more difficult to understand for retail investors, 'they are even using some kinds of graphics, cartoons, for example if it's left-hand it means that it's a call or put or something like that'.[278] Brokers can also apply for funding from the exchanges to conduct corporate events, under the condition that they also provide such educational sessions.[279]

Second, the exchanges are introducing higher entry requirements for specific market segments. In order to trade index futures or options, the exchanges for instance require investors to take exams and to reduce trading by uninformed investors. Investors wanting to participate in new market segments such as the SSE A50 ETF

[273] Interviews: international department, broker (Shanghai, 25 September 2019) and international department, Chinese exchange (China, 14 October 2019).
[274] Interview: strategy department, Chinese exchange (Shanghai, 24 September 2019).
[275] Interview: business development, broker (Beijing, 12 September 2019).
[276] Interview: international department, Chinese exchange (Shanghai, 26 September 2019).
[277] Interview: private equity manager (Shenzhen, 22 June 2017).
[278] Interview: international department, financial infrastructure provider (Shanghai, 9 May 2018).
[279] Interview: hedge fund manager (Shanghai, 16 April 2018).

Options or the Hong Kong Stock Connect further need to hold an aggregate balance of at least RMB 500,000 in their account[280] and when designing the new internationally accessible crude oil futures, the contract specifications were altered from 1000 to 10,000 lots – i.e. increasing the price tenfold – in part to prevent too much retail participation.[281] Especially with more complicated, leveraged financial products such as options, 'these arrangements are in place to protect retails from themselves'.[282]

Third, the Chinese authorities try to professionalise the investor base in their markets.[283] In fact, over the last years the share of retail investors in China's markets has been decreasing. By end-2019, the share of institutional investors increased to at least 20% of trading volume.[284] In part, this is because quite a few retail investors have honed their skills while trading in the market, started to professionalise their activities, and set up 'private funds' to collect additional capital for their trading strategies.[285] Especially after the enactment of the revised *Securities Investment Fund Law* in 2013, 'private funds' – which until then operated in the shadows – became an official part of the financial industry regulated under the CSRC. Within five years, their assets under management (AuM) have grown to RMB12.8 trillion (Bloomberg, 2018). Similarly, the asset management industry as a whole grew from RMB58 trillion to RMB117 trillion between 2014 and 2018 (Le Couédic *et al.*, 2019).

Professionalising the investor base is a significant priority for the authorities because the trading behaviour of Chinese retail investors is a lot more speculative than that of institutional investors (figure 4.4), adding to financial risk. If they were to invest in such funds instead of trading themselves, they were less likely to get burnt in the market – reducing social risks associated with the stock market. Professionalising investors therefore maintains the CCPs stock market-linked performance legitimacy while reducing social risk.

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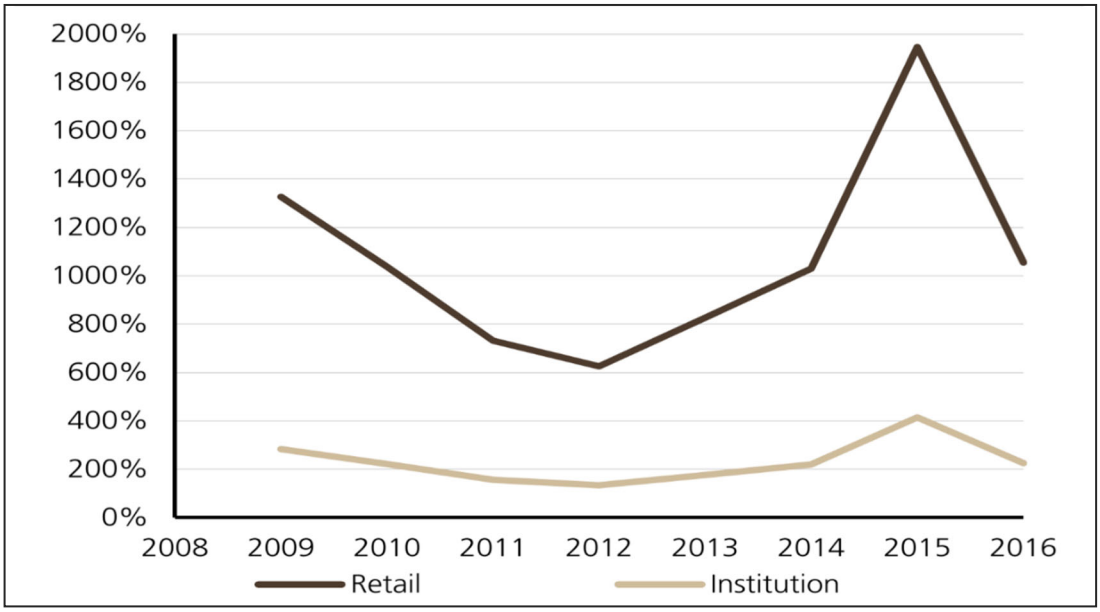
[280] This was deliberately done to discourage retail investors from speculating in these markets (interviews: consultant, Chinese exchange; Shanghai, 24 April 2018; product development, exchange; Hong Kong, 12 July 2017).
[281] Observation: Discussion at 'Crude oil and building international pricing' Panel, FOW Derivatives World Asia (Hong Kong, 11 April 2018).
[282] Interview: international department, Chinese exchange (Shanghai, 26 September 2019).
[283] Interview: product development, asset manager (Hong Kong, 3 July 2017).
[284] Interview: international department, Chinese exchange (Shanghai, 26 September 2019); this is starting from the broad definition of retail investors 'traditionally' accounting for 90% of the market.
[285] Interviews: business development, global exchange (Hong Kong, 7 July 2017) and hedge fund manager (Shanghai, 16 April 2018).

***Figure 4.4:*** *Market velocity by investor type in China.*




*Source: Chu et al. (2018: 20); measured as annual turnover/total market capitalisation.*

This transition is of course not without problems. First, developing a functioning asset management industry without disrupting the market or giving up control is not done easily. While domestic asset management has been growing rapidly, they still only account for a small share of the market. Of course, foreign financial institutions could fulfil this role. But opening markets too quickly would inevitably force the Chinese authorities to yield their influence over markets, which is why they do not want foreign companies to fill this void (see Chapter 5). Second, the regulators would need to convince retail investors to stop trading themselves. This is not an easy task. As a Hong Kong-based Chinese private equity fund manager noted: 'They think, "I can trade with my smartphone, why pay someone to do it?" They think they can do it better than institutional investors'.[286] The same applies to passive investing. While ETFs and index funds are slowly growing in China (Li, 2020), many retail investors do not want to invest into these products. As a Chinese hedge fund manager stated: '[for them] ETFs are boring… this is investing, not trading… it's not like gambling, that's actually what they do'.[287] So, while the exchanges are educating retail investors and institutionalising the market, this is a slow and gradual process. For the time being retail investors are likely to stay – and have to be endured, tolerated, tamed and protected by the exchanges.

[286] Interview: private equity manager (Hong Kong, 5 July 2017).
[287] Interview: hedge fund manager (Shanghai, 24 September 2019).

Overall, capital markets play an important role in the social fabric of Chinese state capitalism. In the interest of harmony and social stability, retail investors are (or were) both encouraged to participate in the market, but they also need to be protected from severe losses and unfair market practices. As one interviewee noted: 'they want stability, social stability, financial stability, *stability is key to everything*'.[288] This reveals a clear contradiction for the Chinese authorities between their needs to facilitate social and financial stability. On the one hand, letting retail investors participate in their market is important for the Chinese social compact. On the other hand, these investors bring with them exactly the kind of speculative behaviour that the authorities want to control. These two imperatives reveal the variegated, partially contradictory nature of state-capitalist institutional logic. The Chinese exchanges play an important role in this balancing act, managing and directing capital markets to mitigate the existing and emerging relationship as well as defusing tensions between the Chinese state, society and finance in the transition towards a more financialised form of state capitalism.

## 4.3 Real economy: assessing the social usefulness of finance

While the previous two sections analysed how Chinese exchanges attempt to control social and financial risk emanating from China's increasing financialisation, the next two sections examine how exchanges attempt to steer capital markets towards national development. These represent the flipside of China's financialisation process, focusing on the potential benefits of this development. One important aspect thereby is the mediating (changing) relationship between finance and the real economy.

In the financialisation literature, many scholars highlight that finance often negatively affects real economic development (Krippner, 2005, Stein, 2011). This has been a very prominent topic in Chinese government and regulatory circles, as 'they are very careful about controlling the economic function of trading'.[289] In this respect, Andy Ni, SHCH's Head of Risk at SHCH, noted: 'The regulators have the fear that the investors are just investing for the purpose of investing and creating hot asset bubbles […] [however] if investment is connected to the real economy, real economic need

[288] Interview: research department, regulator (Hong Kong, 5 July 2017; emphasis added).
[289] Interview: APAC sales director, global exchange (Hong Kong, 30 June 2017).

and real growth, then it should be fine'.[290] Consequently, one phrase that is often invoked by Chinese authorities is that 'finance should serve the real economy',[291] a notion that was reinforced in 2015 when Xi Jinping emphasised that 'serving the real economy is the bounden duty and purpose of the financial sector'.[292]

'Serving the real economy' is a policy that flows from state-capitalist institutional logic and China's capital markets development is closely related to this policy objective. Importantly, within the CCP there are factions that question the benefits of financial markets (see Shih, 2007), fuelled by ideological battles over the development of China's political economy (Zeng, 2016: 18). China's state-capitalist institutional structure therefore creates important incentives/imperatives for pro-financial market regulators and reformers to prove the social usefulness of capital markets and make sure they fulfil this function.[293] Hence, next to controlling financial and social risks, 'serving the real economy' is a major priority for China's exchanges (figure 4.5) and they facilitate this through their market management practices.[294] They exercise this task in three ways: (1) by making assessments about the social usefulness of different capital market segments; (2) by shaping the infrastructural arrangements in these markets; and (3) by influencing their investor structures to facilitate national development policies.

[290] Observation: 'Derivatives Landscape in China' Panel, 13th FIA Annual Asia Derivatives Conference (Singapore, 29 November 2017).
[291] This was prominently discussed at the Third Plenary Session of the 18th Central Committee of the Communist Party of China (12 November 2013).
[292] Speech: 5th National Financial Work Conference (Beijing, 14 July 2017).
[293] Interview: business development, global exchange (Beijing, 19 September 2019).
[294] Interviews: research department, Chinese exchange (Shanghai, 14 May 2018) and product development, Chinese exchange (China, 14 October 2019).

***Figure 4.5:*** *'Serving the Real Economy' as official mission of Chinese exchanges.*

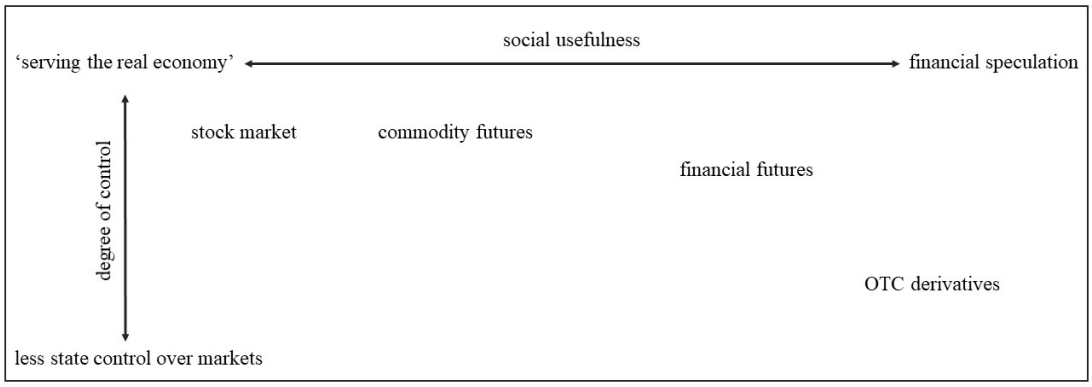

*Source: Picture taken in the Zhengzhou Commodity Exchange Exhibition Hall (October 2019).*

### 4.3.1 Different social usefulness of market segments

Instead of placing trust in the collective behaviour of profit-driven private actors, markets' ability to innovate, self-correct and achieve 'efficient' outcomes as in neoliberal markets, the Chinese exchanges and authorities constantly assess the social usefulness of financial products (figure 4.6). As a former Chinese exchange employee noted, 'in China, a product bears many additional responsibilities' next to an economic function, it also has a 'social function'.[295] This leads to stark contrasts in the assessment of different financial products. One interviewee working in a global exchange's China business development team explains this difference as follows: 'When it comes to financial markets, people are thinking that stocks at least lead to something, you have M&A, you are actually helping… but derivatives, it's viewed as something [different]… […] they don't currently feel about derivatives the way the international consent feels'.[296]

[295] Interview: business development, global exchange (Beijing, 19 September 2019).
[296] Interview: business development, global exchange (Hong Kong, 7 July 2017).

***Figure 4.6:*** *Different social usefulness of market segments.*




*Source: author's figure.*

From the regulators' perspective, enabling company financing through stocks and bonds is therefore the most direct way for finance to serve the real economy (see Section 4).[297] In contrast, the case for derivatives is not so straightforward. As two interviewees noted, 'you know, in terms of derivatives, I think sometimes the Chinese regulators, they still […] debate whether it is a necessary evil [laughs]'[298] and that 'they are quite sceptical about allowing derivative markets to grow uncontrolled'.[299] This assessment translates into how and which aspects of derivative markets the Chinese authorities allowed to develop over time.

One notable difference between Chinese and global financial markets is consequently the relatively small size of OTC derivative markets. Whereas OTC derivatives account for around 80% of global derivative markets,[300] OTC derivatives account for only around 20% of Chinese derivative markets.[301] As a Chinese broker noted, 'as against to OTC markets, the exchange [functions as] the medium through which market infrastructures can be controlled'.[302] The development of OTC derivative markets is a private sector preference because they are much freer and create huge profit-opportunities for financial actors following a neoliberal logic, and it is unsurprising that OTC derivatives experienced enormous growth in recent decades (Spagna, 2018). But such an unrestricted, opaque market for leveraged, speculative

[297] Interview: international department, financial infrastructure provider (Shanghai, 9 May 2018).
[298] Interview: international department, global exchange (Taipei, 5 July 2017).
[299] Interview: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017).
[300] Observation: Eurex Annual Derivatives Forum (London, 12 October 2017); this value is changing of course; as Spagna (2018: 31) noted, at the height of the global financial crisis OTC derivatives even accounted for 90% of all derivatives.
[301] Interview: financial derivatives department, broker (Hangzhou, 24 April 2018).
[302] Interview: business development, broker (Beijing, 12 September 2019).

products is incompatible with a state-capitalist logic of market organisation. Consequently, even those OTC derivative markets that do exist and have been growing in China are not 'proper' OTC markets. As a Chinese insurance company's senior manager noted:

> There are bilateral trading facilities, but these are… it's like a dating agency that helps you to meet each other. But if they want to register, then you have to go to CFETS to get it publicly recognised. […] So, it's even centrally traded… centrally traded, centrally cleared [laughs]. […] It's not like in the US or Europe where you have a long period of OTC bilateral… So, in China it's all well organised in the first place. There's not a really huge difference, no clear border between exchange and OTC [derivatives], other than the regulators are different.[303]

However, in contrast to OTC derivatives, exchange-traded derivatives enable a state-capitalist institutional logic of control over financial activities.[304] By creating their infrastructural arrangements, Chinese futures exchanges shape these markets. But, here again, not all exchange-traded derivatives are equal.

Whereas in the neoliberal capital markets underpinning the global financial order financial futures (and options) constitute a majority of exchange-traded derivative markets (Acworth, 2018), in China commodity futures dominate (see figure 4.8).[305] In fact, between 2014-2018, SHFE, DCE and ZCE constantly ranked among the top-5 commodities exchanges globally (FIA, 2018). Financial derivatives are viewed with more suspicion as the authorities 'see no value, just pure speculation'[306] – a suspicion that largely arose after negative experience with bond futures in 1995 and that was hardened after CSI 300 index futures were blamed for exacerbating the 2015 stock market crash.[307] As one manager at a financial infrastructure provider noted, 'I think the Chinese still want their derivative market to reflect the high street, the economy, rather than somehow the derivative market driving the main board [stock market]'.[308] Consequently, the Chinese authorities believe that commodity futures better 'serve the real economy' as companies (might) use them for

[303] Interview: senior management, insurance company (Shanghai, 16 October 2019).
[304] Interview: research department, regulator (Beijing, 12 September 2019).
[305] Interview: business development, global exchange (Beijing, 19 September 2019); with the exception of the rally in CSI 300 index futures before the 2015 stock market crash (see figure 4.8).
[306] Interview: consultant, Chinese exchange (Shanghai, 9 May 2018).
[307] Interviews: international department, broker (Shanghai, 22 September 2019), consultant, Chinese exchange (Shanghai, 24 April 2018) and APAC director, global exchange (Hong Kong, 30 June 2017).
[308] Interview: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017); also, interview: product development, Chinese exchange (China, 14 October 2019).

hedging purposes instead of speculation.[309] This was also echoed by James Sha, senior advisor to CFFEX, who noted during the FIA Asia Derivatives Conference in 2017:

> In recent years the commodity markets have been recognised as being the closest to the real economy, right? Financial derivatives are also really important, but I think commodities are being recognised by the regulators as very direct and straightforward for serving the real economy.[310]

This preference for commodity futures is integral to the infrastructural arrangements of markets. When Chinese exchanges, for instance, want to list new products, launching commodity futures is much easier than financial futures.[311] As this is a lengthy process that takes up to 5 years and involves several rounds of regulatory approval, the exchanges need to 'pick their battles' because they 'cannot afford dead products'.[312] In contrast to global exchanges which launch dozens of contracts and see which ones gain traction, 'the Chinese exchanges need to convince the CSRC that a product is good'[313] – because ultimately the CSRC and State Council decide what is listed.[314] The commodity exchanges, 'they can always argue that they are listing this contract because the hedgers need that'.[315] In this respect, Chinese exchanges are actually quite innovative and have listed products that do not exist anywhere else – such as eggs, wood pulp, ethylene glycol, PTA or jujube futures.[316] In contrast, CFFEX tried for years to list new financial futures but not one new contract was approved.[317].

In contrast to neoliberal markets, what is traded in China is not based on profit considerations but on assessments about the social usefulness of these products. The structure and size of Chinese markets is determined by state-capitalist considerations about how products can be controlled and how they contribute to national development.

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[309] Interview: financial derivatives department, broker (Hangzhou, 24 April 2018).
[310] Observation: 'Derivatives Landscape in China' Panel, 13th FIA Annual Asia Derivatives Conference (Singapore, 29 November 2017).
[311] Interview: research department, Chinese exchange (Shanghai, 14 May 2018).
[312] Interview: international department, Chinese exchange (China, 14 October 2019).
[313] Interview: international department, Chinese exchange (China, 14 October 2019). Consequently, the number of financial products is much smaller in China. By December 2018, 61 futures and options products were listed on Chinese exchanges: 51 commodity futures, 3 commodity options, 6 financial futures and 1 financial option (see: https://www.htfc.com/main/ChinaMarket/ChinaFuturesMarketOverview/index.shtml; last accessed 20 September 2020).
[314] Interview: managing director, broker (Hong Kong, 7 July 2017).
[315] Interview: business development, global exchange (Hong Kong, 19 September 2018).
[316] Interview: managing partner, asset manager (Hong Kong, 11 July 2017).
[317] Interviews: consultant, Chinese exchange (Shanghai, 9 May 2018) and business development, global exchange (Beijing, 7 November 2018).

### 4.3.2 'Productively' steering derivative trading through market infrastructures

Not only the size of individual markets is informed by state-capitalist logic, but also how markets are organised. The differential assessment of the social usefulness of derivatives also manifests itself in the diverging infrastructural arrangements for financial and commodity derivatives.

When trading in Chinese futures markets, it is for instance mandatory for investors to indicate whether their trades are for hedging or speculative purposes (figure 4.7). As one interviewee noted:

> On international markets, you say, "I am going to buy 50", you might put an account on it, you don't really have to, "I am going to buy 50 corn on CME – done!" [In China], you have to go, "right, I am going to buy 50 – and if this is a hedging or a speculative trade". […] In China, every trade has to be tagged 'hedge' or 'spec' [and they] have different restrictions to speculation.[318]

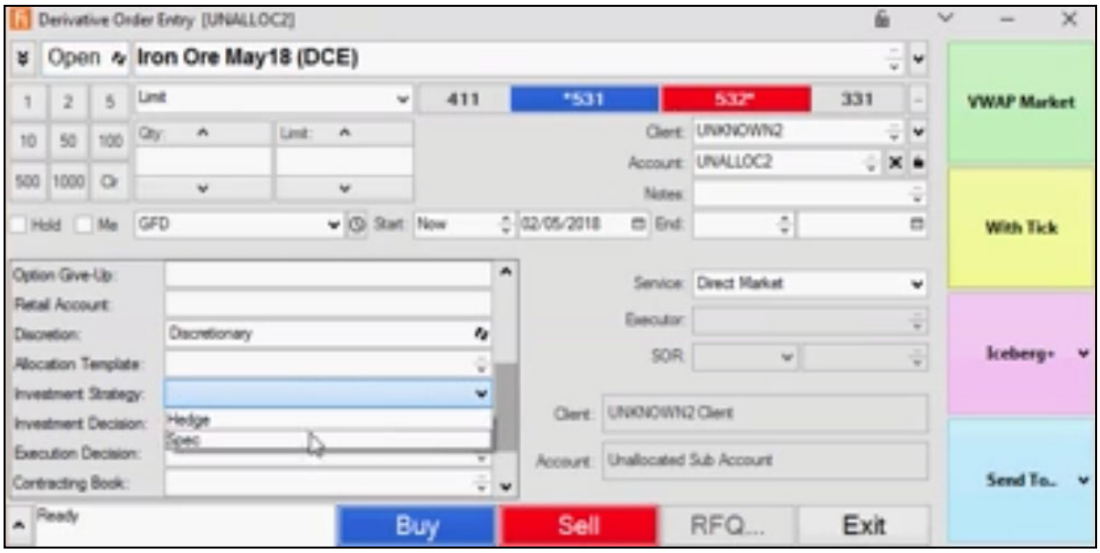
Thereby, position limits are in place that limit the amount of speculative trades. If investors have reached their position limit for 'spec' trading (e.g. 500 lots/day) and want to trade more contracts, this is only possible for hedging purposes. Therefore, investors need to apply for hedging quotas with individual exchanges and for individual contract. For this, investors need to submit evidence for physical commodity deliveries at the respective commodity futures exchange, e.g. submit receipts of iron ore shipments, physical contracts or production capacities.[319] With the aforementioned monitoring system in place, 'only commercials can realistically get commodity hedging licenses' as a former Chinese exchange employee noted.[320] Non-compliance with these rules would be penalised as 'abnormal trading activity' (Section 1; also Appendix IV). In this assessment, there are great differences between financial and commodity contracts.

For financial derivatives, trading rules are very strict. After the 2015 crash, position limits for CSI 300 futures for instance were reduced from 500 to 10 lots per day and margins increased to 40%. By April 2019, restrictions had been gradually softened, with position limits increasing to 20, 50 and 500, while margins decreased to 12%. Yet as a Chinese hedge fund manager explained: 'It's [still] almost impossible

[318] Interview: business development, financial infrastructure provider (London, 9 January 2018).
[319] Interview: international department, broker (Hong Kong, 26 September 2018).
[320] Interview: business development, global exchange (Beijing, 19 September 2019); also, interview: international department, broker (Shenzhen, 18 May 2018).

to do intraday trading, as [intraday-trading fees] are 23x the normal transaction fee'.[321] Similarly, the trading volume-to-open interest ratio threshold is much stricter for financial derivatives (0.3) than for commodity contracts (2.0).[322]

***Figure 4.7:*** *Trading screen for Chinese futures with 'hedge' or 'spec' trade execution.*



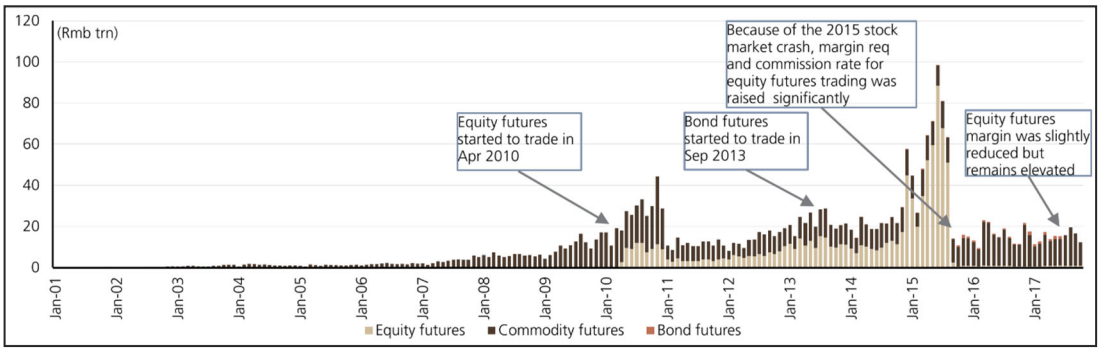

*Source: Fidessa Order Management System.*

Further, shorting financial futures is only possible with a quota issued by CFFEX, based on the size of the underlying stock portfolio. While in 2015, the value of short positions had to exactly correspond with long positions, by 2019 this was relaxed to 1.1x – still insignificantly small by global market standards.[323] The see-through monitoring system then monitors compliance with these rules:[324] if an investor, for instance, traded CSI 300 Futures worth RMB100 million for hedging purposes their equity position was only worth RMB80 million, and the investor would be in trouble. As one Chinese hedge fund manager explained: 'If you [engage in a false hedge], you

[321] Interview: hedge fund manager (Shanghai, 24 September 2019).
[322] Interviews: consultant, Chinese exchange (Shanghai, 9 May 2018), international department, broker (Shanghai, 26 April 2018), business development, global exchange (Beijing, 7 November 2018) and international department, broker (Shanghai, 22 September 2019).
[323] Since 2015, CFFEX has also not issued those quotas to retail investors (interview: international department, broker; Shanghai, 22 September 2019).
[324] In OTC derivative markets, similar rules apply for CDS, because 'there is the expectation that if you are buying credit insurance that you are hedging the underlying risk' (observation: FIA Annual Asia Derivatives Conference; Singapore, 29 November 2017); as another interviewee noted: 'shortly after the 2007-2008 debacle, they actually opened up a CDS market, you know, and said, "we're gonna have CDS, but you got to show us the bonds"' (interview: APAC sales director, global exchange; Hong Kong, 30 June 2017).

will be in risk of cancelling your qualification to trade – so that's quite severe!'[325] As a result of these stringent measures implemented by the Chinese exchanges, financial futures trading in China has been severely constrained since 2015 (figure 4.8).[326]

***Figure 4.8:*** *Commodity vs financial futures trading in China, 2001-2018.*




*Source: Chu et al. (2018: 24).*

While similar rules exist for commodity derivatives, as they are treated preferentially, these rules are not quite as stringent. Position limits for 'spec' trades are much higher, for instance. Instead of 500 lots for financial futures investors can hold up to a 10% market share in a certain product.[327] However, it is important to note that even these 'socially useful' markets are much more regulated than neoliberal markets organised by global exchanges: position limits are much stricter,[328] the trading-volume-to-open interest ratio threshold stands at 200%, and hedging quotas exist to restrain excessive speculative trading. Through the infrastructural arrangements of China's markets, the Chinese exchanges attempt to steer markets towards 'productive' outcomes while controlling financial risk.

Almost all contracts on Chinese futures exchanges for instance need to be physically delivered, i.e. the commodity underlying the contract needs to be transferred.[329] This is in stark contrast to global exchanges where most contracts are

[325] Interview: hedge fund manager (Shanghai, 16 April 2018); also, interviews: consultant, Chinese exchange (Beijing, 29 October 2018), international department, broker (Shanghai, 22 September 2019) and business development, broker (Beijing, 26 October 2018).
[326] In 2018, with RMB26.1 trillion financial futures accounted for only 12% of total futures trading volume in China (CSRC, 2019: 37).
[327] Depending on the product, this can be up to 120,000 lots.
[328] While position limits were enacted in the US and Europe with MiFID II and Dodd-Frank Act, they are only applied to commodity derivatives and are (on average) set at 25% of the total trading volume (see: https://www.fca.org.uk/markets/mifid-ii/commodity-derivatives/position-limits; https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/pl_150_factsheet.pdf; last accessed 8 April 2020).
[329] Only index futures are cash settled, even bond futures and options are physically delivered.

cash settled as there is no mandate or interest to actively encourage actual commodity trading because they can earn more commission with cash-settled trades.[330] However, as the futures market should 'reflect Chinese supply and demand [for commodities, and] have a function for the real economy',[331] the Chinese exchanges only allow physical delivery. If you cannot physically deliver the underlying commodities you have to pay a 20% fine, which is why most brokers urge their non-commercial traders to roll over contracts or close positions early.[332] On DCE, agricultural products can even be delivered earlier than the closing date; as one Chinese broker explained, 'this is risky for speculators, as they might get delivery that they don't want and then need to find a buyer, deal with warehouse receipts et cetera'.[333] While contracts can be closed/rolled over, the absence of cash delivery is a major difference to global markets.

In addition, the exchanges attempt to support industry development, for instance, by improving delivery standards. They might select warehouses close to important production sites, improve the quality and fit of delivery warehouses – as e.g. cotton, eggs and iron ore need to be stored differently – or improving 'back-office functions' such as warehouse receipt cancellation procedures.[334] The exchanges would further specify the quality criteria for delivered commodities – whether soybeans need to be Grade A or B, the chemical purity of delivered PTA etc.[335] While global exchanges also engage in some of these activities to improve their service efficiency, some of the more developmental aspects of these activities such as improving the quality of agricultural production follow a decidedly state-capitalist logic. Whereas the aim in improving these standards for industrial products is to attract commercial hedgers to their market, the idea behind improving the quality of agricultural delivery standards is facilitating policies such as 'poverty alleviation' (see next sub-section).

Of course, these market management activities of Chinese exchanges are not always successful. A case where changes in delivery standards actually failed to achieve their objective was the case of apple futures that were launched on ZCE in 2017. In the apple market, farmers and juice producers are the natural hedgers, and

[330] Interviews: senior manager, commodity trading platform (Hangzhou, 22 April 2018) and commodity product development, exchange (Singapore, 1 December 2017).
[331] Interview: business development, broker (Beijing, 12 September 2019).
[332] Interviews: international department, broker (Shanghai, 22 September 2019) and financial derivatives department, broker (Hangzhou, 24 April 2018).
[333] Interview: international department, broker (Shanghai, 25 September 2019).
[334] Interview: product development, Chinese exchange (China, 14 October 2019).
[335] Interview: business development, broker (Beijing, 12 September 2019).

juice producers prefer to use cheap, low-quality apples in their production. However, in order to improve the quality of farmers' apple production, the exchanges raised delivery criteria so much that the delivered high-quality apples were too expensive for juice producers. Consequently, they did not hedge their business. Without sufficient hedgers, the speculators took over and the exchanges had to clamp down on excessive speculation.[336] Further, not every contract is actually physically delivered. This is partially because many speculators will close positions or roll over contracts or because the system sometimes works in contradictory ways. During the final trading days, for instance margins go up incredibly high in order to prevent default (i.e. contain financial risk), this, however, discourages delivery, so people close their positions early which works against the 'real economy' policy.[337]

What these stories reveal is how Chinese authorities and exchanges think differently about markets, their potential social usefulness and how to achieve this. Overall, however, by shaping the infrastructural arrangements of capital markets – from trading rules, position limits, hedging quotas to physical delivery – the Chinese exchanges try to actively steer derivative trading towards 'serving the real economy'. State-capitalist national development policies are facilitated through the deliberate design of financial infrastructures.

### 4.3.3 Investor structures and facilitating national development strategies

A third way in which Chinese exchanges contribute to 'serve the real economy' is by influencing investor structures in their markets to facilitate national development policies such as facilitating commercial hedging or 'poverty alleviation'.

Similar to the stock markets, the investor structure of commodity futures markets was for a long time very retail-based which often led to excessive speculation in commodity contracts (Hou, 1997). This was especially rampant in the early 1990s and resurfaced after the 2015 market crash as authorities clamped down on speculative behaviour in stocks and index futures, leading to a series of smaller bubbles in commodity futures (although the exchanges quickly brought these under control)

[336] Interviews: business development, global exchange (Beijing, 19 September 2019) and business development, broker (Beijing, 12 September 2019); see also the following *Bloomberg* article (Ren, 2017).
[337] Interview: business development, global exchange (Beijing, 19 September 2019).

(Balding, 2016, Cang, 2016, Chen *et al.*, 2016). However, the exchanges actively attempted to improve the investor structure of commodity markets. As one Chinese exchange official explained: 'Originally, they did not really care, they just wanted more and more trading volume but in the last years they want more and more industry participation'.[338] As a result, the investors structure is changing. 'Now we notice that it is quite institutional-based', as noted by one interviewee.[339] Partially, this is because more professional investors such as HFTs entered the markets, crowding out retail investors ('cutting grass').[340] But partially, this is 'because [the exchanges] were able to tie the trading to the demands of the end-investors' and the launch of new commodity products 'helped to enable these end-users, producers and users to hedge their risk'.[341]

In order to get commodity companies, e.g. steel mills, mining, energy or food-processing companies to hedge in commodity markets, the Chinese exchanges also engage in countless educational activities.[342] As a product developer at a Chinese exchange noted, 'we need the real economy to recognise us, to trust futures'.[343] Therefore, the exchanges provide trainings, consultancy programmes and guidebooks, sometimes jointly with industry associations such as the China Non-Ferrous Metals Industry Association.[344] As one interviewee noted:

> We know the financial market risks, and we also experienced in some cases that a medium-sized enterprise, they do not use any, or they wrongly use risk management tools… So, that their whole year profit will just be erased to zero because they are not aware of that risk. So, teaching them to better use risk management or hedging tools is also part of our approach. […] We actually organise a monthly, we call it saloon, for the education of all [market] participants, teach them how to use derivatives, and if you want to do that, what's the approach, what are the benefits…[345]

Despite certain failures and lots of speculative activity, over the last decade Chinese commodity exchanges have been relatively successful in carrying out this policy. Futures are used to price fundamentals in spot markets as more and more large

[338] Interview: research department, Chinese exchange (China, 16 October 2018).
[339] Interview: research department, regulator (Hong Kong, 5 July 2017).
[340] Interview: international department, broker (Shanghai, 25 September 2019).
[341] Interview: research department, regulator (Hong Kong, 5 July 2017).
[342] Observation: DCE Iron Ore Futures Internationalisation Symposium (Dalian, 15 October 2018).
[343] Interview: product development, Chinese exchange (China, 14 October 2019).
[344] Interview: research department, Chinese exchange (Shanghai, 14 May 2018).
[345] Interview: international department, financial infrastructure provider (Shanghai, 9 May 2018).

commercials are choosing them for pricing.[346] Further, correlation between spot market and futures prices has risen to 95-99% in many of the exchanges' most traded contracts.[347] As one Chinese exchange official noted: 'after several years of education commercials now value futures' and engage in this market.[348] The exchanges' investor education activities are not only used to contain financial/social risks of markets, but also to facilitate their 'productive' capacity for national development.

Sometimes the exchanges' market management measures are also directed to facilitate more specific national policy goals such as the 'poverty alleviation' strategy. Tied to the national vision of turning China into a 'moderately prosperous society' (小康社会),[349] Xi Jinping famously said that 'no one should be left behind on the road towards Xiaokang [小康]' (Bosu, 2020). Consequently, 'targeted poverty alleviation' (精准扶贫) has become a key policy since 2014. It is one of Xi Jinping's top policy priorities with the aim of eradicating extreme poverty in China by 2020. As with all national strategies in China, 'everyone must do their part'[350] – because contributing to national policies are key performance indicators (KPIs) for party members – and the commodity exchanges came up with innovative ways to do so.

DCE introduced a 'Peasants Income Guarantee Plan',[351] SHFE supported rubber farmers in Yunnan province through an 'insurance + futures scheme'[352] and ZCE also introduced 'insurance + futures' for several contracts. These schemes are basically cooperations between futures brokers and insurance companies facilitated by the exchanges, where farmers buy insurance and the premium is then used to buy a futures contract.[353] As farmers do not necessarily have the financial means to engage in derivative trading, the exchanges and brokers subsidise them, jointly fronting the

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[346] Observation: 'Opportunities in Chinese derivative markets' Panel, FOW Derivatives World Asia (Hong Kong, 11 April 2018); comments by Bin Zhu, Head of Nanhua Futures Research Institute.
[347] Observation: Data displayed at Zhengzhou Commodity Exchange Exhibition Hall (October 2019).
[348] Interview: international department, Chinese exchange (China, 14 October 2019).
[349] The term was first used by Deng Xiaoping in 1979 as a goal for Chinese modernisation and later popularised by Jiang Zhemin and Hu Jintao; in 2014, it became part of the 'Four Comprehensives' (四个全面战略布局), Xi Jinping's official list of political goals for China's development.
[350] Interview: international department, Chinese exchange (China, 14 October 2019); this was also defined in the 'Poverty Alleviation Responsibility Pledge of Central Government Agencies' (CSRC, 2019: 49).
[351] see: http://www.dce.com.cn/DCE/Media_Center/Exchange%20News/6208169/index.html (last accessed 8 April 2020).
[352] see: http://www.shfe.com.cn/en/AnnouncementandNews/SHFENews/911328010.html (last accessed 8 April 2020).
[353] Observation: 3rd FOW China & Global Derivatives Market Development Forum (Dalian, 16 October 2018); keynote speech by Li Zhengqiang, Chairman, DCE.

costs of futures trading.[354] These schemes are basically subsidised, two-way hedges against agricultural price movements. By end-2019, they are still being tested with pilot-projects supporting a few 100,000 farmers in total. While comparatively small-scale, they are very media-effective and important for intra-party signalling (figure 4.9), reflecting the state-capitalist logic that underlies market organisation.

***Figure 4.9:*** *Zhengzhou Commodity Exchange celebrates 'Insurance + Futures' scheme.*


*Source: Picture taken in the Zhengzhou Commodity Exchange Exhibition Hall (October 2019).*

More large-scale attempts to address poverty are the listings of targeted futures contracts. ZCE for instance listed new commodity futures for jujubes and apples which are mainly produced in Xinjiang and Gansu, two of China's poorest areas.[355] These effects are also linked to poverty alleviation as *Xinhua* (Liang, 2018) stated:

> Apple growing is an important part of China's poverty alleviation campaign, as many of the country's impoverished areas rely on apples as a major income source. China has been stressing the role that financial services play in the real

[354] Interview: international department, Chinese exchange (China, 14 October 2019).
[355] Interviews: senior management of insurance company (Shanghai, 16 October 2019) and international department, Chinese exchange (China, 14 October 2019).

> economy, and issued futures contracts for commodities including white sugar, soybean meal, and cotton yarn.[356]

These rather unusual outcomes are facilitated by the institutional logic of China's state capitalism. One interviewee explained this as follows:

> That's national policy and also related to the architecture of the system. […] Because officials, they know each other. If I am now in the Gansu or Shaanxi province, and my KPI is to deal with poverty – I have so many farmers that are growing, for instance, jujube or apples… I call my friends in PBoC or even ZCE, and say, why not give me a futures contract, why not do that as insurance? And then some people in Bank of China say, okay, I will be the market maker… and that's how you get all those relations and networks motivated and running. So, it's easier for them to get all those national policies implemented.[357]

While it might seem optimistic to think that poor farmers in remote areas would revolutionise their business by trading in futures markets, given China's extensive culture of retail investing and extensive training provided by the exchanges, this is definitely a practical possibility. However, it is difficult to assess whether these measures taken by the Chinese exchanges actually reduce poverty. But that does not necessarily matter. What these examples demonstrate is how different the institutional logic of state-capitalist capital markets is that drives market development as it aims to resolve inherent contradictions of China's state capitalism.[358] What motivates exchanges, their subsequent activities and resulting market outcomes differs substantially from neoliberal markets.

Overall, there is an assessment of the social usefulness of finance (financial vs commodity futures) and how finance can contribute to the real economy (physical delivery, commercial hedging) and national economic development (poverty alleviation) that is derived from the institutional logic of Chinese state capitalism. The Chinese exchanges attempt to steer this process through managing the infrastructural arrangements of capital markets (position limits, hedging quotas, trading rules), in an attempt to offset some of the negative consequences of financialisation processes which often disadvantage the real economy vis-à-vis finance.

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[356] With respect to jujube futures, CSRC spokesman Chang Depeng made a similar statement: 'Running futures contracts for the commodity will provide price discovery and risk management tools that can help stabilise and promote healthy growth of the sector. This will better serve the nation's poverty alleviation strategy and economic and social development in Xinjiang' (Wei, 2019a).
[357] Interview: senior management, insurance company (Shanghai, 16 October 2019).
[358] As Huang (2012a: 620) noted, income and wealth inequalities are outcomes of China's state-capitalist system; which create the need for campaigns like poverty alleviation to which capital markets also need to contribute something (also, Luo and Zhu, 2014).

## 4.4 Economic reform: restructuring China's companies

The liberalisation and opening of capital markets have been part of a larger trend in China towards allowing a greater role for markets in its economy (Gruin, 2019a). While the previous chapter focused on derivative markets, this chapter analyses how Chinese exchanges shape stock markets in order to contribute to the economic reform of Chinese companies.

Next to the general trends towards market-based finance discussed earlier, two specific policies point towards the increasing importance of stock markets for China's state capitalism specifically. First, the 'Going Global Strategy' (or 'Go Out policy'; 走出去战略) first announced in 1999 took off after the global financial crisis as China became an exporter of capital and outward FDI began to surpass inward FDI with increasing overseas acquisitions (Zhu, 2018), especially in Europe and the US (Gottwald, 2011, ten Brink, 2015). Second, for China to climb up the value chain from the cheap, low-quality and labour-intensive 'factory of the world' towards more capital- and technology-intensive production of high-value goods as envisioned by the 'Made in China 2025' strategy (中国制造 2025) that was announced in 2015. To a significant part, these programmes rely on the reform, financing and governance of Chinese companies as noted during the CCP's 18th National Congress in 2012, and was reconfirmed by the State Council (2015) which stated:

> The corporate-style shareholding system reform shall be pushed forward. It is important to step up corporate-style reform […], actively introduce various types of investors to achieve equity diversification, vigorously promote the restructuring and listing of SOEs.

Similar to the previously discussed sections, Chinese exchanges have been crucial in implementing the economic reforms of China's companies to facilitate national development while maintaining state control over the economy. This is done (1) by including more companies into the stock market in a controlled process and (2) by facilitating the creation of national champions.

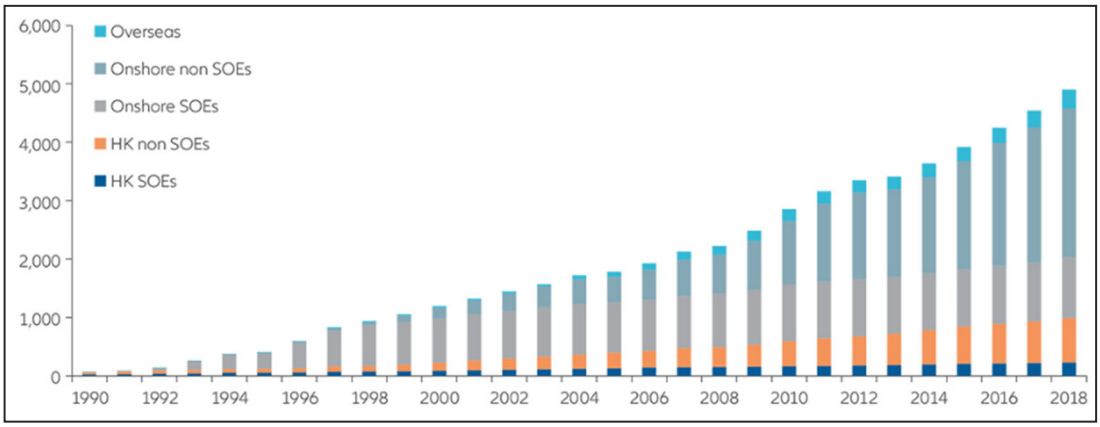
### 4.4.1 Corporate governance and funding of Chinese companies

In global capital markets, the premise of a listing is a transfer of control (i.e. ownership) in return for funding. However, this often significantly changes the

incentives and behaviour of listed companies, exemplified by the move towards shareholder value orientation (Williams, 2000, Aglietta and Breton, 2001). In China, however, the political-economic function of capital markets for listed companies differs.

Historically, most exchange-listed companies in China were SOEs with sufficient funding from state-owned banks. Through listings, SOEs largely became more efficiently run, less wasteful companies, while state control was maintained by changing from direct ownership to state institutions becoming large shareholders (see Wang, 2015). As one interviewee noted, 'you know, the [original] purpose of stock markets in China was to reform SOEs'.[359] However, increasingly more private Chinese companies have also sought capital market funding,[360] especially on SZSE.[361] The number of listed companies in China's A-share market has steadily increased from 53 in 1992 to 1088 in 2000 and 3584 in 2018 (CSRC, 2019), while the share of SOEs amongst listed companies has significantly decreased over time (figure 4.10). While originally most shares were non-tradeable and held by various state-institutions (Greene, 2004: 15), the percentage of tradeable shares also increased to more than 90% by 2016 (Naughton, 2018: 496).

***Figure 4.10:*** *Listings in China by company type, 1990-2018.*




*Source: Wong and Zheng (2019).*

Rather than simply SOE reform, Chinese stock markets gained a broader significance for economic reform. Importantly, the listing of Chinese companies enables them to

[359] Interview: product development, exchange (Frankfurt, 2 February 2018).
[360] Interviews: international department, financial infrastructure provider (Shanghai, 9 May 2018) and business development, global exchange (Hong Kong, 19 September 2018).
[361] Interview: research department, Chinese exchange (China, 6 November 2018).

adopt 'modern' corporate governance structures, receive know-how from strategic international investors and engage in overseas activities. While they have become more market-based and efficiently run companies, this occurs within a state-capitalist framework. As the Economist (2020c) noted, this is part of the process of creating 'a more muscular form of state capitalism' which introduces SOEs to more market discipline while simultaneously introducing party discipline by better integrating private enterprises into China's national development strategy.

The Chinese stock exchanges were vital in this process: educating companies about international best practice, setting corporate governance standards for listed companies and monitoring compliance with these standards.[362] While companies might not fully follow these standards, significant discrepancies or violations will be picked up by the exchanges' investigation teams. As a Chinese regulator stated, 'if they didn't do that [follow the exchanges' guidance], the result could be disastrous… they might be investigated more often, the exchanges would take a closer look at the board… […] companies don't want the regulators to pay attention'.[363] A Chinese hedge fund manager also confirmed this point, stating that 'listed companies are afraid of the exchanges' as they have enormous power to punish, fine, suspend or even delist them.[364]

This monitoring and intervening role of the exchanges could also be observed during the MSCI inclusion process. After years of consultations and negotiations, in June 2018, index provider MSCI decided to include Chinese A-share stocks into its indices, triggering estimated investment flows of US$80 billion into Chinese capital markets within one year (Wright, 2019). This represented a milestone for China's financial opening process (see Chapter 5).[365] However, a precondition for the inclusion was that Chinese companies meet MSCI's corporate governance standards. Thereby, Chinese exchanges 'would also brief companies before MSCI came to visit them, so

[362] Interview: research department, regulator (Beijing, 31 October 2018).
[363] Interview: research department, regulator (Beijing, 30 October 2018).
[364] Interview: hedge fund manager (Shanghai, 16 April 2018); see also the following examples: https://mondovisione.com/news/shanghai-stock-exchange-amends-optimizes-rules-on-disciplinary-sanction-review/; https://mondovisione.com/news/shanghai-stock-exchange-reports-on-dealing-with-sse-listed-companies-violations/; https://mondovisione.com/media-and-resources/news/the-shenzhen-stock-exchange-revised-member-management-rules-improving-fundamenta/ (last accessed 8 April 2020).
[365] The inclusion of China's into global indices and interaction with global financial infrastructure providers is discussed in Chapter 5; this section only discusses aspects relevant to the role of Chinese exchanges in the reform of Chinese corporations.

that they knew what to tell MSCI'.[366] Further, the exchanges would host trainings, consultations and events to educate companies about how to comply with MSCI's governance framework: from reporting the correct figures to translating their corporate reports into English, all in order to facilitate index inclusion.[367]

The listing of Chinese companies, however, is a tightly regulated process, which has both benefits and disadvantages. Whereas in neoliberal markets, listing a company is comparatively straightforward and 'easy' with exchanges mostly in charge of the process, in China's state-capitalist capital markets listings are hard to come by. As one Chinese financial infrastructure provider noted: 'If you want to be listed in China, it's a long way!'[368] Companies first need to apply with the CSRC for approval to issue shares before they apply for approval from the stock exchange to list their shares.[369] They are vigorously screened by the regulator and the exchanges, which serves as 'a fix to reject some not good companies'.[370] In order to obtain a listing approval, companies 'need a proven track record of a few years [and] companies that are not profitable, cannot get listed'.[371] In this respect, several interviewees cited the Dot-Com bubble as a learning experience for Chinese regulators to only list profitable enterprises.[372] Another reason for the regulators to take over this role, however, is to protect retail investors from making bad investment decisions as these lack an understanding of analysing company fundamentals.[373] The disadvantage of this setup is that there is a long pipeline of companies waiting to be listed and consequently some Chinese companies are seeking listing opportunities abroad (see figure 4.10).

Listings are also partly politically motivated, as detailed in the 2018 CSRC Annual Report which stated that: 'Serving the Poverty Alleviation Campaign […] the CSRC continued to provide fast tracks for companies from poverty-stricken areas […] in their applications for IPOs' (CSRC, 2019: 48). In 2018, these poverty alleviation-related listings accounted for 12 out of a total of 99 approved listings, while overall 270 companies had applied to be listed (CSRC, 2019: 27-30). Rather than based on

[366] Interview: research department, regulator (Beijing, 30 October 2018).
[367] Interviews: international department, broker (Shanghai, 26 April 2018) and research department, Chinese exchange (China, 6 November 2018).
[368] Interview: international department, financial infrastructure provider (Shanghai, 9 May 2018).
[369] Interview: managing partner, law firm (Beijing, 18 October 2018).
[370] Interview: international department, exchange (Hong Kong, 21 June 2017).
[371] Interview: business development, global exchange (Hong Kong, 19 September 2018).
[372] Interviews: international department, Chinese exchange (Shanghai, 26 September 2019), business development, global exchange (Hong Kong, 19 September 2018) and managing partner, law firm (Beijing, 18 October 2018).
[373] Interview: business development, global exchange (Hong Kong, 19 September 2018).

profit expectations, company listings are informed by state policies. This reveals the contradictory institutional logic of Chinese state capitalism, with control to some degree contradicting the need for company funding (economic reform) as well as different national development goals competing with each other (poverty alleviation). This is also the case because funding and corporate governance are not the only reason for stock listings in China.[374]

### 4.4.2 Prestige, recognition and Chinese national champions

The creation of national champions is another important aspect of Chinese listings. As 'publicly' listed companies, these corporations gain a certain legitimacy in international markets.[375] Precisely, because getting listed in China is a lengthy process with many administrative hurdles and strict requirements, whoever gets listed has a 'seal of approval' from the government; as one Chinese regulator noted, 'these companies are the top of the pyramid'.[376] Next to corporate governance and funding, 'reputation', 'prestige', 'better international visibility' and 'investor branding awareness' are equally, if not more important, aspects of listings in China.[377]

Whereas in 2003, there were only 43 Chinese (mainland and Hong Kong) companies in the Forbes Global 2000 list, this number increased to 309 by 2019 (Ponciano and Hansen, 2019).[378] While, in part this is because these companies experienced rapid growth, a major factor is that being a publicly-listed company is a precondition for inclusion in many such lists.[379] As listed companies, they are considered to be 'playing by the rules of the market' which enormously increases their recognition and acceptance in global (capital) markets. This is also reflected in the growing global recognition of Chinese brands. As estimated by the Brand Value

[374] Interview: business development, global exchange (Hong Kong, 19 September 2018).
[375] Interview: managing partner, law firm (Beijing, 18 October 2018).
[376] Interview: research department, regulator (Beijing, 12 September 2019).
[377] Interviews: business development, global exchange (Hong Kong, 19 September 2018), managing partner, law firm (Beijing, 18 October 2018) and research department, regulator (Beijing, 12 September 2019).
[378] Similar with Fortune Global 500: The number of mainland Chinese companies increased from 9 to 119 between 2000 and 2019, 82 of which are SOEs; Chinese is thereby only closely behind the US that counts 121 companies (Fortune, 2000, 2019).
[379] Forbes Global 2000, for instance, only lists publicly listed companies. While this is not an official pre-condition for the Fortune 500 list which also includes privately owned companies, few privately-owned Chinese companies fulfil the minimum reporting criteria which are based on a US-centred regulatory framework (neoliberal capital markets). Practically speaking, for Chinese companies at least, a listing is an important precondition for inclusion.

Global 500 report, the brand value of Chinese companies has increased from US$60 billion to US$1,300 billion between in 2008 and 2019 (Brand Finance, 2000, 2019). Importantly, this also enables them to engage in global M&A activities with somewhat less scrutiny, as a managing partner of a Beijing-based law firm pointed out.[380] Overall, listing companies is a way of grooming national champions and to facilitate national development strategy (Heilmann, 2008, Naughton, 2015). While backlash has emerged against overseas acquisitions by Chinese companies, their status as listed corporations has enabled them to facilitate national development strategies such as 'Going Global' and 'Made in China 2025' (ten Brink, 2015). Chinese exchanges have been actively facilitating this process; as one Chinese exchange representative noted:

> Our tasks include […] to steadily increase the proportion of direct financing, actively promote market-oriented mergers and acquisitions focusing on industrial integration, guide funds to invest in innovative enterprises, *implement the national innovation-driven development strategy, actively promote state-owned listed companies to carry out strategic mergers and acquisitions*, [and] assist state-owned enterprises to deepen reforms and promote state-owned capital to become stronger and bigger.[381]

This creation of globally competitive national champions through capital markets does not only include non-financial companies but also extends to China's financial companies. While the focus on non-financial companies is on listing, the focus for Chinese financial institutions is rather on improving business practices – but similarly aimed at establishing national champions. Especially with an increasing importance of capital markets for China's political economy, developing their own competitive financial sector has become very important for Chinese officials. Rather being dependent on foreign financial institutions, such as US investment banks, there is a growing understanding that financial markets are a powerful, potentially harmful force but also a tool that is best owned and wielded independently (see Chapter 6). Since CITIC Securities' unsuccessful bid for Bear Stearns in 2008, it became clear that China's authorities were serious in their aspirations to create their own globally competitive investments banks – a 'Chinese Goldman Sachs' (Takada and Shen, 2012, Chan, 2019). This was reiterated in November 2019, when the CSRC announced that

[380] Interviews: managing partner, law firm (Beijing, 18 October 2018); also, interview: research department, regulator (Beijing, 12 September 2019).
[381] Interview: research department, Chinese exchange (China, 6 November 2018; emphasis added).

it 'wanted to create investment banks with "aircraft carrier size" and would support mergers within the industry, enhance capital strength, expand the services they offer and promote [China's] "internationalisation"' (cited in Bloomberg, 2019c).

The previously discussed market management activities of Chinese exchanges are hence also aimed at a steady improvement of China's own financial industry: from investor professionalisation, monitoring the behaviour of brokers, commercial derivative hedging to investment banking (listing) activities. Importantly, global financial institutions that facilitate and populate neoliberal capital markets have been both utilised by the Chinese authorities to facilitate this learning process but also kept at bay by not allowing them too much influence and market power, as the following chapter demonstrates. Overall, creating national financial champions has been an important imperative for how Chinese exchanges organise markets.

While economic reforms in China have focused on the introduction of market-based financial practices, in contrast to neoliberal financialisation trajectories, neither has shareholder value orientation taken over nor state control been undermined. Overall, capital markets played an important role in helping to restructure China's economy and raise the international recognition and competitiveness of its companies. By monitoring and facilitating capital market development, the Chinese exchanges helped to manage the reform of China's companies within this process, contributing to national development through financial means.

## 4.5 Conclusion: capital markets with Chinese characteristics

While one can observe an increasing financialisation in China – exemplified by the 'growing influence of capital markets, their intermediaries and processes in economic and political life' (Pike and Pollard, 2010: 30) – this process unfolds within the context of China's state capitalism. This chapter analysed the development of China's capital markets and how Chinese state-owned exchanges engage in processes of market management, thereby acting as intermediaries between the Chinese state, society and finance. Rather than a break with China's state capitalism, the activities of Chinese exchanges help to sustain and facilitate China's existing socio-economic system through steering this process. Thereby, they mediate existing and emerging contradictions in and through the gradual financialisation of China's state capitalism: on the one hand, by controlling financial and social risks emanating from increasing

financialisation, on the other hand by facilitating national development through financial means. As a result, Chinese capital markets function quite differently from 'global' markets, as they are organised according to a state-capitalist institutional logic.

This active management of capital markets through Chinese exchanges addresses different aspects of China's socio-economic system and thereby aims to achieve several state policies: to prevent the building up of excessive financial risks; to stabilise the socio-political system by simultaneously encouraging and protecting retail investor participation; to assess the usefulness of financial activities and their contribution to the real economy; and assist in the economic reform of Chinese corporations. Rather than enforcing relative conformity with a neoliberal hegemonic project (Carroll and Jarvis, 2014a), within this process China's state-owned exchanges sustain and rather further develop Chinese state capitalism.

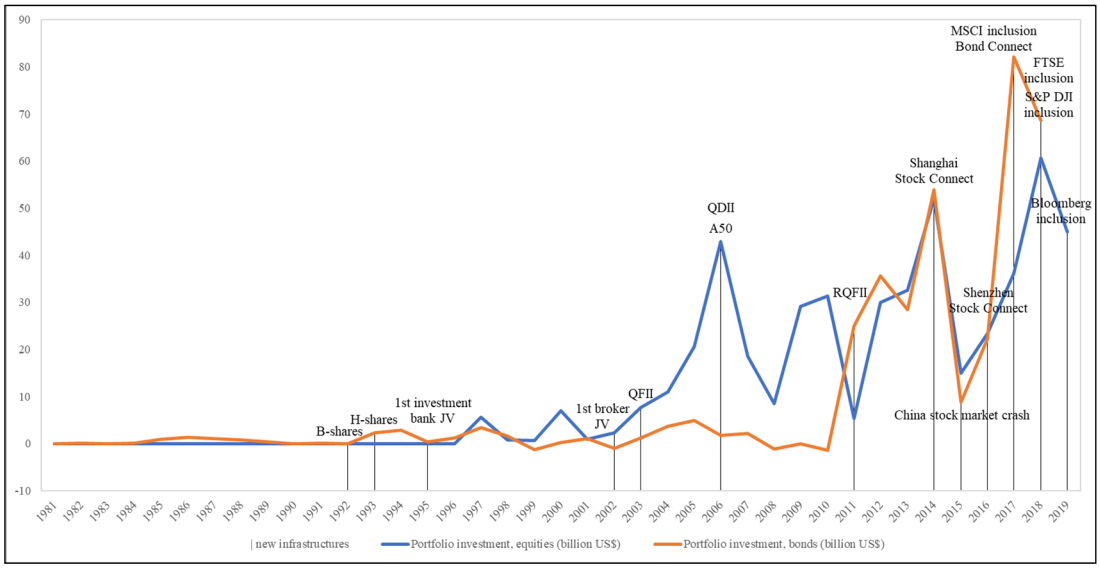
It is important to note that even if actively facilitated to create economic growth and partially steered by the state, like any financialisation process, China's variegated financialisation is still inherently crisis-prone, creates new contradictions, and rising wealth and income inequality (Luo and Zhu, 2014) or a financialisation of everyday life severely affect Chinese society (Dal Maso, 2015). However, this chapter rather aims to showcase the development of a different way of thinking about and managing capital markets that is emerging in China.

Resulting from their different institutional setting, the patterns of incentives and constrains that exist within China's capital markets are fundamentally different from neoliberal capital markets. In contrast to the perception of some Western commentators, capital markets – as characterised by market-based mechanisms that facilitate the trading of securities between investors – do exist in China. However, rather than detached from the state and facilitating the creation of private profit, they are embedded into and function according to the institutional logic of China's state capitalism, actively managed by China's exchanges in attempts to control financial markets and facilitate national development goals. Thereby, the markets they create represent a clear *alternative* to the neoliberal capital markets that underpin the global financial order.

## 5 Integrating into global finance: resisting neoliberal capital markets

While the previous chapter focused on the domestic development of China's state-capitalist capital markets, China is embedded into and increasingly connected with the neoliberal global financial order through the creation of financial infrastructures that link China's state-capitalist capital markets with global markets (figure 5.1). These neoliberal capital markets organised by global exchanges are based on the principle of free capital movements and the ability of international investors to withdraw their funds is often described as a disciplinary mechanism in case countries do not follow a neoliberal rulebook (Hardie, 2012, Bortz and Kaltenbrunner, 2018, Rommerskirchen, 2020). But rather than a 'Big Bang' style liberalisation, China's capital market opening is managed in a way that it enables an integration with global finance while simultaneously maintaining a distinctively state-capitalist logic of running capital markets. Despite an increasing integration with global finance, China essentially resists pressures to conform with the neoliberal global financial order.

***Figure 5.1:*** *Portfolio flows into China and cross-border infrastructures, 1979-2019.*




*Source: World Bank (2020), financial news; author's figure.*

This process is analysed across three dimensions that connect China and global markets: offshore, onshore and cross-border infrastructures. While the Chinese authorities try to prevent offshore trading that evades their control, the development of onshore and cross-border trading is actively facilitated and follows a state-capitalist logic of market organisation. This is because the financial infrastructures that link

Chinese capital markets with global markets (e.g. the Stock Connect) are designed to facilitate national development while maintaining state control. In this process, the Chinese state hence relies on exchanges as a vehicle to control trading flows and as crucial actors in the opening of Chinese markets. By creating cross-border financial infrastructures – and thus defining, reinforcing and controlling the rules of this integration process – the Chinese exchanges effectively act as intermediaries between the Chinese state and global finance, managing the contradictions of China's financial opening. Rather than focusing on capital controls, analysing financial infrastructures provides a more nuanced picture of these dynamics and explains how state-capitalist logic persists despite increased integration.

The chapter is structured as follows. Following a brief historical outline of China's pre-crisis integration, section 1 examines how China's integration into the global financial order is largely influenced by its distinctive state-capitalist institutional logic and how this process is facilitated through the construction of financial infrastructures. While there are clear national developmental incentives to facilitate such an opening, the sub-logic of control is the dominant factor in determining the form and structures of this integration which are subsequently discussed. Section 2 scrutinises the development of *offshore* financial infrastructures that might indirectly influence Chinese capital markets and China's attempts to prohibit these activities as they contradict state-capitalist institutional logic. Section 3 then discusses access, function and limitations of global finance *onshore* – that is what global exchanges and investors can do within China's capital markets. While they fulfil national developmental functions, global financial institutions essentially have to obey the rules set by the Chinese exchanges. In contrast to neoliberal markets, they are 'at the bottom of the food chain'. Section 4 discusses the construction of *cross-border* financial infrastructures that connect global (offshore) and Chinese capital markets (onshore) through Hong Kong. Importantly, these financial infrastructures enable China to maintain a balance between reaping national development benefits from connecting with global markets while maintaining control over this process. Section 5 concludes by discussing how China's state-capitalist model of integration is characterised by resisting pressures to conform with the neoliberal markets that underlie the global financial order.

## 5.1 The institutional logic of opening up China's capital markets

Since the domestic development of China's capital markets began in the 1990s, limited steps have also been taken to integrate China with global markets. After the domestic A-shares stock market (denominated in RMB) was established in 1990, two years later Chinese companies were also allowed to issue USD-denominated B-shares in a separate market only accessible to foreign investors.[382] As a former broker for B-shares noted, 'in the early [days], there was kind of a boom in the B-share market, […] because that was the only entry point for foreigners to entering the [Chinese] market'.[383] In 1993, the CSRC then created another listing channel by allowing A-share companies to conduct secondary listings in Hong Kong and issue so-called H-shares. Due to the state-controlled process of listings and corresponding backlog, other Chinese companies also listed abroad through unofficial channels: privately listing in Hong Kong,[384] Singapore, New York or London. James Fok, HKEx's Head of Strategy, called this the 'IPO era' of Chinese capital markets during which especially Hong Kong became prominent as an offshore fundraising centre for Chinese companies.[385]

However, this was essentially a parallel system. Chinese companies listing overseas simply followed the rules of neoliberal capital markets, while the B-share market was completely separated from the A-share market. Chinese and foreign investors and market infrastructures never mixed in this setup – Chinese investors were not allowed to invest abroad or in B-shares while foreign investors could not access the 'proper' A-share market.[386] Without fungibility and arbitrage possibilities between the two markets, large price differences existed between these share types and after an initial euphoria few international investors were interested in trading B-shares (Greene, 2004: 50-52).[387] China's state-capitalist capital markets were basically

[382] The official name for B-shares is 'Domestically Listed Foreign Investment Shares' (即供境外投資的內地上市股票); on SSE these were USD-denominated, on SSE and HKD-denominated (the HKD is pegged to the USD).
[383] Interview: executive director, broker (Hong Kong, 10 July 2017).
[384] Next to H-shares which are already listed as A-shares in China, companies incorporated in mainland China could also do a primary listing in Hong Kong as 'red-chips' (such as China Mobile) while Chinese companies incorporated offshore (e.g. Tencent which is Cayman Islands-incorporated) could list in Hong Kong as 'p-chips'.
[385] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).
[386] Chinese investors were only allowed to access the B-share market after 2001.
[387] Interview: international department, Chinese exchange (Shanghai, 26 April 2018).

isolated from neoliberal global finance and it was only after the global financial crisis that the 'Opening Up era' of Chinese capital markets began.[388]

The Chinese state, however, has an ambiguous relationship with global finance (Helleiner and Wang, 2019: 224-226). As one Hong Kong-based asset manager stated, 'it's absolutely a love and hate story, they love the money, love the stability, hate giving up control… and hate it if foreign investors want to dominate the terms'.[389] On the one hand, global finance – both global investors and infrastructure providers – 'can help facilitate the professionalisation and institutionalisation of China's financial industry which has been an important policy in China's market development (Chapter 4).[390] Increasing portfolio investment through international investors would also alleviate pressures stemming from increasing capital outflows.[391] Further, having a strong domestic financial sector is crucial for China's aspirations to becoming a global financial powerhouse. Hence, a more internationally integrated and professional capital market is very much in China's national developmental interest. As they lack the know-how and expertise to completely develop this independently (see also Malkin, 2016), global finance has a (limited) role to play in this process.

On the other hand, the authorities are wary of losing control over market development through an increasing influx of foreign money.[392] For the Chinese authorities, it is important to have an independent financial sector without foreign influence, let alone dominance. As one interviewee noted, regarding 'domestic [speculators], they can sort of, shut the gate and release the dog and then you tow in line'[393] – which is not necessarily possible when integrated into global markets. The authorities are especially concerned about big global players 'who have a lot of money [and] all the financial techniques to manipulate the market and cause trouble'.[394] A Chinese private equity fund manager put it like this:

> If foreign players come too quickly into the market, it brings instability to the market. Instability, meaning that if Chinese players… once the Chinese government calls all of their heads to have a meeting, all of them will come and try to follow the central government way. But can you call the Goldman China

[388] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).
[389] Interview: CEO, asset manager (Hong Kong, 28 June 2017).
[390] Interview: international department, Chinese exchange (Shanghai, 26 September 2019).
[391] Interview: product development, asset manager (Hong Kong, 3 July 2017).
[392] Interview: private equity manager (Shenzhen, 22 June 2017).
[393] Interview: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017).
[394] Interviews: product development, exchange (Hong Kong, 12 July 2017) and product development, Chinese exchange (China, 14 October 2019).

> CEO, the JP Morgan China CEO? They act not on behalf of the country; they act on behalf of the firm. So therefore, it brings in a lot of instability to the market [because] it's very hard for them to rebalance.[395]

This is especially important with respect to differences between 'hot money' (short-term speculators such as hedge funds) and 'real money' (long term investors such as pension funds).[396] As two interviewees noted, the authorities 'don't want to see that hot money comes to China, draws up the market, takes the profit and goes away, and the loss will be with the retail investors',[397] they do not want investors 'who just want to make a quick kill […] because it's going to send ripples through the social stability'.[398] Foreign speculators would not only increase financial but also social risks associated with the increasing financialisation of China's state capitalism.[399]

In contrast, 'they love to see long-term investors'[400] because 'they know that real money, they don't really come and go, it's more like asset allocation'.[401] Long-term investors such as pension funds, endowments, insurance companies and especially passive investment '[are] considered more stable money',[402] which can help to stabilise the Chinese market, countering the speculative activities of Chinese retail investors.[403] Consequently, 'they don't really treat all foreigners the same'.[404] In a similar vein, Hardie (2012: 6) for instance highlights the differential impact of investor types in his study of government bond markets. Rather than simply opening up their market, the Chinese authorities try to create the right conditions to attract long-term global investors (e.g. pension funds) rather than short-term speculators (e.g. hedge funds). They do so by creating financial infrastructures that enable this global integration to facilitate national development while strictly maintaining control.

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[395] Interview: private equity manager (Shenzhen, 22 June 2017); also, interview: product development, Chinese exchange (China, 14 October 2019).
[396] Interviews: international department, global exchange (Taipei, 5 July 2017) and APAC director, financial infrastructure provider (Hong Kong, 26 June 2017).
[397] Interview: product development, exchange (Hong Kong, 12 July 2017); similarly, another interviewee noted: 'They want long-term investors rather than the locusts who come in, have a big win and then fly away' (interview: APAC director, financial infrastructure provider; Hong Kong, 26 June 2017).
[398] Interviews: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017) and managing partner, asset manager (Shanghai, 15 May 2018).
[399] Interview: international department, global exchange (Taipei, 5 July 2017); also, interview: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017).
[400] Interview: product development, exchange (Hong Kong, 12 July 2017).
[401] Interview: product development, asset manager (Hong Kong, 3 July 2017); also, interview: managing director, index provider (Hong Kong, 6 July 2017).
[402] Interview: international department, global exchange (Taipei, 5 July 2017).
[403] Interview: managing director, index provider (Hong Kong, 6 July 2017).
[404] Interview: product development, asset manager (Hong Kong, 3 July 2017).

It is important to keep in mind the historical legacy that shaped this world view. The 'century of humiliation' still resonates in the Chinese authorities' mindset, facilitating a large degree of mistrust towards foreign financiers and businessmen and their potential influence.[405] The authorities view global finance and capital flows as disruptive forces; as one interviewee summarised this sentiment: 'Look at the story of George Soros who shorted the pound, making the pound exit from the eurozone and making billions on the pound overnight – all in the name of free economy!'[406] Therefore, the Chinese authorities cautiously analysed how to best open up their financial system. Especially Russia's shock therapy, Japan's financial liberalisation in the late-1980s or the Asian Financial Crisis and the impact these events had on domestic economic systems, made an impression on Chinese regulators because 'they don't want the same thing to happen'.[407] The institutional logic that informs capital market integration is markedly different in Chinese and neoliberal capital markets.

A large research programme around capital controls has emerged in IPE literature to analyse such integration processes (Dierckx, 2013, Chwieroth, 2015, Grabel and Gallagher, 2015, Helleiner, 2015, Alami, 2019). Grabel (2011: 812) defines capital controls as 'a range of policies that are designed to manage international capital flows'.[408] Before the re-emergence of global finance, capital controls severely constrained international financial flows and were a key pillar of the global financial order back then which enabled states to pursue independent macro-economic policies during the period of 'embedded liberalism' (Ruggie, 1982). With the collapse of Bretton Woods and the paradigm shift towards neoliberalism, capital controls, however, were abolished in large parts of the world which increased international capital mobility (Simmons, 1999). This significantly changed the power relations between states and firms (Strange, 1988, Cerny, 1997a) as the growing structural power of (neoliberal) global capital markets 'systematically circumscribed […] policy options available to states' (Andrews, 1994: 193). This is especially true for the

[405] Interview: commodities product development, exchange (Singapore, 1 December 2017).
[406] Interview: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017).
[407] Interviews: executive director, investment advisor (Hong Kong, 6 July 2017); also, interviews: research department, regulator (Hong Kong, 5 July 2017) and executive director, clearing house (Frankfurt, 15 November 2017).
[408] Capital controls 'can and have taken many forms in various countries over time. For example, they have involved restrictions on foreign investment in certain sectors or assets, minimum stay requirements on foreign investment, restrictions on capital outflows, taxes on foreign investment, restrictions on access to the domestic or to foreign currencies or to holding bank accounts outside the country, etc.' (Grabel, 2011: 812).

financial industry as its assets are more liquid and transferable than those of non-financial firms (Watson, 1999), moving money is a lot quicker and easier than a factory (Frieden, 1991: 438). Often the mere threat of moving money/assets (investment strike) is enough to ensure compliance, which is why capital market integration has been constitutive for the structural power of financial capital (Gill and Law, 1989). This absence of capital controls and their replacement by the free movement of capital flows are important characteristics of the neoliberal capital markets that underpin the global financial order (Major, 2012, Vermeiren and Dierckx, 2012: 1650).

In contrast, maintaining capital controls, determining the currency exchange rate and controlling the financial system remain key pillars of China's state-capitalist system of economic governance (Huang and Lardy, 2016, Tao, 2018). However, in a lot of IPE discussions on China, there seems to be a trade-off between capital controls and financial opening (Ito, 2011, Frankel, 2012, Vermeiren and Dierckx, 2012: 1660-1661, Dierckx, 2015). As Eichengreen (2012: 146) noted, by removing capital controls 'the very foundations of the Chinese development model would be threatened' (Prasad, 2016). This chapter is arguing that a more nuanced picture of China's financial opening might emerge by looking at financial infrastructures. As the emerging markets strategist of a global exchange noted:

> I have an analogy… […] If you look at capital controls as a wall, people have eliminated them in different ways… and you can remove the wall, full liberalisation, Big Bang, and that has a whole range of problems… you can remove it gradually… or you can do what the Chinese are doing and build holes through it. It's this pilot project approach, you build holes and then you think you can repair them if needed, and you leave the height of the wall more or less intact.[409]

Rather than focusing on capital controls, this thesis utilises the concept of financial infrastructures and their role in the differential organisation of markets to provide a more nuanced picture of China's opening process – analysing the 'holes' in the wall (also, Töpfer, 2017, Li, 2018a). In contrast to a neoliberal Big Bang style deregulation of financial markets, the opening of Chinese capital markets is conducted in a controlled, reversibly manner. This reversibility is essential, because with all the infrastructural arrangements that are put in place, they are 'very easy to turn off, if

[409] Interview: emerging markets strategist, global exchange (London, 11 January 2018); also, interview: executive director, broker (Hong Kong, 10 July 2017).

things don't go the way they should'.[410] In order not to disrupt the domestic economy, '[capital] flows can be controlled' through the infrastructural arrangements of the integration process.[411] As the following analysis shows, there are consequently marked differences between neoliberal and state-capitalist logics of cross-border market integration (table 5.1). Problematising this issue, HKEx' CEO Charles Li made the following important comments when discussing China's integration into global markets: 'China's opening today is not only about China conforming to international standards and norms… because they do something so different. […] How do you fit into their system, how does their system fit into yours? How do you translate this into [global markets]?'[412] While existing IPE literature has largely focused on capital controls as a means to influence capital market integration, the focus on financial infrastructures as a wider set of arrangements that shape market organisation and integration (of which capital controls are just one measure) enables a more nuanced analysis that highlights the *persistence* of differential logics of market organisation *despite* an increasing integration.[413]

***Table 5.1:*** *Financial integration: state-capitalist vs neoliberal capital markets.*

| indicator | neoliberal capital markets | state-capitalist capital markets |
|---|---|---|
| international access | freely accessible markets | access restrictions |
| capital controls | none (free capital movement) | extensive (restricted capital movement) |
| global investors | primacy of global investors | at the 'bottom of food chain' |
| global finance | structural power over state | limited power over state |
| offshore markets | actively facilitated | prohibited (if possible) |
| **institutional logic** | **'efficient' outcomes through enabling private profit creation** | **control of market / direction of market outcomes towards national development** |

*Source: author's table.*

[410] Interview: emerging markets strategist, global exchange (London, 11 January 2018).
[411] Interview: business development, global exchange (Hong Kong, 19 September 2018); also, interviews: APAC director, commodities exchange (Singapore, 8 December 2017) and business development, global exchange (Hong Kong, 7 July 2017).
[412] Observation: 'Global Exchange Leaders' Panel, 13th FIA Annual Asia Derivatives Conference (Singapore, 29 November 2017).
[413] As Green and Gruin (2020: 19) argue, China might at some point reach a 'tipping point' after which it could lose control over its financial transformation; however, as the following sections show, such an external shift has not yet occurred, and this analysis suggests that it is unlikely that they will lose control as long as infrastructural arrangements of China's capital market opening are primarily controlled by Chinese exchanges.

By analysing offshore, onshore and cross-border integration, the next three sections explore how state-capitalist rather than neoliberal institutional logic informs how China is integrated into global markets as the Chinese exchanges *redefine*, *reinforce* and *control* how this process works. While there are clear national developmental incentives to facilitate such an opening, control remains the dominant factor that determines the form and content of the financial infrastructures that link China's state-capitalist markets with global finance. As financial infrastructure providers, exchanges are thereby crucial for managing the opening process of China's state-capitalist capital markets and their integration into the global financial order.

## 5.2 Redefining the rules: preserving control by preventing offshore trading

With respect to cross-border financial integration, *offshore* trading refers to the creation of marketplaces that enable the trading of financial products based on an underlying from another jurisdiction (see also Clark *et al.*, 2015: 241).[414] Thereby, offshore trading is a mechanism often used by global exchanges to capitalise on 'gaps' or policy constrains in other markets.[415] Offshore trading thereby follows a neoliberal logic where profit creation is the underlying principle of market organisation. In this process, derivatives are especially important, as these leveraged financial products enable 'speculation from afar' and can drive the markets of underlying products – from commodities (Clapp, 2014), national stock markets (Watson, 2007: 114) to government debt (Hardie, 2012). With increasing liquidity concentration, such offshore trading gradually undermines national control over capital markets. Similar to Ugandan coffee production being disrupted by the trading of ICE Arabica futures in New York (Newman, 2009: 546), national stock markets can be driven by the trading of index futures on another exchange.

With respect to the offshore dimension of China's integration into the global financial order, a crucial case is the development of the SGX FTSE China A50 Futures (A50) contract – until today the only index future with a Chinese underlying that is

[414] As Clark *et al.* (2015) note, offshore does not simply equate with tax haven or international finance, but rather denotes a specific relationship between two jurisdictions and the financial agents that interact between them (see also Palan, 1998).
[415] The Eurodollar markets that emerged in London in the 1950s and 1960s are an important example of such offshore markets and crucial ushering in the contemporary global financial order (Helleiner, 1996, Green, 2020).

traded outside of China. Based on the stock market performance of the 50 largest Chinese A-shares, it was launched by Singapore Exchange (SGX) in 2006 where it quickly became the most-traded contract (Acworth, 2016). A50 futures basically give offshore investors the possibility to hedge/speculate on developments in the Chinese stock market, something that represents a challenge to China's state-capitalist institutional logic of controlling and managing capital markets. Rather than giving in to neoliberal market logic, China did everything in its power to prevent the A50's trading, thereby resisting pressures to conform with the global financial order and redefining the rules of its integration with global capital markets.

The story behind the A50 is quite revealing about the politics inherent to the provision of financial infrastructures. In 2000, a joint venture between FTSE and Xinhua Finance[416] was established to create indices based on listed Chinese companies (A-shares), as an effort to develop Chinese financial services during the 'Regularised Development Stage' (规范发展阶段) after the scandals and clampdowns of the 1990s. For the Chinese authorities, the rationale was for Chinese financial markets to gain know-how into how to develop financial indices – a key infrastructure in modern capital markets – from one of the world's leading index providers. FTSE on the other hand had engaged in similar joint ventures across Asia and saw huge business opportunities in the growing Chinese markets.[417] Back then, Chinese exchanges did not license their market data to foreigners, no stock market indices from the Chinese mainland existed and the only 'China' indices were based on Chinese companies listed abroad.[418] However, with China's official news agency as a partner, the joint venture had been approved by the central government, and SSE and SZSE licenced their market data to FTSE-Xinhua to construct the world's first Chinese stock indices.

Initially, FTSE-Xinhua's A50 index was only licensed to a few ETFs which enabled some limited investments into the Chinese stock market. However, unbeknownst to the Chinese authorities, the joint venture also signed an agreement

[416] It is important to note that Xinhua Finance is not an official subsidiary of Xinhua News Agency, China's national new agency. A group around American businesswoman Loretta Fredy Bush, later CEO of Xinhua Finance, approached Xinhua News Agency with a concept for taking investment tools developed for international markets and apply them to China's markets at a time when China was seeking to develop its capital markets (see section 3.2). Subsequently, a subsidiary of Xinhua News Agency became one of the founding shareholders of Xinhua Finance and initially held a 60% stake in Xinhua Finance in 1999; a stake that had been reduced to 4.25% by 2005 (Areddy and Reilly, 2007).
[417] Interview: business development, index provider (Hong Kong, 27 September 2018).
[418] Such as the MSCI China Free index (see: https://www.msci.com/documents/10199/865563d8-581a-4818-b4a5-436eaf5bb7cc; last accessed 3 April 2020).

with SGX, licensing the A50 to create a financial futures contract which SGX listed in September 2006.[419] The original data-sharing agreement between FTSE-Xinhua, SSE and SZSE signed in 2000 did not include clauses on derivatives, as 'they kind of just omitted them… it was a grey area of sorts'.[420] However, according to an index industry veteran, 'FTSE-Xinhua technically licensed the A50 [to SGX] without permission'.[421]

This was not a first for SGX which also acts as an offshore trading venue for Japanese, Taiwanese, Korean and Indian benchmark indices. As one global exchange representative noted: 'So, SGX are known for that… they are known for looking at an index which is successful somewhere else, create it on their trading venue to capture that volume and offer extremely obscene [trading] incentives'.[422] Thereby, SGX functions as a conduit for global finance, facilitating neoliberal logic of how markets are supposed to work. As one interviewee from SGX noted: 'As an offshore financing centre, we have the trust of the financial community and *we run our exchange with international rules*, [as] a business that is well understood by international, *perhaps more Western standards*'.[423]

With no domestic index futures market in China, the A50 soon became the most-traded contract on SGX because 'it was the only game in town';[424] as *Reuters* (Torchia, 2007) noted, 'trading [the A50 was] becoming increasingly popular as global investors, restricted by capital controls from putting large amounts of money into Chinese markets, [sought] to profit from the country's economic growth'.[425] But as the A50's trading volume gathered steam, the Chinese authorities became increasingly concerned. The domestic stock market started to behave weirdly – more and more often stock prices in China were driven by the futures contract traded in Singapore; the tail was wagging the dog. Suddenly, as one Chinese exchange official noted, these 'A50 Futures had pricing power over the A-shares market'.[426] As *Euromoney* put it, there was 'an uneasiness in China at the idea that derivatives on Chinese stocks and

[419] Interview: business development, index provider (Hong Kong, 27 September 2018).
[420] Interview: product development, exchange (Frankfurt, 2 February 2018).
[421] Interview: business development, index provider (Hong Kong, 27 September 2018); also, interviews: executive director, global exchange (Singapore, 30 November 2017), representative office, global exchange (Beijing, 26 June 2017) and commodities product development, exchange (Singapore, 1 December 2017).
[422] Interview: data business director, global exchange (Singapore, 4 December 2017).
[423] Interviews executive director, exchange (Singapore, 29 November 2017; emphasis added); also, interview: business development, global exchange (Hong Kong, 12 July 2017).
[424] Interview: managing partner, asset manager (Hong Kong, 27 June 2017).
[425] Interview: managing director, index provider (Hong Kong, 6 July 2017).
[426] Interview: research department, Chinese exchange (China, 18 October 2018).

instruments can be traded somewhere else in the world with absolutely *no control* from the People's Republic itself' (emphasis added; Wright, 2006). This was a dilemma for the Chinese authorities, as one interviewee noted: 'They want to implement control in the onshore market. [But] if they allow offshore product listings, how can they implement the domestic restrictions?'[427] This was especially important as the Chinese regulators view financial futures as socially unproductive. The SGX A50 futures, therefore, constituted an offshore market that functioned according to neoliberal institutional logic and negatively impacted China's domestic state-capitalist markets.

But rather than giving in, the Chinese exchanges resisted pressures from global markets. Initially, SSE sued the joint venture for licensing its market data for derivative use. Xinhua-FTSE's Co-Chairman Loretta Fredy Bush responded that they had done nothing wrong and would appeal the ruling because 'we own our indices and have the right to licence [them] to others to develop derivatives'; Bush further argued that 'under *international practice*, market prices became public property once they are disseminated' which was a 'key principle' of how global markets worked (emphasis added; cited in Torchia, 2007). While the Shanghai court unsurprisingly agreed with SSE, the case was not brought to an international court. After all, FTSE-Xinhua was a joint venture supported by China's official news agency. To save face, the court case was not further pursued.[428] Xinhua News Agency (2007) subsequently declared it had suspended any relations with Xinhua Finance, the joint venture was dissolved in 2010, and FTSE now owns the A50 index license. The attempts of a few expats to create 'China's Bloomberg' had failed spectacularly.[429]

More importantly, however, this facilitated the development of a Chinese financial futures market onshore. As one Chinese exchange official noted, 'the CSI 300 was a reply to the A50 Futures, as the A50 pushed forward the Chinese government to make a quick decision'.[430] While parts of the Chinese authorities were originally against building domestic financial futures markets after the 1995 bond futures scandal, the success of the offshore A50 contract forced them to rethink. In order to regain control over their market, the Chinese exchanges and regulators jointly

[427] Interview: product development, exchange (Hong Kong, 12 July 2017).
[428] Interview: product development, exchange (Frankfurt, 2 February 2018).
[429] Independent of the China story, Xinhua Finance's top management became entangled in tax evasion and insider trading scandals in the US (Kendall, 2017).
[430] Interview: research department, Chinese exchange (China, 18 October 2018).

created CFFEX in September 2006 and started to develop their own index futures, launching CSI 300 futures in 2010.[431]

By 2010, ten years after the A50 had been calculated, the CSI 300 index – based on the 300 largest A-share companies – had replaced the A50 as the main benchmark to assess the performance of China's growing stock market[432] and the Chinese exchanges were able to move liquidity back onshore.[433] This enabled the Chinese authorities to regain control over their markets as CFFEX could tightly regulate contract specifications and trading rules, monitor trading activity, punish 'abnormal' trading activities and steer investor behaviour through the infrastructural arrangements of its state-capitalist capital markets.[434] As the international department of a global exchange noted, for the 'onshore [contract] they will call every onshore broker, prop firm, bank… "you need to stop short-selling right now!"… But they cannot really call someone in Hong Kong, Frankfurt or Singapore…'.[435] The Chinese regulator made it clear that 'liquidity should remain in mainland China, and foreign markets should not influence [domestic] prices'.[436] With their own contract in place, the Chinese exchanges could manage their domestic markets instead of letting a foreign exchange decide the rules of the game and allow foreign speculators to distort domestic stock markets through offshore trading.

While the Chinese authorities declared trading SGX A50 futures illegal, well aware of its potential benefits they allowed its continued existence. Next to fostering speculation which had previously influenced the domestic stock market, the A50 also facilitated international investment into Chinese stock markets as global asset managers could hedge their mainland exposure.[437] From the main speculative outlet for Chinese stock market, the A50 contract became a 'dirty hedge' for those active

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[431] Interview: commodities product development, exchange (Singapore, 1 December 2017).
[432] This is similar to the history of US indices: while the Dow Jones Industrial Average (40 companies) was the first major US stock market index, since the 1980s the S&P 500 (500 companies) has become the major benchmark; on the political economy of stock indices, see also Petry *et al.* (2021).
[433] Interviews: product development, asset manager (Hong Kong, 3 July 2017), international department, global exchange (Taipei, 5 July 2017), product development, exchange (Hong Kong, 12 July 2017) and managing partner, asset manager (Hong Kong, 27 June 2017).
[434] Interviews: business development, index provider (Hong Kong, 27 September 2018), sales department, global exchange (Hong Kong, 30 June 2017) and CEO, asset manager (Hong Kong, 28 June 2017).
[435] Interview: international department, global exchange (Taipei, 13 July 2017).
[436] Interview: product development, exchange (Frankfurt, 2 February 2018).
[437] Interviews: executive director, global exchange (Singapore, 30 November 2017) and product development, exchange (Frankfurt, 2 February 2018).

within the Chinese market that could not trade CSI 300 futures.[438] With CSI 300 as the main liquidity pool, a curtailed A50 partially supported national development logic while no longer impeding control over capital markets.

This development had two additional important outcomes for the global integration of China's capital markets. First, it hardened the Chinese authorities' suspicion against foreign influence in their capital market infrastructures. As two interviewees noted, since this incident 'the Chinese government [strongly] believes that any derivative, or related product, that has its underlying value inside of China can't be traded outside, because it can impact the stability inside of China'[439] and 'if someone ever creates something that allows people to short this index in any market, that's very politically sensitive'.[440] Financial infrastructures needed to be embedded within state-capitalist institutional structures to ensure they support control and national development.

The Chinese exchanges and regulators have since learned from their mistake. China Securities Index (CSI), the index provider which calculates the CSI 300 index is wholly owned by SSE and SZSE and until today has neither provided any index licenses for futures trading nor engaged in similar joint activities with foreign counterparties.[441] While every global exchange wants a CSI 300 index license for futures trading, as one exchange representative noted, the answer is always the same:

> The major concern that we hear from the Chinese […] is that 'if we let the CSI 300 or the A50 be listed on a big US or European exchange we, China, are going to lose price discovery and that it's going to shift to the West…' […] those were the kinds of conversations we had… the regulator seems to never quite get comfortable with Chinese products listed on [our global exchange].[442]

Second, this had major repercussions for Singapore's role in China's financial opening process. Despite having close ties with China and being a natural choice for cooperations to facilitate China's capital market integration in Asia, Singapore has been largely absent from China's opening. After the A50 incident, Chinese exchanges

[438] Interviews: APAC sales director, global exchange (Hong Kong, 30 June 2017) and private equity manager (Shenzhen, 22 June 2017).
[439] Interview: general manager, global exchange (Hong Kong, 5 July 2017); also, interview: emerging markets strategist, global exchange (London, 11 January 2018).
[440] Interview: product development, asset manager (Hong Kong, 3 July 2017).
[441] The CSI 300 is only licensed to selected funds to list ETFs (interview: managing director, index provider; Hong Kong, 6 July 2017).
[442] Interview: executive director, global exchange (Singapore, 30 November 2017); similar replies came from several exchanges, including CME, ICE, Nasdaq, DBG, LSEG, SGX and HKEx.

stopped official cooperations and SGX was shut out of all further internationalisation plans.[443] One global exchange's China representative noted that 'there will be less and less of a role for Singapore in the future… especially, because the regulator dislikes SGX [since] they launched the A50'.[444] As a Hong Kong-based hedge fund manager noted, 'it is clear that they've lost the China story'.[445]

This set an example for other global exchanges, who all want to list a Chinese index contract.[446] As one interviewee noted: 'See, it created a dilemma for exchanges like us, because we'd love to list it as well… but we kind of know that if we did it without the blessing of CRSC, […] there'd definitely be some downsides from a relationship standpoint, right?'[447] While FTSE-Xinhua and SGX did not ask for permission for listing their contract, after SGX's fall from grace 'nobody is willing to take that risk anymore'[448], because 'that means you would try to challenge the Chinese market, the Chinese regulators… [and] it's super dangerous to do that'.[449] So, while it is 'almost impossible'[450] to get a license from CSI, nobody dares to list such a product unilaterally. China has redefined the rules of how it integrated into global markets. Rather than uncontrolled offshore trading which is widespread in neoliberal markets, they force global exchanges and investors to use onshore and cross-border infrastructures which follow a state-capitalist logic.

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[443] The exchanges still maintain relations and on a working level they cooperate, but more extensive cooperation is politically constrained (interviews: executive director, exchange; Singapore, 29 November 2017; strategy director, exchange; Singapore, 29 November 2017; and managing partner, asset manager; Hong Kong, 27 June 2017).
[444] Interview: representative office, global exchange (Beijing, 26 June 2017); other political issues further contributed to this, such as SGX's attempts to establish a stock market link with Taiwan Stock Exchange (TWSE) and their involvement in the South China Sea (interviews: executive director, clearing house; Frankfurt, 15 November 2017; and commodities product development, exchange; Singapore, 1 December 2017).
[445] Interview: managing partner, asset manager (Hong Kong, 27 June 2017).
[446] Similarly, although they technically own the intellectual property rights for the A50 index, FTSE-Russell has not licensed the A50 for other futures contracts, knowing that China's exchanges would cancel their data sharing arrangements if that happened and aware of the negative repercussions this would have for their China business.
[447] Interview: executive director, global exchange (Singapore, 30 November 2017); also, interview: APAC director, global exchange (Singapore, 7 December 2017).
[448] Interview: business development, index provider (Hong Kong, 27 September 2018).
[449] Interview: product development, asset manager (Hong Kong, 3 July 2017).
[450] Interview: product development, asset manager (Hong Kong, 3 July 2017).

## 5.3 Reinforcing the rules: global finance onshore

Within China, global finance is allowed to operate but global financial institutions thereby have to engage with China on its own turf. They have to conform with state-capitalist logic of market organisation. As this section analyses, the activities of (1) global exchanges and (2) global investors in China differ substantially from how they would operate in neoliberal capital markets. On the one hand, global finance contributes to national development through training, educating and professionalising China's financial sector. On the other hand, the authorities only selectively allow certain activities, and these are strictly controlled and monitored by Chinese exchanges. Rather than giving in to global exchanges and investors, onshore China reinforces its own 'rules of the game' vis-à-vis global finance.

### 5.3.1 Foreign infrastructure providers in China: off limits

With the increasing growth and international importance of Chinese capital markets, foreign infrastructure providers such as global exchanges have gradually established China operations and expanded these post-crisis.[451] While in 2002 only two global exchange offices existed in Hong Kong and only HKEx had a mainland office, by 2018 they had established 24 offices in China (table 5.2).[452] Usually, global exchanges would extensively help to develop capital markets in developing countries, shaping markets in their image and integrating them into neoliberal financial circuits.

***Table 5.2:*** *Foreign exchanges' offices in China, 2002 and 2018.*

| | | | |
|---|---|---|---|
| 2002 | Hong Kong | 2 | DBG, LSEG |
| | Beijing | 1 | HKEx |
| | Shanghai | 0 | |
| | Other | 0 | |
| 2018 | Hong Kong | 10 | ASX, CBOE, CME, DBG, Euronext, ICE, JPX, LSEG, Nasdaq, SGX |
| | Beijing | 8 | CME, DBG, HKEx, JPX, LSEG, Nasdaq, SGX, TSX |
| | Shanghai | 4 | B3, HKEx, LSEG, SGX |
| | Other | 2 | Shenzhen (HKEx), Guangzhou (HKEx) |

*Source: author's table; based on annual reports, financial news.*

[451] Data for this section largely came from three periods of participant observation in the Greater China/Asia offices of a global exchange (Hong Kong and Singapore); these findings were confirmed through interviews.

[452] Similarly, independent financial infrastructure providers such as MSCI, Euroclear and Bloomberg have also opened offices in China.

However, foreign infrastructure providers are heavily constrained in the types of activities that they can pursue within China: they are prohibited from engaging in marketing activities or independently operating financial infrastructures; they only have a limited role in financial technology transfer, helping Chinese exchanges to professionalise their markets; and their main activity is investor education and training. Thereby, a balance is maintained between control and national development as sub-logics of state-capitalist market development. While global exchanges are allowed to assist in professionalising Chinese markets and investors, the more their business activities would impact the levers of state control over markets, the less likely they are allowed to pursue them.[453]

While the provision of financial infrastructures is their main business, global exchanges are not allowed to independently operate these in China. As financial infrastructures are 'pivotal points' through which the Chinese state manages and controls capital markets (Petry, 2020a: 218), all financial infrastructures are owned and operated by Chinese state/regulatory institutions (see figure 3.2).[454] As one London-based data vendor noted: 'The exchanges and the regulators aren't really open to international vendors coming in, making investments, [putting] infrastructure in place… they kind of want to control it [infrastructures], and operate their own networks, hubs and so on'.[455]

However, during the early development of China's markets, global exchanges had cooperated with their Chinese counterparts to facilitate the transfer and development of financial infrastructures. Following efforts to revamp its trading platform, SSE for instance bought DBG's Xetra stock trading platform in 2005,[456] while CFETS and ICAP jointly created a fixed income trading platform in 2007.[457] As a Shanghai-based foreign asset manager noted, 'Of course the Chinese could have done it themselves, but it would have been primitive'.[458] The Chinese exchanges

[453] An interviewee also highlighted this, stating that 'China is a market where it has been very hard to get into due to many reasons, mainly political' (interview: general manager, global exchange; Hong Kong, 5 July 2017).
[454] Ownership of financial infrastructures is not only restricted for foreigners but also for Chinese non-state actors; all financial infrastructure providers are state-owned institutions in Chinese capital markets.
[455] Interview: business development, financial infrastructure provider (London, 9 January 2018).
[456] see: https://newsroom.accenture.com/industries/capital-markets/accenture-and-deutsche-brse-to-help-shanghai-stock-exchange-build-new-generation-trading-system.htm (last accessed 1 July 2020).
[457] CFETS-ICAP (now CFETS-NEX) is owned to 67% by CFETS and 33% by ICAP (NEX) which has become a CME-subsidiary in 2018 (Jianxin, 2007).
[458] Interview: managing partner, asset manager (Shanghai, 15 May 2018).

facilitated such foreign technology transfer, because as one interviewee explained: 'At that time they were certainly open to bring in foreign technology, but *they were very clear that they didn't want to be dependent* on foreign infrastructure providers'.[459] While global exchanges tried to sell their technology in China, there were important obstacles as one interviewee working for a global exchanges' China operation noted:

> Basically, we try to sell our IT platform to partner exchanges. So, the partner exchange can basically use our matching machine, use our IT infrastructure, the idea is it's more like the airline alliance, right? […] We also tried to pitch this idea to China, but it's more difficult because you can imagine, the Chinese exchanges, they are quite sensitive in terms of maintaining control within their own exchange. But using other exchange's IT infrastructure sometimes means losing control to other exchanges, okay? So, that's why it's probably a bit more sensitive.[460]

Instead, the goal of the Chinese exchanges, 'has always been to get a basis-software, that [they] then absorb, maintain and develop further, and they want to have full control over it'.[461] Instead of assimilating neoliberal market logic through the wholesale adaptation of foreign technology and practices, technology is adapted and reconfigured to meet the needs of domestic Chinese markets, e.g. to accommodate/protect retail investors or facilitate real economic development. Foreign technology is incorporated with Chinese characteristics.

However, the majority of these technology transfers were limited to the early development of China's capital markets. While the Chinese exchanges 'make a lot of money and could buy everything they need, [nowadays] they don't like to buy technology, they like to build it'.[462] As several sources stated, the main reason for this is cyber security[463] – because 'they want to have the control about each of the codes, to make sure there's no hidden code in the program'.[464] Hence, China's exchanges have over time become increasingly wary of foreign financial technology. As the general manager of a global exchange noted:

> So, the last couple of years, the focus of the exchanges has changed… they have been instructed by the regulator that they are not allowed to buy foreign software

[459] Interview: CEO, financial industry association (Frankfurt, 24 January 2018; emphasis added).
[460] Interview: international department, global exchange (Taipei, 13 July 2017).
[461] Interview: CEO, financial industry association (Frankfurt, 24 January 2018).
[462] Interview: consultant, Chinese exchange (Shanghai, 24 April 2018).
[463] Interviews: research department, regulator (Beijing, 30 October 2018), international department, Chinese exchange (China, 14 October 2019), managing partner, asset manager (Shanghai, 15 May 2018), product development, exchange (Hong Kong, 20 June 2017), APAC director, FX trading platform (Hong Kong, 26 June 2017) and consultant, Chinese exchange (Shanghai, 24 April 2018).
[464] Interview: product development, exchange (Hong Kong, 12 July 2017).

> for any key infrastructure. Before they were allowed if they got source code, now they are not allowed even if they have source code, because they don't trust foreigners.[465]

Technology transfer by global exchanges is limited to maintain state-capitalist control over markets. An interesting exception thereby is the extensive cooperation on market surveillance technology. As one interviewee noted, 'market surveillance has been an area where they are very interested in, because they want to understand more about what activities go on in their markets'.[466] SHFE for instance bought a market surveillance system from Nasdaq which has also been conducting advisory work in relation to surveillance for other Chinese exchanges.[467] This advisory work for instance entailed:

> How you surveil a market, both from a market regulator point of view and everything from how you work with surveillance, how you act on cases, and how you drive cases, and the strategy for how to work processes, down to technology that can be used for the surveillance and how you build up a multi-tier structure to make sure that you surveil the whole market and not only single activities. Because today in China you have many markets interacting, so you have the financial futures markets, the commodity futures market, the FX market, the cash equity market, and today there are no good ways to really do surveillance cross-markets.[468]

This extensive cooperation on market surveillance technology is informed by contradictory motivations stemming from China's state-capitalist institutional logic. While the purchase of foreign market technology has been limited to maintain control over Chinese market infrastructures, the need to manage and monitor market activity to control social and financial risks associated with increased financialisation necessitates an exception for exactly this specific advanced foreign technology. Control over the market is maintained through partially compromising on control over the process.

Besides market surveillance, however, technology transfer has become much more restricted over time. Once domestic markets had been established, especially since the global financial crisis, instead of buying foreign technology the Chinese

[465] Interview: general manager, global exchange (Hong Kong, 5 July 2017).
[466] Interview: general manager, global exchange (Hong Kong, 5 July 2017).
[467] See: https://www.nasdaq.com/about/press-center/shanghai-futures-exchange-launches-new-market-surveillance-platform-powered (last accessed 23 August 2020).
[468] Interview: general manager, global exchange (Hong Kong, 5 July 2017).

exchanges started to build their own systems that enabled them to independently maintain control over their capital markets.[469]

Rather than *technology transfer*, which potentially entails losing control over financial infrastructures, global exchanges interact with Chinese exchanges mainly through *knowledge transfer*, for instance assisting in refining calculation methodologies or contract designs.[470] 'This knowledge transfer is crucial', as one exchanges' product developer noted.[471] With regard to the CSI 300 contract, for instance, 'they first had to learn how [index futures] worked, so they visited everywhere for workshops, lectures etc…', but while 'the basic rules are the same as international contracts, they came up with something unique… what they came up with is very Chinese'.[472] Knowledge rather than technology transfer enables Chinese exchanges to facilitate market development while maintaining control over financial infrastructures and their characteristics. For the global exchanges, on the other hand, these trainings provide a foothold in China to potentially create more substantial cooperations in the future (see Chapter 6).[473]

Training and education are the main activities of global exchanges in Chinese capital markets.[474] Thereby, global exchanges also assist the Chinese state policy of educating investors. As two interviewees explained, 'the internationalisation and rapid growth of China's financial market have spurred the increase and demand for training',[475] and the authorities are aware of the lack of investor education, so '*they are tapping outside knowledge in a restricted way* to gain that experience'.[476] As one global exchange representative noted, 'at the moment a big part of our relationship or involvement in China is really conducting educational events or really assisting with Chinese authorities that recognise us as being the leader in options trading […] and they have on numerous occasions invited our trainers to China to conduct options

[469] Interview: representative office, global exchange (Beijing, 26 June 2017).
[470] Interviews: managing director, index provider (Hong Kong, 6 July 2017) and business development, global exchange (Hong Kong, 12 July 2017).
[471] Interview: product development, exchange (Frankfurt, 2 February 2018).
[472] Interview: consultant, Chinese exchange (Shanghai, 24 April 2018).
[473] Interview: CEO, financial industry association (Frankfurt, 24 January 2018).
[474] Several interviewees noted that this process accelerated off after the global financial crisis (interviews: APAC director, global exchange; Singapore, 7 December 2017; international department, global exchange; London, 10 October 2017; international department, global exchange; Taipei, 13 July 2017; and consultant, Chinese exchange; Shanghai, 24 April 2018).
[475] Interview: APAC director, global exchange (Singapore, 7 December 2017).
[476] Interview: executive director, investment advisor (Hong Kong, 6 July 2017; emphasis added).

training for Chinese investors'.[477] Global exchanges such as CME or Eurex thereby 'try to build up competence in futures trading and by that get more investors interested in the futures markets, and ultimately, in their markets'.[478] Global exchanges would, for instance, cooperate with business schools from leading Chinese universities, as 'all these students will be potential top talent in the financial market in China'[479] – with 'the vision being that we would prep the next generation of traders'.[480] Another global exchange representative noted:

> I mean, well we need to go in and then create… I wouldn't say, create demand, it's not the right way to put it… to educate the community, educate the investors, so that they know that when the time is right, and the market is ready, they can trade our products.[481]

Importantly, however, global exchanges are prohibited from engaging in direct sales or marketing activities in China.[482] Global exchanges merely have 'representative offices' in mainland China, which 'are not allowed sales activities… So, they are just shaking hands with the right people, signing the right MoUs [Memorandum of Understanding]'.[483] As a Singapore-based global exchange's senior manager noted:

> We are a lot more free in the other Asian markets, to be more aggressive in pushing our products, developing our business, getting new products off the ground and having market makers and actually generating [trading] flow from those countries… […] but in China restrictions exist on what you can do, can't do, soliciting sales or whatever… we have to be careful…[484]

In anticipation of an eventual opening, global exchanges engage with Chinese markets in whichever ways they are allowed to. However, global exchanges cannot conduct

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[477] Interview: business development, global exchange (Hong Kong, 12 July 2017).
[478] Interview: general manager, global exchange (Hong Kong, 5 July 2017); also, interview: international department, global exchange (London, 10 October 2017).
[479] Interview: international department, global exchange (Taipei, 13 July 2017).
[480] Interview: APAC director, global exchange (Singapore, 7 December 2017).
[481] Interview: business development, global exchange (Hong Kong, 10 July 2017).
[482] Individual global exchanges tried to circumvent regulations; as one interviewee noted, 'What we do know is that CME is a bit more shameless, right? In how they promote and how they progress into China. […] So, like through their WeChat channel, they are constantly marketing their products and soliciting their sale, etc. etc. […] You don't post things directly yourself, you go and pay someone externally to do the postings for you, who is based in China, so it doesn't look as though it's coming from you, it's coming from someone else…' (interview: APAC director, global exchange; Singapore, 7 December 2017). However, CME has since been reprimanded by the authorities and scaled back their aggressive marketing in 2019.
[483] Interviews: APAC director, global exchange (Singapore, 7 December 2017) and international department, global exchange (Taipei, 5 July 2017); as another exchange representative office noted: 'our Beijing office is just for keeping contact with Chinese officials – full stop [laughs] (interview: research department, exchange; London, 9 October 2017).
[484] Interview: APAC director, global exchange (Singapore, 7 December 2017).

their core business – operating and governing the infrastructural arrangements of markets – because this is a source of structural power that would not only impede the Chinese authorities' control over markets but would also introduce and reproduce a neoliberal logic that would potentially enable global exchanges to exercise power over Chinese state institutions, investors and companies entangled with these infrastructures (Chapter 2). This confirms McNally and Gruin (2017: 601) point that global financial actors might be forced to adapt to Chinese ways in order to accommodate China and profit from its growing financial clout. The limited manner in which global exchanges are allowed to operate in China follows a state-capitalist logic, facilitating the state's ability to control markets and direct them towards national development.

### 5.3.2 Global investors in China: at the 'bottom of the food chain'

A similar story unfolds with respect to the activities of global investors in China. In 1995, Ray Dalio, founder of the world's largest hedge fund Bridgewater Associates, stated that 'China is too big and exciting to ignore' (cited in, Copeland *et al.*, 2017). From being virtually closed at the time of Dalio's statement, with the increasing construction of financial infrastructures, portfolio investment flows into China increased unprecedentedly (see figure 5.1). As China since became home to the world's 2nd largest stock, bond and futures markets. more and more international investors have become active in China.[485]

However, international investors long felt ambivalent about investing in China. On the one hand, the different market logics of global investors and domestic authorities create uncertainty and erode trust (Petry, 2018). As one Hong Kong-based financial infrastructure provider emphasised, 'there are many international investors who are still sceptical about putting money into China'.[486] State-capitalist logic of intervening into markets to facilitate national development and control market behaviour is at odds with international financial institutions' understanding of 'free'

[485] Echoing Dalio, the world's largest asset manager BlackRock similarly stated in a recent Podcast that China was 'too big to ignore' (see: https://www.blackrock.com/us/individual/podcasts/the-bid, Episode 15 'China: too big to ignore' 28 May 2019; last accessed 30 June 2020).
[486] Interview: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017); also, interview: international department, global exchange (Taipei, 13 July 2017).

markets and their profit-oriented business models.[487] As an interviewee working at a global exchange's China office noted, 'the Chinese exchanges have this window guidance thing… these rules are not written down anywhere... this is why international investors don't invest in China that much, they don't understand it'.[488] China's continued market interference especially held back more risk-averse long-term investors; a tendency which was only exacerbated by difficult access to China's markets.

On the other hand, global asset managers and investment banks cannot ignore the fast-growing, enormous Chinese market. Both arbitraging between Chinese and global commodity markets as well as investing into China's increasingly attractive companies create huge business opportunities for international investors.[489] And as the Chinese market is still dominated by retail investors, '[global firms] can make a lot of money' because 'there is too much stupid money in Chinese markets'.[490] In recent years, this facilitates 'an increasing interest from US investors […] looking into long-term investment into China' and '[today] we see three times as many American investors than just nine months ago'.[491]

However, as UBS Asset Management's Head of China Strategy noted, 'there is still a huge gap in actually understanding the Chinese market';[492] therefore, investors have incentives to establish operations onshore. Similarly, another interviewee stated that 'if you are an investment bank […] I think there is a necessity to maintain a presence'.[493] Up until January 2020, foreigners were not allowed to freely participate in Chinese markets. They could only operate onshore through three mechanisms: (1) establish a subsidiary; (2) form a joint venture with a Chinese financial company; or (3) set up wholly foreign-owned enterprises (WFOEs).[494]

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[487] Interview: CEO, asset manager (Hong Kong, 28 June 2017).
[488] Interview: business development, global exchange (Beijing, 19 September 2019).
[489] Interview: business development, financial infrastructure provider (London, 9 January 2018).
[490] Interview: business development, global exchange (Beijing, 19 September 2019); also, interview: sales department, exchange (Singapore, 30 November 2017).
[491] Presentation: Alvin Fan, Director and CEO of OP Investment Management (Cayman) Limited, 5th Annual Hedge Fund China Conference (Shanghai, 21 April 2018); also, interview: hedge fund manager (Shanghai, 16 April 2018).
[492] Presentation: Aries Tung, Head of China Strategy at UBS Asset Management, 'Accessing Chinese Markets' Panel, 7th ASIFMA China Capital Markets Conference (Hong Kong, 14 June 2017).
[493] Interview: APAC sales director, global exchange (Hong Kong, 30 June 2017).
[494] Interview: managing partner, asset manager (Shanghai, 15 May 2018).

Establishing a Chinese subsidiary is a difficult process and by end-2017 only three international banks (JP Morgan, Goldman Sachs and UBS) had one.[495] A Beijing-based former Goldman Sachs employee for instance noted that: 'Goldman you know, definitely is one of the most powerful and prestigious investment banks globally. But in China, it actually faces a lot of challenges and head winds. For example, to apply for an asset management license, it probably would take Goldman double or triple the time to apply successfully'.[496]

Consequently, most international banks and asset managers had established joint ventures with Chinese counterparties to gain China exposure. This has been the preferred Chinese government option for onshore access.[497] Similar to joint ventures in the manufacturing sector, the idea was to facilitate a 'legitimised transfer of IP [intellectual property]',[498] but that international firms could only be minority shareholders.[499] One interviewee described this experience as follows:

> It just never works! I was at one of the very first JVs in China – it was horrendous, it was awful! We were gouged, we were lied to, we had assets literally stolen… and this is by a big well-known Chinese name, someone that has a great international brand… […] What they will do is, they will take what you give them and then they will continue to shop for better deals with what they have to give you. So, they'll say: 'Well, we're 51% partners. So, it doesn't matter what it says in this contract because there is no rule of law, I can make more money by giving my flow to XYZ bank than I can from you, so fuck you.' And then they will turn around and – as though they never said that – they will demand your flow has to go through them, and they will take you to court if it doesn't. And I have seen this, not just once, but three times close up. Things may change, but what Westerners don't get is that because there is not rule of law, it doesn't matter what it says on the contract, things can change, they can Donald Trump you left, right and centre, they will lie to you and it will be their word against yours… they are Chinese, you are not. […] I mean ABN Amro had the same lesson, Goldman, UBS, everybody… It just doesn't work.[500]

This statement is probably not representative for all joint ventures, but the core message remains true: as a foreign minority shareholder, it is very difficult to maintain

[495] Observation: Discussion with UBS employee, 13th Annual FIA Asia Derivatives Conference (Singapore, 29 November 2017).
[496] Interview: private equity manager (Shenzhen, 22 June 2017).
[497] Interview: managing director, broker (Hong Kong, 7 July 2017).
[498] Interview: business development, index provider (Hong Kong, 27 September 2018).
[499] These rules partially changed with new regulations in early 2020; see Petry (2020e).
[500] Interview: APAC sales director, global exchange (Hong Kong, 30 June 2017); another interviewee noted that in these joint ventures 'you are not in control, and as a foreigner, you don't have the same property rights […] A number of international banks ended up in that position, they kept getting capital calls, but they had no control of where the money was being spent' (interview: executive director, investment advisor; Hong Kong, 6 July 2017).

control over your business.[501] Therefore, the most viable solution for foreign financial companies to access Chinese markets onshore is to establish so-called wholly foreign-owned enterprises (WFOEs).

As one former investment banker recalled, 'while this was all quite limited and restrictive, I already connected people to China back in 2009-2010, mostly through WFOEs'.[502] Often established as non-financial companies (see below), this 'semi-legal way of accessing China'[503] took off during the last 10 years, with hedge funds, asset managers, commodity traders and HFT firms flocking to China's markets. WFOEs do not necessarily need to be physically based in China, but can have most of their operations in London, Chicago or Hong Kong – 'the important thing is that they have a proxy, a company registered in China'[504] because 'they are legally required to initiate their trading in China through their Chinese entities'.[505] While this seems like a creative way around Chinese regulations that ban foreigners from trading, setting up WFOEs is accepted by the authorities, as they are registered in China, and therefore, can be monitored and controlled by the Chinese exchanges.[506] Most importantly, they have to comply with Chinese state-capitalist rules of market organisation.

Through a strict and lengthy process, the regulators decide who receives a WFOE license. Thereby, Chinese brokers play an important role, advising foreigners in setting up WFOEs[507] and helping them to navigate Chinese markets and regulations.[508] Once established, a WFOE's funds or profits cannot be easily repatriated due to China's capital controls.[509] As the head of a global exchange's China operations noted: 'If you want to do it the legal way, you need to fulfil certain conditions, for instance be an export-import company… In the beginning, many people

[501] Interviews: executive director, investment advisor (Hong Kong, 6 July 2017); strategy department, exchange (Hong Kong, 30 June 2017); and APAC director, infrastructure provider (Hong Kong, 26 June 2017).
[502] Interview: APAC director, global exchange (Hong Kong, 30 June 2017).
[503] Interview: international department, broker (Shanghai, 25 September 2019).
[504] Interview: research department, Chinese exchange (Shanghai, 14 May 2018).
[505] Interview: business development, global exchange (Beijing, 19 September 2019).
[506] Interviews: research department, Chinese exchange (Shanghai, 14 May 2018), international department, global exchange (Taipei, 5 July 2017) and business development, global exchange (Beijing, 19 October 2018).
[507] Observation: Discussion with Orient Futures and IGNH (Nanhua) International Futures, 13th Annual FIA Asia Derivatives Conference (Singapore, 29 November 2017).
[508] Interviews: business development, broker (Beijing, 12 September 2019) and business development, global exchange (Beijing, 19 September 2019).
[509] Interview: international department, broker (Hong Kong, 26 September 2018).

went in and out with suitcases filled with cash – it was just crazy! I think this has improved, but it's still difficult to get your profits out'.[510]

Like Chinese investors, WFOE orders have to go through a Chinese broker (to enable see-through monitoring and window guidance)[511] – and the exchanges keep an extra eye on them as Chinese regulators do not quite trust foreign investors.[512] As James Sha, senior advisor to CFFEX, noted: 'Foreign investors have to comply with Chinese rules and regulations… […] the government can see through all your activities, combined positions and money, margin situation... foreign investors really have to be comfortable with that'.[513] Hence, letting foreign investors access China's capital markets as WFOEs allows continued monitoring and management of their activities through Chinese exchanges.

How onshore foreign investor access is structured thereby contributes to national development, for instance, through supporting the professionalisation of China's financial industry. While the case for knowledge transfer is obvious for joint ventures, this also applies to WFOEs, especially through the training of financial professionals as WFOEs often have to hire locally.[514] When talking about WFOEs operating in China, one Shanghai-based asset manager noted: 'Optiver did not fight its way into China, they are tolerated by the exchanges, the authorities – and Optiver pays with its know-how. […] I am sure they must employ only Chinese people who learn from them'.[515] International players are let in to train local firms/professionals (see also, Malkin, 2016), making them competitive in global markets, a logic similar to

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[510] Interview: APAC director, global exchange (Hong Kong, 30 June 2017).

[511] Interview: business development, global exchange (Beijing, 19 September 2019). As previously noted, brokers are responsible for their clients' activities, they have an incentive to advise their international clients to trade in ways that conform with the regulators and exchanges' expectations. One interviewee for instance noted that, 'brokers will normally bring international clients to meet the exchanges' trading departments, because the clients want to know if their trading strategies are okay [because] they don't want to break rules' (interview: international department, broker; Shanghai, 26 April 2018).

[512] Interview: international department, broker (Shanghai, 25 September 2019).

[513] Observation: 13th FIA Annual Asia Derivatives Conference (Singapore, 29 November 2017).

[514] Interview: product development, exchange (Hong Kong, 26 September 2018); as one interviewee noted, 'CEOs of WFOEs are usually foreigners; but the staff is Chinese – because only Chinese can do business in China' (interview: business development, broker; Beijing, 12 September 2019).

[515] Interview: managing partner, asset manager (Shanghai, 15 May 2018); other interviewees similarly stated that 'WFOEs have to hire locally, train all these people, then they get poached by local firms' and that 'they have extremely highly educated students who can actually do a good job for you… but a contract, an NDA [non-disclosure agreement] means nothing at all… So, you have cases where people just do their algos and take them somewhere else…' (interviews: business development, index provider; Hong Kong, 27 September 2018; and data business director, global exchange; Singapore, 4 December 2017).

listing companies to create globally competitive national champions (Chapter 4). The previously identified characteristics of state-capitalist capital markets prevail.

As Chinese entities, WFOEs are subjugated to regulators and state authorities, which tolerate their activities as long as they follow the rules and fulfil a purpose. However, the Chinese exchanges ultimately define which of their activities are legitimate. Because it is difficult to obtain a license for a wholly foreign-owned *financial* enterprise, most WFOEs are established as *non*-financial corporations, 'registered as commercial, i.e. non-financial, firms for consultancy, legal advice or import-export services which gives them some justification to trade commodities for instance'.[516] But with many WFOE activities, 'the rules don't say you can't do it, but of course no rule said, you can do this… So, you play in a grey area'.[517] Conducting algorithmic trading as a non-financial company, for instance, is neither completely legal nor strictly illegal; another interviewee confirmed this, stating that 'I'm pretty certain that the Chinese exchanges and regulators know this stuff… it might not be illegal but it's eventually another of those grey areas'.[518] Hence, the exchanges always have 'probable cause' against WFOEs. Rather than direct control, this 'deliberate ambiguity' (McNally, 2011) provides them with additional power over international investors. As the consultant for a Chinese exchange noted:

> Regulators can charge them, investigate them, much more so than international companies who trade into China and who are not registered in China… the leash can always be shortened as their activities are dependent on the goodwill and whims of the regulators. […] You can easily charge them […] because if you want to trade in [Chinese] markets, you need to get money in and out – so something can easily be constructed as money laundering; and as you are a non-financial WFOE, your trading in financial markets can also be construed as market manipulation; *that is the 'probable cause' that results from the grey area*.[519]

This makes WFOEs ideal scapegoats to deflect the anger of afflicted Chinese retail investors during a market downturn. As one interviewee explained, 'the party is the reason why the stock market goes up… so, when it goes down, who's fault is it?

[516] Interviews: consultant, Chinese exchange (Shanghai, 9 May 2018); as Chinese companies, WFOEs are also allowed to trade shares and index futures (interview: international department, broker; Shenzhen, 18 May 2018).
[517] Interview: business development, global exchange (Hong Kong, 7 July 2017).
[518] Interview: APAC director, global exchange (Hong Kong, 30 June 2017).
[519] Interview: consultant, Chinese exchange (Shanghai, 9 May 2018; emphasis added).

Foreign speculators, exactly [laughs]'.[520] The exchanges would thereby often make an example of individual WFOEs:

> You need an example to tell the market that you need to stop doing this, even if the rule didn't say so… I need to set an example and let the market know, 'we are taking this serious', and then the market stops, right? So, you look at who made the most money […] and then I make sure I pick up an international firm. Because with SOEs, maybe you would call the people and then give them punishment, but you would not make it public, because it's like, you have something bad in your own home, right? […] Then I make sure they are punished and all this news everywhere and others see it because then you should stop, right?[521]

Instructive here is the case of Russian HFT firm Yishidun International Trading which made a fortune trading index futures during the 2015 stock market crash. As *Reuters* (2017) noted '"malicious" short selling by domestic and foreign "speculators" have been largely blamed by the Chinese government for causing the market crisis that started in the summer of 2015'. Yishidun for instance de facto controlled and traded through the futures accounts of 19 individuals and 7 legal persons, which enabled it to evade position limits and leverage its position. While at the time, many Chinese firms and WFOEs engaged in such activities, Yishidun was singled out as a major offender. On 23 June 2017, the Shanghai No. 1 Intermediate People's Court convicted Yishidun for manipulation of the futures market, imposing a RMB300 million fine, confiscating its illegal gains of RMB389 million and sentencing Yishidun's traders (and its broker) to prison term between 2.5-5 years (Bloomberg, 2017). This high-profile case was closely watched by the international trading community, as next to Yishidun several other foreign trading firms were investigated (but few were convicted).[522] This case is a good example for 'killing a chicken to scare the monkeys' as Chinese authorities make an example out of a few bad apples so that the rest of the market tows in line.[523]

So, although the world's large financial players are active in Chinese capital markets, monitored by the Chinese exchanges they have to play according to Chinese rules, and how they are integrated into China's market contributes to national

[520] Interview: general manager, global exchange (Hong Kong, 27 September 2018); also, interview: executive director, exchange (Singapore, 29 November 2017).
[521] Interview: business development, global exchange (Hong Kong, 7 July 2017).
[522] Citadel Securities, one of the world's largest hedge funds, had been suspended from trading until early 2020 and was fined RMB670 million – which as the *Financial Times* noted was more than 40 times the combined RMB15.2 million paid by four domestic trading companies (Lockett, 2020b).
[523] While I was relatively successful in acquiring interviews for this research, during fieldwork in 2017-2018 many foreign trading firms that were active in China did not want to go on the record precisely because of this court case and its broader significance as they wanted to keep a low profile.

development objectives. Malkin (emphasis added; , 2016: 240) similarly noted that the role of foreign financial institutions has been '*internationalizing* China's financial system, not *liberalizing* it […] which implies the withdrawal of the state from determining market outcomes'. In contrast to global markets, global exchanges and global investors are at the 'very bottom of the food chain' and cannot facilitate neoliberal market logic. When going onshore, global finance 'completely has to accept the Chinese rules and the primacy of the regulators'.[524]

## 5.4 Controlling the rules: cross-border access through Chinese infrastructures

As many global investors do not venture onshore due to policy uncertainty and regulatory risk, the major mechanism for integrating China with global markets are therefore *cross-border* infrastructures that enable investment flows between China and global markets. However, the construction of these cross-border infrastructural arrangements is conducted in a highly controlled, reversible manner. It follows China's state-capitalist logic of market organisation, demonstrating China's resistance to conform with neoliberal capital markets. Thereby, the Chinese exchanges continue to control the rules of how international investors can access Chinese markets.

The first mechanisms that enabled such cross-border access were the Qualified Foreign Institutional Investor (QFII), Qualified Domestic Institutional Investor (QDII) and Renminbi Qualified Foreign Institutional Investor (RQFII) programmes launched in 2003, 2006 and 2011, respectively.[525] While QDII enabled designated Chinese investors to conduct financial transactions in global markets,[526] QFII and RQFII investors could trade in Chinese capital markets. These schemes reflected the government policy of 'going out' and 'bringing in',[527] thereby enabling the control of cross-border transactions for instance by quelling capital outflows after the 2015/2016 market crash.[528] However, these quotas were only issued to a few institutions, as the manager of a Hong Kong-based hedge fund explained:

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[524] Interview: consultant, Chinese exchange (Shanghai, 9 May 2018).
[525] For a detailed analysis of the RQFII scheme, see Töpfer (2017).
[526] For a complete list of all QDII investors, see: https://www.safe.gov.cn/en/file/file/20200529/1350b591361d46ec9e364602b035b23a.pdf?n=QDIIs(May31%2C2020) (last accessed 1 July 2020).
[527] See: https://www.safe.gov.cn/en/2015/0605/1159.html (last accessed 1 July 2020); also, interview: managing director, broker (Hong Kong, 7 July 2017).
[528] SAFE for instance did not issue any new QDII quotas between mid-2015 and mid-2018; similarly, (R)QFII quota limits have been scraped in September 2019, also contributing to this macro-economic

> Basically, what this meant was that you could convert, say, $100 million into RMB, so it was a capital account transaction, and you use that RMB specifically to buy Chinese stocks and bonds that were approved for QFII. That was really how foreigners were able to access the A-share market from 2002 until about 2013/14… So, if you were UBS, Morgan Stanley or Citi, one of these companies who had QFII, you had access to this market – if not, then you didn't.[529]

By 31 May 2020, only 295 QFII[530] and 230 RQFII[531] quotas had been issued, often to the same global players. QDII was even more restricted, with only 152 quotas issued to mostly state-owned financial institutions.

The quota system, however, was a cumbersome, restrictive mechanism to open China's markets as not all market segments were open to (R)QFII investors and trading was difficult. Global investors could, for instance, not trade commodity futures directly through QFII, but could only do so after their Chinese broker set up a structured product, 'so investors can invest money through a QFII vehicle and then they can run a contract, and then this contract can invest into commodities'.[532] While not impossible, this was a cumbersome process.[533] To stop (R)QFII investors acting like hot money, they were only allowed to repatriate 20% of the previous year's earnings[534] and exchange rules prohibited them from executing 'spec' trades or shorting index futures.[535]

(R)QFII was the first step to opening Chinese markets to cross-border foreign investment. However, over the last years 'step by step' a whole market infrastructure emerged that connects China with the outside world.[536] It is no coincidence that Hong Kong has become the main gateway for this cross-border opening process.

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rebalancing. Importantly, however, (R)QFII investors still need to obtain a license and quotas can always be reintroduced.

[529] Interview: managing partner, asset manager (Hong Kong, 27 June 2017); while some (R)QFII investors rented out their quotas to smaller investors, their quotas were often used up for their ETF business and after 2015/2016 the Chinese regulators cracked down on these lending operations.

[530] For a complete list of all QFII investors, see: https://www.safe.gov.cn/en/file/file/20200529/062e43e0a07940c8b9f92bd252304a22.pdf?n=QFIIs(May31%2C2020) (last accessed 1 July 2020).

[531] For a complete list of all RQFII investors, see: https://www.safe.gov.cn/en/file/file/20200529/a07fe0d8f0f747cfbe54aad49affe672.pdf?n=RQFIIs(May31%2C2020) (last accessed 1 July 2020).

[532] Interview: business development, global exchange (Hong Kong, 10 July 2017).

[533] Similarly, although QFII investors were eligible to trade index futures to hedge their portfolio, this was also not straightforward: 'QFII's clients were only allowed to have one account in China, and you are not allowed to have securities and futures in the same account. […] So, they opened it up, but […] it took about 3-4 years for a single trade to be done on the CSI 300 index under the QFII scheme'. (interview: business development, financial infrastructure provider; London, 9 January 2018).

[534] Interview: international department, exchange (Hong Kong, 21 June 2017).

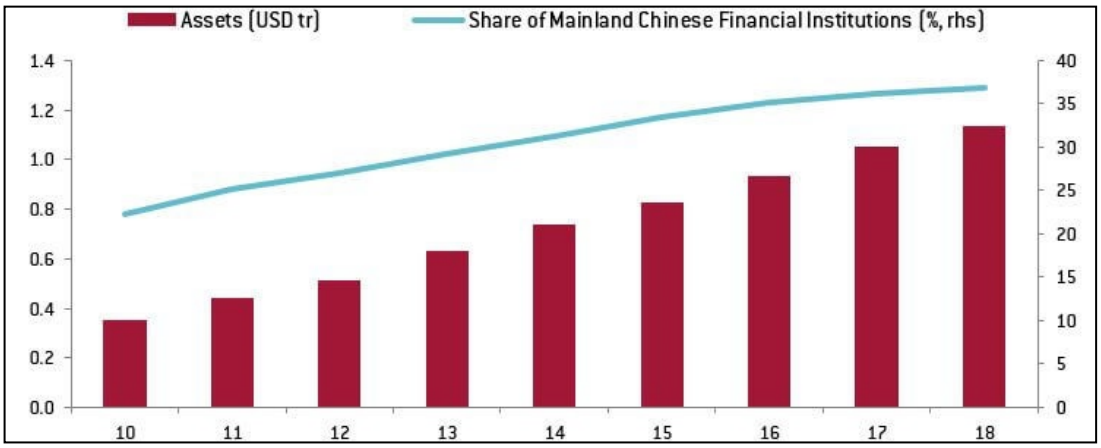
[535] Interview: business development, financial infrastructure provider (London, 9 January 2018).

[536] Interview: APAC director, financial infrastructure provider (Hong Kong, 29 June 2017).

### 5.4.1 Hong Kong: neoliberalism with state-capitalist characteristics

Over the last two decades, Hong Kong emerged as a leading global financial centre (Meyer, 2009, 2020). Between 2000 and 2020, it became the world's largest IPO market, 4th largest FX market, 3rd largest interest-rate derivative market and has the 5th largest market capitalisation globally (The Economist, 2020a). Importantly, it simultaneously became a *Chinese* financial centre (figure 5.2; also Lockett & Pong, 2020). As one interviewee noted: 'I mean, our stock market here 15 years ago, the volume was maybe a 1/10 of what it is today, the market cap was maybe a 1/10 of what it is today. […] So, it's changed a lot… and today the Hong Kong market is largely a product of that 20-year integration process [with China]'.[537] While only six Chinese brokers set up Hong Kong operations from 2006 to 2013, 50+ had opened shop by 2017,[538] and they are beginning to dominate the market, buying up domestic firms.[539] As a former investment banker noted, 'Hong Kong is part of the equation of China'.[540] Hong Kong is an integral part of China's financial centre network (Lai, 2012), and Hong Kong and China are increasingly 'inter-operating' in the organisation of capital markets as Hong Kong became the global gateway into China (Li, 2018b).[541]

***Figure 5.2:*** *Hong Kong's rise as a Chinese financial centre, 2010-2018.*




*Source: García-Herrero and Ng (2019).*

[537] Interview: strategy department, exchange (Hong Kong, 30 June 2017).
[538] Interview: managing director, broker (Hong Kong, 7 July 2017).
[539] Interview: research department, broker (Hong Kong, 20 September 2018); one example is CITIC's acquisition of Hong Kong-based broker CSLA in 2012/2013 (Ho and Tudor, 2012).
[540] Interview: former investment banker (Hong Kong, 26 June 2017).
[541] Interview: managing partner, asset manager (Hong Kong, 27 June 2017).

Since the introduction of H-shares in 1993,[542] Hong Kong Exchanges and Clearing Ltd. (HKEx) has been a crucial actor in this setup, creating the infrastructures that link Chinese and global markets (Zhao, 2013: 1021). Between 2000 and 2020, HKEx's market capitalisation increased by a staggering 4,272% from US$8.59 billion to US$375.53 billion and it was the world's largest IPO market for seven years between 2010 and 2020.[543] This again was mainly a Chinese success story, with mainland companies accounting for 76.9% of market capitalisation and 81.9% of turnover value by May 2020.[544] Reversely, HKEx accounted for ~80% of all overseas IPOs of Chinese companies globally (Sin, 2019). This is deliberately facilitated by HKEx; as its Head of Strategy outlined, key building blocks for HKEx's corporate strategy had been 'broadening and deepening relationships with China' through the 'continuous harmonisation' of regulations, putting infrastructures and products in place for prospective cross-border RMB trading ('RMB readiness'),[545] acquiring LME to 'create leverage in commodities', and generally establishing 'China connectivity'.[546] As Kevin Rideout, HKEx Head of Market Development, noted: 'putting products around that [opening of China] is our business'.[547]

That Hong Kong became China's gateway to the world has fundamentally been a political choice. As one Hong Kong-based asset manager explained it: 'For the Chinese central government, if there are any new initiative or programs, they would be more comfortable to test them in Hong Kong, given that it has a quite open, quite good infrastructure, while it's still under Chinese control'.[548] Another interviewee similarly noted: 'How can you ask your Korean folks or Japanese folks, let's try to do

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[542] These Hong Kong listings, as the Secretary for Financial Services of the Hong Kong SAR Government noted, 'are not only about raising funds; but also, about connecting to international investors and to improve corporate governance and management practices' (Observation: 7th ASIFMA China Capital Markets Conference; Hong Kong, 14 June 2017).
[543] See: https://www.hkexgroup.com/media-centre/insight/insight/hkex-at-20?sc_lang=en (last accessed 1 July 2020).
[544] See: https://www.hkex.com.hk/Market-Data/Statistics/Consolidated-Reports/HKEX-Monthly-Market-Highlights?sc_lang=en (last accessed 1 July 2020).
[545] One interviewee made a similar comment, stating that: 'the strategy of HKEx is always to build things to be ready for when its open, not necessarily to react once something happens… so, they create the infrastructure and hope that once the dam is broken that they are able to capitalise on that…' (interview: APAC director, commodities exchange; Singapore, 8 December 2017).
[546] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).
[547] Observation: 'Capitalising on growth in Asia' Panel, FOW Derivatives World Asia (Hong Kong, 11 April 2018).
[548] Interview: product development, asset manager (Hong Kong, 3 July 2017); also, interviews: executive director, financial infrastructure provider (Hong Kong, 29 June 2017), product development, asset manager (Hong Kong, 3 July 2017) and research department, regulator (Hong Kong, 5 July 2017).

this but if it doesn't work let's put that back? It's very difficult because the Japanese don't want to listen to you... But in Hong Kong, Hong Kong is still okay, we listen to the motherland [chuckles]'.[549] While Singapore has not emerged as an important part of China's opening-up strategy because it facilitated neoliberal market logic outside of the authorities' control, Hong Kong's rise has (at least partially) been informed by state-capitalist institutional logic.[550]

Hong Kong is also needed because there are obvious limitations to onshore access. In some instances 'international firms are not comfortable with putting their data centre into Shanghai',[551] highlighting how global finance does not completely trust the Chinese authorities (Petry, 2018). Free capital flows and currency risk are other considerations for international investors, because in contrast to mainland China, 'they can come freely into Hong Kong and can freely go out'.[552] Reversely, the Chinese authorities cannot allow global investors to roam freely in domestic markets, therefore 'they need Hong Kong, as a more open market… But in Hong Kong, they can also control the liberalisation'.[553] For the Chinese government, Hong Kong is the perfect conduit to open their markets – 'because Hong Kong at the end of the day is China, right?'[554]

The reason for HKEx's centrality for China's cross-border integration is that while it is an open market, it complements China's state-capitalist logic of market organisation. As one global exchange manager noted:

> HKEx has […] grown in a way that doesn't displease the regulators, the trading that they would deem non-economic here is well-controlled, the regulatory regime is actually very efficient. […] Because *there is just sort of that ability of them to absorb the Western-type capital markets approach and then transmit the benefits into Chinese capital markets*. That doesn't exist elsewhere, not in Shanghai, not in Singapore, not in any other of the regional centres. […] Charles Li has done a wonderful job in sort of advancing the 'one country, two systems' approach and they've done a great job of opening up. […] That's why they are

[549] Interview: private equity manager (Shenzhen, 22 June 2017).
[550] Geopolitical reasons also play an important role here; as one interviewee noted, 'China needs Hong Kong as an RMB settlement centre… I don't think they would like London to be an RMB settlement centre, or New York, or even Singapore – no country with a US military base!' (interview: business development, global exchange; Beijing, 19 September 2019).
[551] Interview: business development, global exchange (Beijing, 19 September 2019).
[552] Interview: research department, regulator (Hong Kong, 5 July 2017).
[553] Interview: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017); also: speech: HKEx CEO Charles Li, Qianhai Shenzhen-Hong Kong Cooperation Forum (Shenzhen, 22 June 2017).
[554] Interviews: executive director, exchange (Singapore, 29 November 2017), strategy director, exchange (Singapore, 29 November 2017), product development, asset manager (Hong Kong, 3 July 2017) and executive director, financial infrastructure provider (Hong Kong, 29 June 2017).

> happy to let HKEx continue to grow, introduce new product, and do new things, because they've been successful with it and it hasn't threatened any of the domestic pricing mechanisms.[555]

HKEx thereby operates in a space between Chinese and global exchanges. A Singapore-based senior exchange manager noted that 'it has probably less freedom of action than some of the other [global] exchanges, […] it's a little bit in the middle… but effectively, it has more of a foot in the sort of western exchanges' model than it has in the Chinese exchanges' model'.[556] But while it can connect global and Chinese markets, importantly, HKEx has 'accepted the window guidance and directives of the Chinese government'.[557] While HKEx seems neoliberal – being publicly listed, engaging in global M&A and subject to competition (e.g. from SGX) – it shares state-capitalist characteristics that significantly shape its activities. As one HKEx employee noted:

> 'They are completely state-owned, the Chinese stock and futures exchanges, and they are used as policy instruments, right? So, their role is different in the sense that they are an implementer of top-down policy rather than originating a strategy in their own right. […] HKEx is in a similar bucket, right? *We're a commercial entity, we're listed ourselves*, we are only sort of 5% owned by the HK government, the rest is held by the public… *but even so, I mean, we have a role to play in China's policy, right*?[558]

HKEx is closely interlinked with China's stock exchanges and their opening-up policies.[559] As the following sections demonstrate, HKEx and the Chinese exchanges have since jointly created an array of financial infrastructures that enable cross-border trading, truly connecting Chinese capital markets with global investors – but in ways that enable the persistence of China's state-capitalist logic of operating markets.

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[555] Interview: APAC sales director, global exchange (Hong Kong, 30 June 2017; emphasis added).
[556] Interview: APAC director, commodities exchange (Singapore, 8 December 2017).
[557] Interview: representative office, global exchange (Beijing, 25 October 2018).
[558] Interview: strategy department, exchange (Hong Kong, 30 June 2017; emphasis added).
[559] One interviewee working for a global exchange was for instance told by a Chinese exchange that 'well you guys are an offshore exchange, but HKEx is us, it's part of the Chinese exchanges' (interview: international department, global exchange; Taipei, 13 July 2017). Reversely, HKEx rather sees the Chinese exchanges as 'collaborators' and that 'mostly we don't compete, in most things we are fairly synergistic' (interview: strategy department, exchange; Hong Kong, 30 June 2017).

### 5.4.2 Stock Connect: maintaining capital controls despite cross-border trading

In recent years, a much more comprehensive system of cross-border financial infrastructures has been created with the real turning point being the establishment of the Stock Connect between HKEx, SSE and SZSE in 2014 and 2016. As one global index provider argued, 'Connect is the main gateway into China now'.[560]

Stock Connect thereby functions markedly different from (R)QFII. As discussed, only few investors qualified for (R)QFII, trades needed to be pre-funded and trading was cumbersome. As one interviewee noted, 'people don't like QFII because it's not flexible and unfair to the client'.[561] In contrast, Stock Connect is 'a much more convenient way[562] for international investors to trade in China and Chinese investors to trade internationally because '[it] brings together two different market structures to facilitate seamless cross-border trading'.[563] In comparison to (R)QFII, Connect is a more sophisticated infrastructural arrangement that enables cross-border trading in a much more encompassing and convenient way (table 5.3).

***Table 5.3:*** *Stock Connect vs (R)QFII.*

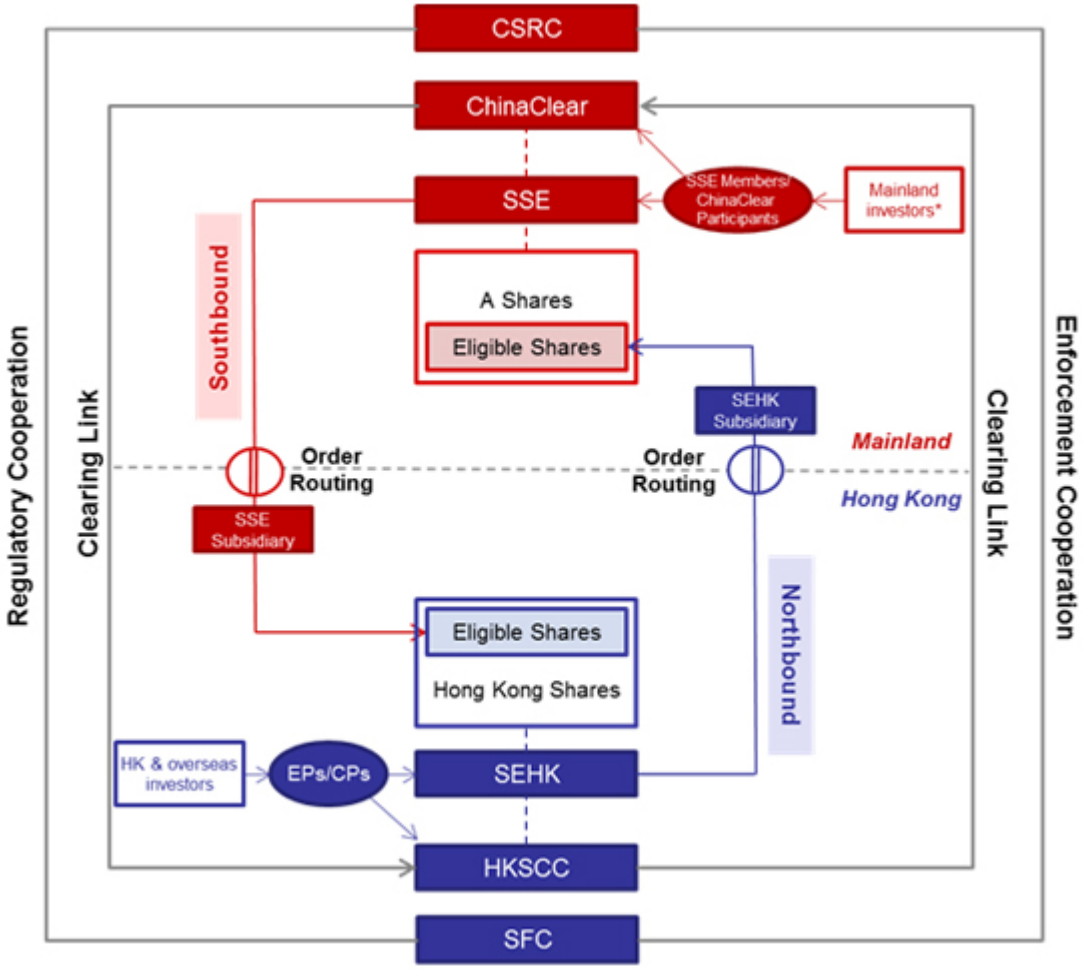
| | (R)QFII/QDII | Connect |
|---|---|---|
| eligibility | only qualified foreign/domestic investors, i.e. a few specific institutional investors | everyone, both international investors and Chinese retail investors (min. RMB 500.000) |
| capital controls | limits to repatriation of profits (20% of last year's earnings; until June 2018) | closed circuit |
| products | stocks, (only listed) bonds, ETFs, index futures | stocks (2014) (other connects: bonds (2017), wealth management (2020); others (ETF, Commodities, Futures) planned |
| registration | difficult, long process to acquire license, many restrictions, vetting | easy, just open a special segregated account (SPSA) with HKEx |
| other restrictions | restricted order routing (max. of 3 brokers; effectively only 1 broker; as buy/sell orders are executed by same) | no restrictions on order routing |
| settlement | t+0 (pre-funded trading, money must be onshore before trading) | t+1/t+2 (money can stay in Hong Kong broker account) |
| number of accounts | 295 QFII quotas, 230 RQFII quotas and 152 QDII quotas (by June 2020) | 9759 SPSA accounts (by January 2020) (Tay, 2020) |

*Source: interviews, financial news, policy documents; author's table.*

[560] Interview: research department, index provider (Shanghai, 23 September 2019).
[561] Interview: product development, exchange (Hong Kong, 12 July 2017).
[562] Observation: Bean Zhang, Chief Representative of SSE HK Office, 'Equities Market Development Including Stock Connect' Panel, 7th ASIFMA China Capital Markets Conference (Hong Kong, 14 June 2017).
[563] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).

Essentially, Stock Connect is the outcome of a series of steps to harmonise Hong Kong market structures with those in mainland China. HKEx, for instance, shortened its lunch break from 120min to 60min between 2010-2012, to align its trading hours with those in Shanghai and Shenzhen. Further, HKEx made sure Hong Kong brokers were ready to trade RMB by launching RMB products in 2011; as HKEx' Head of Strategy noted, '[we] forced the brokers to develop RMB capabilities' because 'unless the brokers were RMB-ready, to be able to accept and to trade in RMB, there was no way that we [could] connect up the markets'.[564] The end-result was the establishment of 'pipelines' (McNally, 2015) that 'enabled seamless trading' between these marketplaces (figure 5.3).[565]

***Figure 5.3:*** *Infrastructural arrangements of the Stock Connect order routing system.*




*Source: HKEx (2014).*[566]

[564] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).
[565] Interview: managing partner, asset manager (Hong Kong, 27 June 2017).
[566] SEHK (Stock Exchange of Hong Kong) and HKSCC (Hong Kong Securities Clearing Company Limited) are subsidiaries of HKEx Group; ChinaClear is also known as China Central Depository & Clearing (CCDC).

International investors could invest in A-shares through a special purpose vehicle (SPV) established by HKEx (Northbound trading), Chinese investors could invest into HKEx through SSE's SPV (Southbound trading). These SPVs acted as special participants in each other's markets, effectively routing orders from one exchange to another while a clearing link exists between ChinaClear and HKSCC. Basically, Stock Connect enables international investors to trade eligible stocks on SSE via HKEx, while Chinese investors can access HKEx market through SSE. They built a financial infrastructure through which both international and Chinese investors '[can] get in and out very quickly, easily and cheaply without the sort of frictions of having trapped capital in the mainland'.[567]

These infrastructural arrangements of Stock Connect are informed by state-capitalist logic. On the one hand, Connect facilitates national development through increased cross-border market integration. As one interviewee working for an exchange's international department noted, 'the Stock Connects help Chinese investors to grow up, [by] allowing Chinese investors to access the Hong Kong market… [because] if you play with them [global investors], you learn from them'.[568] Thereby, Connect facilitates the governments' objective of educating and professionalising Chinese investors. By early 2020, 8% of equity trading volume on HKEx was already conducted by mainland investors (The Economist, 2020a). Reversely, by attracting international investors into their market, the regulators are 'trying to make the market more stable',[569] contributing to reducing volatility in Chinese markets. While (R)QFII also attempted this, its limited scope and administrative burden thwarted these efforts. This successful integration can also be seen in the gradual convergence of A/H-share valuations, indicating the formation of one large liquidity pool between Hong Kong and mainland Chinese markets.[570] As Bin Shi, Head of Equities at UBS Asset Management, noted: 'Hong Kong and China –

[567] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017); also, interview: international department, Chinese exchange (Shanghai, 26 April 2018).
[568] Interview: international department, exchange (Hong Kong, 21 June 2017).
[569] Interview: private equity manager (Shenzhen, 22 June 2017).
[570] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).

these were two separate markets, the Stock Connect changed this! Much more so than QFII'.[571]

International investors are also more comfortable with Stock Connect, increasingly using Connect instead of (R)QFII to access China.[572] While (R)QFII (and WFOEs) were often used by hedge funds, HFTs or investment banks, the Connects are also attractive for more risk-averse institutional investors because they do not have to operate within a Chinese regulatory framework. This also leads to significant cost reductions for global investors.[573] As one hedge fund manager explained, 'it was the first time without any QFII/RQFII quota that foreigners could simply use their accounts on HKEx and buy a Shanghai listed stock, no questions asked'.[574] Overall, the Connects are an important mechanism that facilitates national development by enabling cross-border integration.

On the other hand, following a state-capitalist logic the Connects also enable the tight control of markets. One important aspect is keeping a lid on capital outflows. Because as one interviewee stated, 'the problem that China always had is that [investors] take the money and do something unsavoury with it, as in something the authorities don't really want, like they start punting Hong Kong property, speculating in expensive art and wine, and we've all seen the headlines and we all know that this happens on a huge basis, right?' [575] However, Stock Connect's infrastructural arrangements prohibit such activities, because they are designed as 'closed loops'. James Fok, Head of HKEx Strategy, explained this as follows:

> The huge innovation with Connect was really something that we call the 'closed loop' clearing system. What that means is simply that when you go through the Connect scheme, you can go in and buy a security, whatever is eligible, […] and when you sell that, the money has to come back into your own jurisdiction. Particularly for mainland investors going out, what that means is that they can come out freely and buy HSBC, buy AIA or any other eligible security listed in

[571] Observation: Bin Shi, Head of Equities at UBS Asset Management, 'Equities Market Development Including Stock Connect' Panel, 7th ASIFMA China Capital Markets Conference (Hong Kong, 14 June 2017).
[572] Interviews: CEO, asset manager (Hong Kong, 28 June 2017) and managing director, index provider (Hong Kong, 6 July 2017).
[573] As HKEx' Head of Strategy noted: 'Our capital market and clearing house infrastructures comply with all the international rules, so you've got Dodd-Frank and ESMA recognition, Basel III capital rules for banks. What that means is for international investors going into China using our infrastructure, placing margin with our clearing houses, the risk weightings are significantly lower than doing this directly going onshore' (observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar; Hong Kong, 29 June 2017).
[574] Interview: managing partner, asset manager (Hong Kong, 27 June 2017).
[575] Interview: strategy department, exchange (Hong Kong, 30 June 2017).

> Hong Kong, but when they sell that, the money cannot disappear, and they can't go off and buy Hong Kong, Sydney or Vancouver real estate.[576]

Stock Connect enables Chinese investors to diversify their portfolio and professionalise, while at the same time prohibiting capital outflows.[577] The same applies to international investors. As one Hong Kong-based hedge fund manager noted, 'it's done in such a way that I can't, let's say somehow sell the shares in Shanghai, take out the money in Shanghai and go use it to speculate on property'.[578] So, despite order routing and enabling transaction flows between the two markets, the Connect maintains Chinese capital controls. As several interviewees noted, 'money can't leek out of a closed loop'[579] because in the end 'the Connect is about trading, not capital account opening'[580] and 'there's no actual capital inflow and outflow'.[581] In addition, trading via the Connect can be regulated, as quotas can be introduced[582] and the exchanges can restrict trading in case there is too much trading and volatility.[583] As one interviewee working in an exchange's strategy department stated, 'with Stock Connect *you have this beautiful sort of capital control mechanism* […] *they can always turn off the tap*…'.[584]

Steering capital flows is not the only way Connect enables market control. For the Connects, 'home-rules' also apply, and the Connect 'gives China a huge amount of power vis-à-vis monitoring its own citizens' capital market investment flows [going into Hong Kong]'.[585] Similar to other domestic measures to dampen speculation, Chinese investors need to have a minimum of RMB500,000 in their account which

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[576] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).
[577] Interview: strategy department, exchange (Hong Kong, 30 June 2017).
[578] Interview: managing partner, asset manager (Hong Kong, 27 June 2017).
[579] Interview: product development, exchange (Frankfurt, 2 February 2018).
[580] Interview: product development, Chinese exchange (China, 14 October 2019).
[581] Interview: product development, exchange (Hong Kong, 12 July 2017).
[582] When Stock Connect was first introduced, daily and aggregate quotas were in place to limit the amount of trading, which were gradually removed with the growing success of the scheme; however, it is important to note that these quotas can be re-introduced as soon as the Chinese authorities and exchanges deem them necessary (interview: international department, Chinese exchange; Shanghai, 26 April 2018).
[583] Interviews: research department, index provider (Shanghai, 23 September 2019) and business development, global exchange (Beijing, 7 November 2018).
[584] Interview: strategy department, exchange (Hong Kong, 30 June 2017; emphasis added); also, interview: international department, global exchange (London, 10 October 2017), sales department, commodities exchange (Singapore, 30 November 2017) and product development, exchange (Hong Kong, 12 July 2017).
[585] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).

'serves as a speed bump for the scores of punters in China to not all access Hong Kong',[586] as only 4.3 million out of China's 147.5 million investors[587] are eligible to invest through Connect.[588] Reversely, international investors must adhere to the previously identified characteristics of Chinese markets such as limited order types, data availability or t+1 (no intra-day trading). Through the introduction of the so-called Northbound investor identification system in September 2018, the 'see-through monitoring system' to identify and track the behaviour of individual investors was also applied to international investors through the Stock Connect.[589] This represents an 'exporting of the Chinese model',[590] as the Chinese exchanges can now monitor the trading activities of every single international investor trading through the Connects – a massive departure from international practice and a level of scrutiny unthinkable in global markets. As HKEx's CEO Charles Li stated, 'while Europe is struggling with MiFID II, in China you have MiFID 10'.[591]

Stock Connect was a crucial step in opening up China's capital markets. As the general manager of a global exchange in Hong Kong noted, '[it] was a major milestone, but they were very conservative with the rules around it, so it was a big step, but it was a very small step… and they could very carefully monitor it, stop it at any time, […] restrict any retail participation and so on'.[592] Following a state-capitalist logic, Stock Connect is designed to simultaneously open Chinese markets to global investors, while maintaining China's market intervention and surveillance machinery as well as capital controls. Instead of capital controls, looking at the institutional infrastructural arrangements of capital markets provides a better understanding of the different functioning of Chinese and global markets and how China's opening is facilitated despite these differences, while preserving state-capitalist logic of market organisation in the process.

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[586] Observation: Orient Securities-Hong Kong Exchange Group investor presentation (Hong Kong, 6 July 2017).
[587] As of January 2019, see Liu and Galbraith (2019).
[588] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017); interview: strategy department, exchange (Hong Kong, 30 June 2017).
[589] Interview: research department, Chinese exchange (China, 18 October 2018); one interviewee noted, that Northbound investor ID has been 'one of the key issues from the start' and 'pushed for by the Chinese regulators' (interview: product development, exchange; Hong Kong, 26 September 2018).
[590] Interview: APAC director, global exchange (Hong Kong, 27 September 2018).
[591] Observation: 'Global exchange leaders' panel, FIA Asia Derivatives Conference (Singapore, 29 November 2017).
[592] Interview: general manager, global exchange (Hong Kong, 5 July 2017).

### 5.4.3 Index inclusion: steering global capital into China

With Stock Connect, the integration of China's capital market was massively expanded and accelerated (see figure 5.1). But rather than giving in to pressures to adapt to neoliberal logic, this opening has decidedly state-capitalist Chinese characteristics; as one interviewee stated: 'Everyone expected, "oh, sooner or later China will come on international standards…" That may not necessarily happen! China wants to go international with its own standards on its own terms and now has increasingly the clout and the power to do so…'.[593] Importantly, global finance has begun to accept China's *Sonderweg* which is embodied not least by China's inclusion into global benchmark indices.

As previously outlined, index providers such as MSCI, FTSE Russell and S&P DJI form a vital part of financial infrastructures, steering capital through including/excluding countries and companies from indices (Petry *et al.*, 2021). In June 2017, MSCI decided to (gradually) include China A-shares into its emerging market index which serves as a benchmark for investments worth US$1.8 trillion, followed by FTSE Russell and S&P DJI in 2018. In early 2019, MSCI then announced to quadruple the weighting of Chinese A-shares to 20% using the confident slogan: 'emerging markets may never be the same' (Wright, 2019). By March 2019, index inclusions had steered at least US$84 billion of passive and active investment into China's stock market,[594] with resulting long-term inflows estimated at US$400 billion over the next decade (He, 2018). This represented a milestone in China's opening process and an 'accolade' for its aspiration to becoming a global financial power.[595] One FX trader likened it to 'China's ascent into the Champions League' and 'basically the same message to asset managers as [the IMF's] SDR inclusion was to central bankers'.[596] China had truly become too big to ignore – and global finance came to grips with this.

Some observers suggested that Chinese regulators made concessions to MSCI,[597] while others voiced concerns that the inclusion resulted from pressure by the Chinese government and MSCI's profit expectations through increased access to

[593] Interview: strategy department, exchange (Hong Kong, 30 June 2017; emphasis added).
[594] Observation: MSCI 'China and the future of equity allocations' Webinar (14 August 2019).
[595] Observation: MSCI/iShares 'Bring your A Game to Investing in China' Webinar (20 September 2018).
[596] Interview: FX trading desk, global bank (Frankfurt, 25 January 2018); also, interview: managing partner, asset manager (Hong Kong, 27 June 2017).
[597] Interview: general manager, global exchange (Hong Kong, 27 September 2018).

China.[598] The *Wall Street Journal*, for instance, highlighted that Chinese asset managers suspended cooperation talks with MSCI and SSE/SZSE threatened to cancel MSCI's access to Chinese stock market data in case of a non-inclusion (Bird, 2019). The truth probably lies somewhere in between. Over the years, MSCI had been in close contact with Chinese regulators, advising on how to meet inclusion requirements.[599] Consequently, the Chinese exchanges had been actively 'improving the suspension system of Chinese companies',[600] 'comprehensively improving English information services'[601] and assisting Chinese companies in how to become eligible for index inclusion; as one Chinese regulator noted: 'The Chinese exchanges would also brief companies before MSCI came to visit them, so that they knew what to tell MSCI'.[602] While initially Chinese authorities were not very responsive to MSCI's suggestions, 'eventually foreign investors started investing, so the government was happy, and they were more open'.[603] But while China made some changes, none of these contradicted state-capitalist logic.

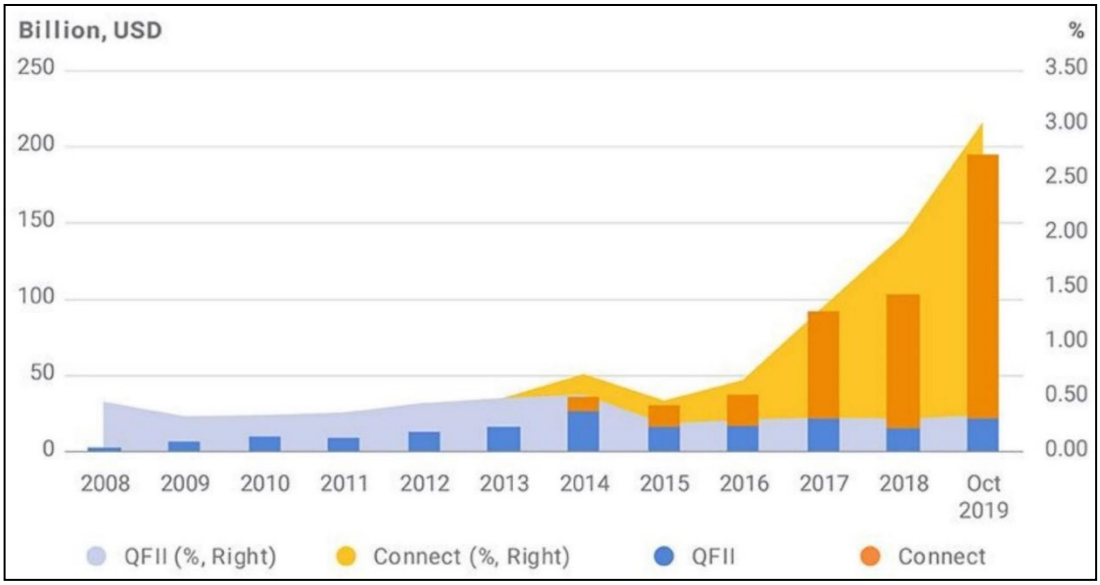
However, although MSCI had pondered whether to include China since 2013, the main reason for repeated non-inclusions was restricted investor access to China's capital market.[604] This changed with Stock Connect which was crucial for MSCI and other index providers' decisions to include Chinese A-shares into their indices.[605] As Chin-Ping Chia, MSCI's Head of Asia-Pacific Equity Research, stated: '[Previously] the access scheme was based on the (R)QFII framework, and it was certainly challenging for some investors to get the license and invest… but the whole development of Connect was a very big game changer'.[606] 'Institutional investors viewed the Stock Connect as a more flexible access framework compared to the QFII

[598] Interview: business development, global exchange (Hong Kong, 7 July 2017).
[599] Interviews: international department, Chinese exchange (Shanghai, 26 April 2018), general manager, global exchange (Hong Kong, 27 September 2018) and research department, index provider (Shanghai, 23 September 2019).
[600] Until 2016, Chinese companies had been allowed to suspend their stocks from trading; this regulation was changed after the 2015/2016 stock market crash.
[601] Interview: research department, Chinese exchange (China, 6 November 2018); also, interview: international department, Chinese exchange (Shanghai, 26 April 2018).
[602] Interview: research department, regulator (Beijing, 30 October 2018).
[603] Interview: research department, index provider (Shanghai, 23 September 2019).
[604] Observations: MSCI 'Adding A Shares into Emerging Markets' Webinar (22 June 2017) and MSCI 'China and the future of equity allocations' Webinar (14 August 2019).
[605] Interview: international department, exchange (Hong Kong, 21 June 2017).
[606] Observation: MSCI/iShares 'Bring your A Game to Investing in China' Webinar (20 September 2018).

and RQFII regimes',[607] and consequently many large asset managers switched from (R)QFII to Connect funds.[608]

While only 1,700 SPSA accounts to trade China via Stock Connect existed before MSCI's inclusion in June 2017, their number increased to over 9,700 by January 2020,[609] almost doubling foreign ownership of Chinese stocks from 1.60% to 3.11% since 2016 (figure 5.4). Overall, none of the Chinese exchanges' activities to accommodate index inclusions went against state-capitalist logic: market access through Stock Connect enabled continued market control and improving companies' English language capabilities and tightening delisting rules only improved corporate governance, facilitating economic reform. On the other hand, global finance had essentially accepted China's state-capitalist logic of integration that resisted pressures to conform with neoliberal institutional logic as evermore investors ventured into China's stock market.

***Figure 5.4:*** *Foreign ownership of China A-shares, 2016-2019.*




*Source: Wei (2019b).*

These index inclusions were a boon for China's integration into global markets as it brought China's financial integration even more in line with state-capitalist logic. As

[607] Observation: MSCI 'Adding A Shares into Emerging Markets' Webinar (22 June 2017).
[608] Observation: Mark Stephenson, Index Equity Portfolio Manager for iShares MSCI China A UCITS ETF (CNYA) at BlackRock, MSCI/iShares 'Bring your A Game to Investing in China' Webinar (20 September 2018); also, interviews: CEO, asset manager (Hong Kong, 28 June 2017) and managing director, index provider (Hong Kong, 6 July 2017).
[609] Observation: MSCI 'China and the future of equity allocations' Webinar (14 August 2019).

one Hong Kong-based asset manager noted, while 'Chinese regulators still don't like hedge funds, fast money, […] *MSCI inclusion attracts the right kind of foreign investors* – long-term, passive, they trade very little…',[610] because through the inclusions, such long-term investors were 'forced into China'.[611] Similarly, Julien Martin, General Manager of Bond Connect, stated: 'I do consider the inclusion as sort of a trigger… […] from arbitrage and fast money going in, we finally see global asset managers to look at China, making their accounts ready, investing into China'.[612]

With its index inclusions, China had arrived in the upper echelons of global finance. However, this unprecedented inflow of foreign capital takes place according to rules set out by China's exchanges and follows a state-capitalist logic – facilitating the professionalisation and institutionalisation of Chinese markets (national development) while maintaining Chinese exchanges' monitoring and intervention system as well as reducing market volatility (control).

### 5.4.4 Reproducing a successful model: cross-border integration, Chinese style

The Stock Connect has proven to be a successful model for the Chinese government because its cross-border infrastructural arrangements successfully balance the state-capitalist objectives of national development and control. As HKEx's Head of Strategy stated 'these Connect schemes are likely to be much more long-lasting that any of us ever suspected at the start… […] this is the way that China has decided it's going global and entering the world'.[613] In fact, all other mechanisms that integrate China with global markets and enable foreign investors' access are similarly designed to enable market control, intervention and monitoring while facilitating national development objectives (figure 5.5).[614]

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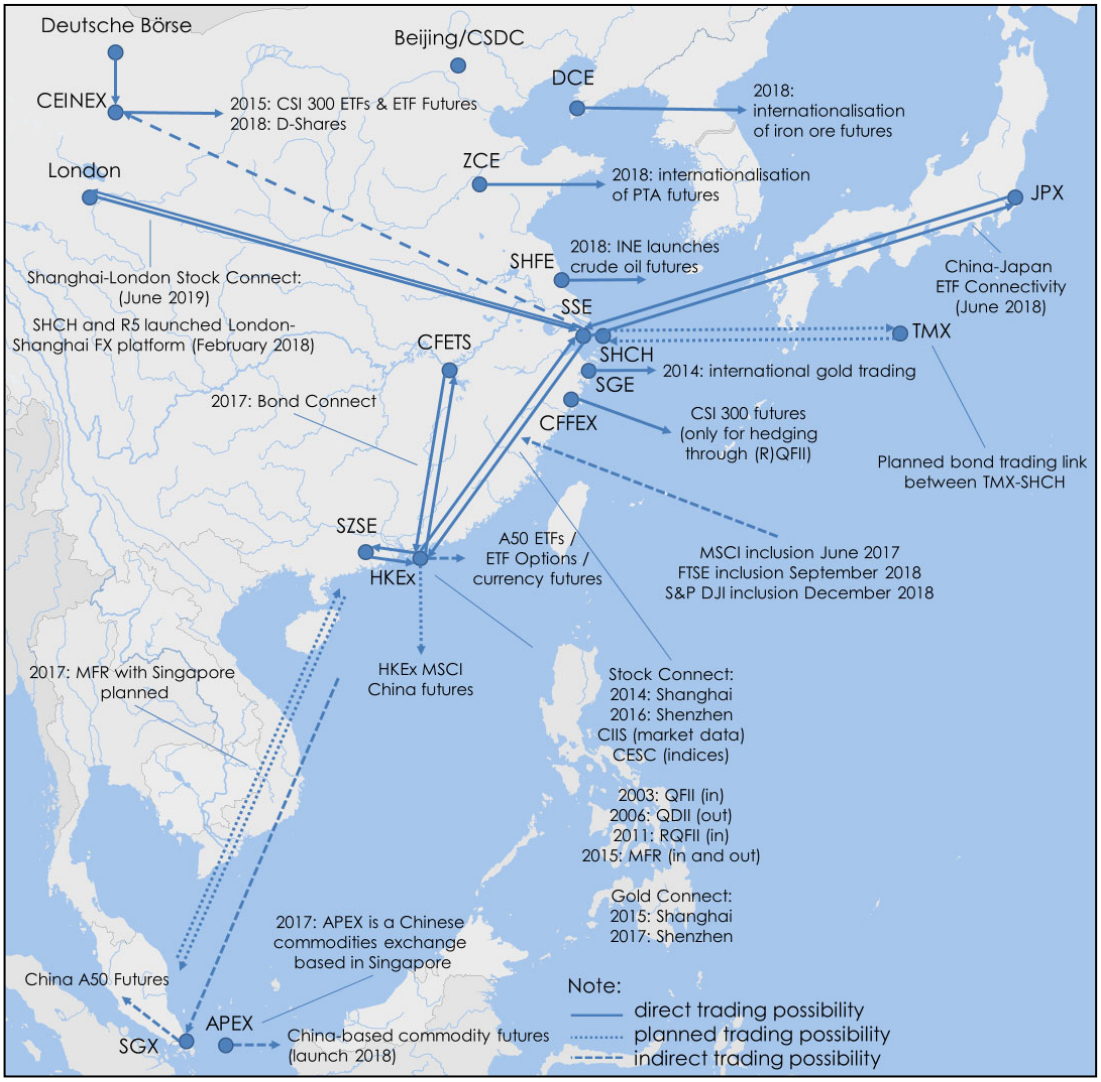
[610] Interview: product development, asset manager (Hong Kong, 3 July 2017; emphasis added).
[611] Observation: Orient Securities-Hong Kong Exchange Group investor presentation (Hong Kong, 6 July 2017); as investors either track (passive) or are benchmarked (active) to indices, changes in index composition also force active investors to adapt their portfolios, especially risk-averse long-term investors as their mandate often does not allow significant diverges from benchmarks; for a detailed explanation, see Petry *et al.* (2021: 162).
[612] Observation: HKEx/Risk.net 'Chinese Bonds – Riding the Waves of Foreign Inflows' Webinar (28 November 2018).
[613] Observation: 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar (Hong Kong, 29 June 2017).
[614] Interview: strategy department, Chinese exchange (Shanghai, 9 May 2018).

***Figure 5.5:*** *Trading China, integration into global markets.*




*Source: author's figure; based on interview data, financial news, press releases by exchanges.*

This is also the case for Bond Connect[615] launched in July 2017, the second most important channel to invest into China.[616] Currently, Bond Connect is a one-way street that facilitates foreign access to Chinese bond markets (Northbound trading), whereby global investors can use Bloomberg or Tradeweb[617] which are linked with China's centralised fixed income trading platform (CFETS) to request quotes from onshore

[615] (R)QFII only allow investment into exchange-listed bonds, while 80-90% are traded OTC and registered on CFETS (Source: HKEx/Risk.net 'Chinese Bonds – Riding the Waves of Foreign Inflows' Webinar; 28 November 2018).

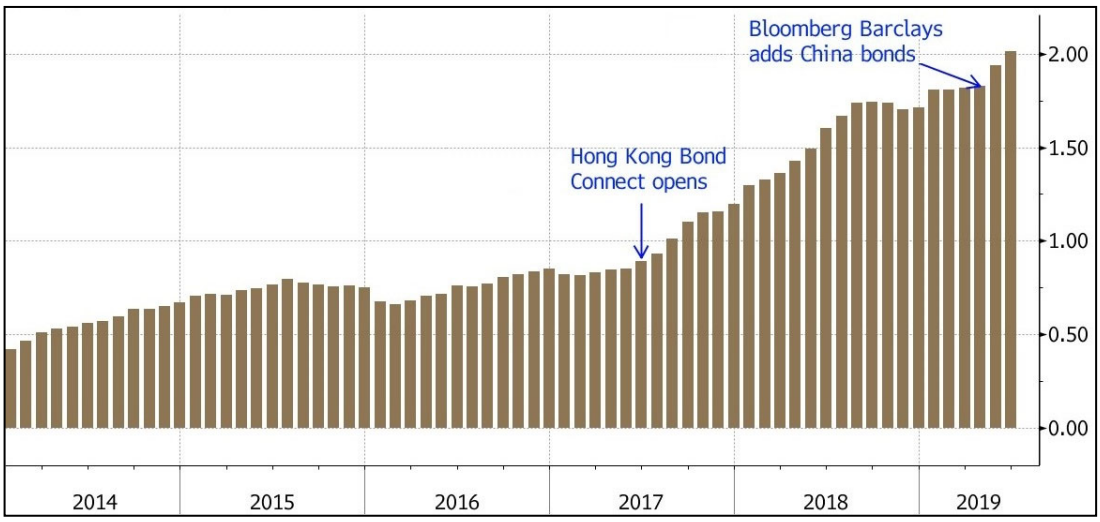
[616] The political relevance of these infrastructures is further highlighted by the fact that Bond Connect was presented as 'a gift to the Hong Kong government' for the 20th anniversary of its unification with mainland China (interview: senior management, insurance company; Shanghai, 16 October 2019).

[617] According to one interviewee, CFETS actually planned to buy Tradeweb from Refinitiv (formerly Thomson Reuters' financial unit) but shelved these plans last minute (interview: senior management, insurance company; Shanghai, 16 October 2019).

Chinese market makers. Trading is then conducted via the Hong Kong Monetary Authorities' Central Moneymarkets Unit (HKMA CMU) which establish settlement links with SHCH and ChinaClear.[618] Similar to the transition from (R)QFII to Stock Connect, with the establishment of Bond Connect access to Chinese bond markets has equally developed towards an elegant infrastructure that enables easy and efficient access[619] and facilitates foreign investment inflows.[620] Thereby, Bond Connect maintains distinct Chinese characteristics of market organisation. It represents another closed loop system that maintains capital controls, Chinese data/trading rules and the 'see-through monitoring system' as '[Chinese regulators] can look down to the bottom to see, who is that guy actually holding that asset as a beneficiary'.[621] Similar to MSCI's index inclusion, due to Bond Connect China was included into the widely tracked Bloomberg-Barclays[622] and JPMorgan bond indices in 2019 (Hunter and Chen, 2019b), which similar to stock index inclusions will likely accelerate foreign investment into China's bond markets (see also, Lockett, 2020a).[623] Here global investors have also accepted China's resistance to neoliberal market logic, as indicated by increasing foreign investment into Chinese bond markets (figure 5.6).

[618] See: https://www.chinabondconnect.com/en/Trading/Trading-Bc/Trading-Mechanism.html (last accessed 22 August 2020).
[619] This is because from a trading perspective the cost of access decreases because investors can deposit purchased bonds with global custodians, 'which means that you will be able to pledge them, collateralise them, repo them and significantly improve the capital efficiency of mainland bond investments' (Observation: HKEx 'Connecting Mainland and International Capital Markets' Breakfast Seminar; Hong Kong, 29 June 2017).
[620] Since February 2016, access to China's vast bond market was also possible through the CIBM (China Interbank Market) licensing channel where international investors opened an account onshore with a Chinese bank, but similar to the (R)QFII programmes this license-channel was quite cumbersome (Observations: HKEx/Risk.net 'Chinese Bonds – Riding the Waves of Foreign Inflows' Webinar, 28 November 2018; 'Connecting Mainland and International Capital Markets with HKEx' Breakfast Seminar; Hong Kong, 29 June 2017; interview: international department, financial infrastructure provider; Shanghai, 9 May 2018).
[621] Interview: international department, financial infrastructure provider (Shanghai, 9 May 2018); international investors need to open observable sub-accounts with HKMA CMU (see also: https://www.chinabondconnect.com/en/Trading/Trading-Bc/Trading-Mechanism.html; last accessed 30 June 2020).
[622] Interestingly Bloomberg's China inclusion (Bloomberg, 2019a) took place two weeks after it became the second Bond Connect trading platform (Bloomberg, 2019b).
[623] Interview: senior management, insurance company (Shanghai, 16 October 2019).

***Figure 5.6:*** *Foreign investors' holdings of Chinese bonds, 2014-2019.*




*Source: adapted from Hunter and Chen (2019a); in trillion RMB.*

HKEx supports China's integration with global markets, but according to Chinese rules and characteristics. This also applies to other financial infrastructures such as indices[624] or China-specific derivatives that are only listed on HKEx, e.g. A50 ETF futures and options, cross-currency futures or Chinese treasury bond futures than enable international investors to hedge RMB currency and interest rate risks.[625] Similarly, after long negotiations between Chinese authorities, MSCI and HKEx, the listing of HKEx MSCI China index futures enables global investors to hedge their Chinese stock portfolio; but within a marketplace over which Chinese authorities have a larger degree of control, rather than an offshore centre such as SGX.[626] Overall, HKEx is a crucial partner in constructing cross-border infrastructures that enable China to maintain its unique market organisation characteristics.

This state-capitalist logic of market integration also applies to other cross-border infrastructures through which China opens its markets. The international board of SGE that was opened in 2014 for instance allows foreign participation but prohibits

[624] In addition, SSE, SZSE and HKEx have been working on creating China Exchanges Services Company (CESC), a jointly run index company (interview: managing director, index provider; Hong Kong, 6 July 2017).

[625] These treasury futures are, for instance, especially important with respect to Bond Connect, as one interviewee noted: 'Once people start using Bond Connect as a way to trade Chinese interest rates, they need an avenue to hedge, so the treasury bond futures at HKEx would then become at this point the only futures product that is available based on a Chinese benchmark' (interview: business development, global exchange; Hong Kong, 12 July 2017); as of March 2020, HKEx was the leading centre for hedging cross-border RMB exposure with a 76% market share of global USD/CNH futures trading (HKEx, 2020).

[626] In fact, some argue that SGX will lose its status as offshore index futures hub as HKEx's MSCI futures would replace SGX's A50 futures (Mookerjee *et al.*, 2020).

gold transfer between its domestic and international vaults, effectively maintaining capital controls through a closed loop system.[627] And while the internationalisation of China's commodity futures is discussed in Chapter 6, it is worth highlighting that overseas investors wanting to trade on INE, DCE and ZCE need to route orders through Chinese brokers to enable see-through monitoring and assure compliance with Chinese characteristics of financial infrastructures such as trading, margining and data/market access rules.[628] The London-Shanghai Stock Connect (June 2019) and the Tokyo-Shanghai ETF Connect (May 2019) also conform with China's state-capitalist logic of market organisation,[629] so will most likely the planned/proposed Wealth Management Connect (Yiu and Lee, 2020), Commodity Connect (Bloomberg, 2020) or ETF Connect (Reuters, 2018) as next steps in the HKEx Connect Scheme.[630]

The mechanisms through which China integrates with global markets are designed as 'controllable channels'[631] and all these infrastructural arrangements 'are very easy to turn off, if things don't go the way they should'.[632] As the CEO of a Hong Kong-based asset manager noted back in 2017, 'QFII, QDII, RQFII, Stock Connect, Bond Connect… none of them is the holy grail and none of them is really going to change the world… all of them together, they will…'.[633] Step by step a whole market infrastructure is emerging that connects China with the outside world, but these cross-border infrastructures function according to Chinese rules.

## 5.5 Conclusion: resisting pressures to conform

Since the global financial crisis, China's capital markets have developed and integrated into global markets to an unprecedented degree. While China had been under pressure to conform with neoliberal norms of market integration, as also demonstrated by the US-China trade war when China's financial opening emerged as a key contention point

[627] While you might receive regulatory permission to import gold, i.e. transferring it from the international to a domestic vault, it is impossible to transfer gold into the international vault, i.e. to get gold out of the country (interview: strategy department, Chinese exchange; Shanghai, 9 May 2018).
[628] Interview: international department, broker (Shanghai, 25 September 2019).
[629] These mechanisms are discussed in detail in Chapter 6.
[630] Interviews: strategy department, exchange (Hong Kong, 30 June 2017) and product development, exchange (Frankfurt, 2 February 2018).
[631] Interviews: business development, global exchange (Hong Kong, 10 July 2017) and strategy department, Chinese exchange (Shanghai, 9 May 2018).
[632] Interview: emerging markets strategist, global exchange (London, 11 January 2018)
[633] Interview: CEO, asset manager (Hong Kong, 28 June 2017).

(Petry, 2020e: 231), Chinese markets maintained their distinct characteristics. Despite an increasing integration with global markets and rather than conforming with neoliberal logic, China has managed to integrate into global finance while maintaining a state-capitalist logic of market organisation. One disgruntled Hong Kong-based global exchange manager captured the essence of this development:

> When I came out here, everybody said, 'give in ten years, then China will open up'. And after ten years, they say, 'give them ten more years'… Now, after 14 years I [still] don't see signs that make me feel that they are really truly thinking about fully opening up their markets… *I can make a list of maybe 50 points that have changed, that they slowly are opening up, but at the same time they are not really opening up anything*… To me, it's window dressing… I don't really see that they are really committed to opening up their markets [and conform] to international best practice.[634]

Chinese exchanges force global finance to play according to Chinese rules when engaging with China. First, China redefined the rules of its international integration by prohibiting *offshore* markets that would undermine domestic control. Second, China reinforced its rules of organising markets *onshore* vis-à-vis global financial infrastructure providers and investors active within China. Third, China continued to control the rules of its extensive *cross-border* integration with global markets by using Hong Kong as a gateway into China.

Rather than focusing on capital controls, the focus on financial infrastructures provides a better explanation for the persistent differential organisation of Chinese markets despite increasing integration. Rather than conforming with neoliberal market logic, state control of market behaviour and steering market outcomes towards national development objectives are maintained through the financial infrastructures created by China's exchanges. These infrastructural arrangements follow China's state-capitalist logic of organising capital markets and highlight China's *resistance* to conform with the neoliberal capital markets underpinning the global financial order.

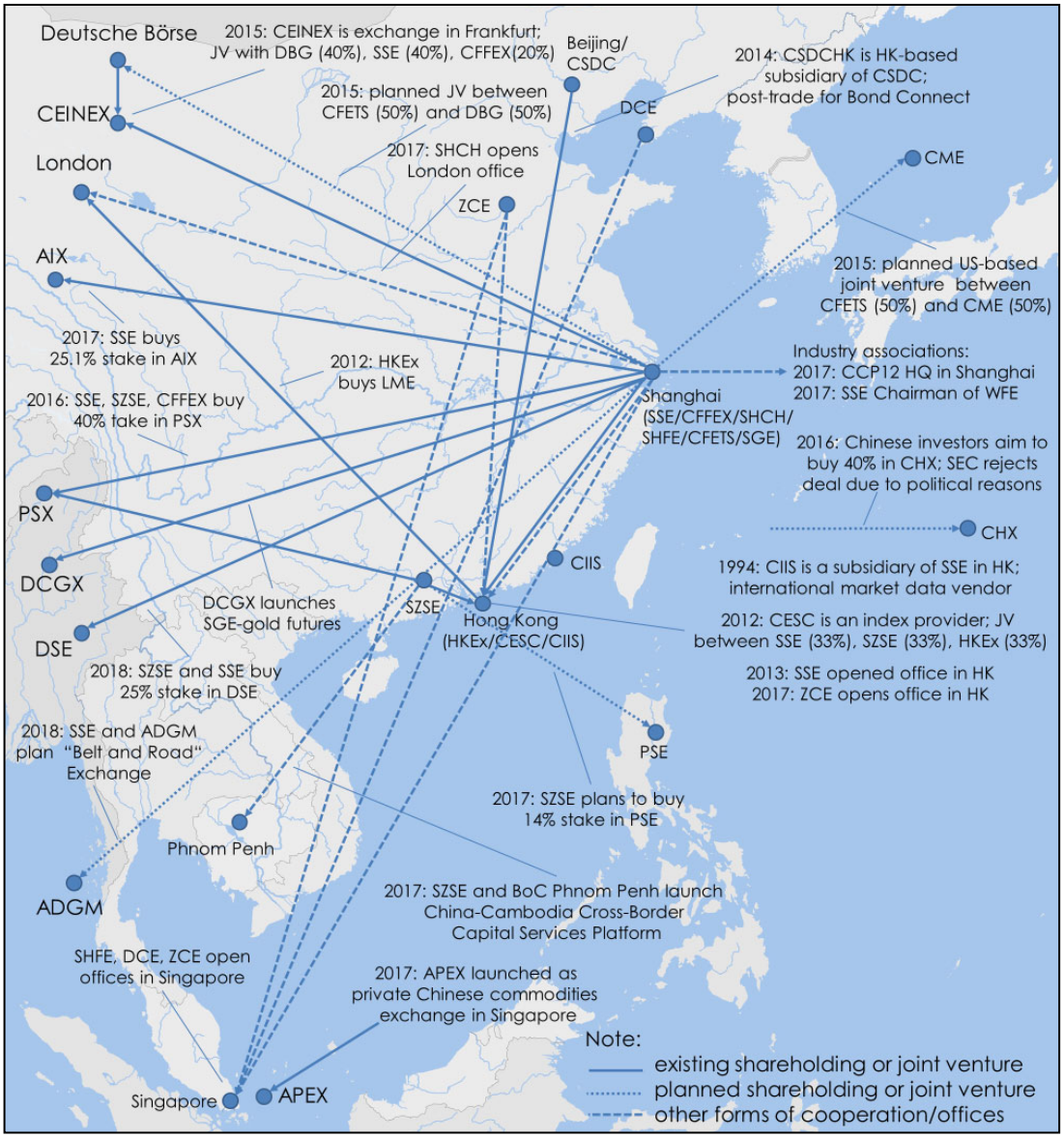
[634] Interview: general manager, global exchange (Hong Kong, 5 July 2017; emphasis added).

## 6 Internationalisation of China's exchanges: challenging neoliberal markets

After the height of the global financial crisis, during the G-20 Summit in November 2008 China's president Hu Jintao called for 'a new international financial order that is fair, just, inclusive, and orderly' (cited in Mallaby and Wethington, 2012: 135). The Chinese authorities maintained that the contemporary US-dominated global order was stacked against Chinese interests (Li, 2011, Wang and Chin, 2013, Cohen, 2018: 153). As Beeson (2018: 245) notes, '[in China] there is the sense that the existing institutional order reflects and entrenches a form of American hegemony that works against Chinese interests'. Similar to US dollar dominance in the realm of currencies (Eichengreen, 2012, Norrlof, 2014), for capital markets (mainly US-based) global exchanges defined the rules of the game (see Chapter 2). China's capital market development and internationalisation need to be analysed within this global hierarchy where initially China had to follow these neoliberal rules when engaging in capital markets outside its borders. As a result of this setup and perceived disadvantage, the Chinese authorities felt the need for China to more actively engage in the rule-making of global finance.

More than just opening up to global finance, one can therefore also observe an increasing expansion of China's capital markets abroad as Chinese exchanges actively engage with and venture into global markets, facilitating the creation of new financial infrastructures overseas (figure 6.1). This process is markedly different from the internationalisation of global exchanges that started from the 1990s onwards and cemented the global dominance of neoliberal logic of market organisation (and thereby US power). For China, this process plays an important part in the Chinese state's objective to change the rules of the game in global finance or to at least create a level-playing field that does not disadvantage China. Thereby, the Chinese exchanges' different conception of capital markets also pervades the market(s) (infrastructures) that they create and influence abroad. While not necessarily a coherent strategy (Breslin, 2013b), state-capitalist logic facilitates the emergence of a seemingly coherent pattern where as they 'go global' Chinese exchanges partially 'export' China's state-capitalist capital markets. This happens both vis-à-vis advanced as well as developing economies, the rule-makers and rule-takers of global finance (on rule-makers/takers, see Levi-Faur and Jordana, 2005, Hurrell, 2007, Kennedy, 2012). Rather than neoliberal, this internationalisation process follows a state-capitalist logic, challenging the neoliberal markets that underpin the global financial order.

***Figure 6.1:*** *The internationalisation of Chinese exchanges.*




*Source: author's figure; based on interview data, financial news, press releases by exchanges.*

Overall, this expansion of Chinese markets abroad can be divided into three aspects: cooperating with exchanges in developed countries (section 2), engaging with exchanges in developing countries (section 3), and contesting global markets organised by US-based global exchanges (section 4), all together challenging US financial hegemony in the contemporary global financial order. Each of those has its own political objectives and inherent politics but all are informed by state-capitalist institutional logic. Whether Chinese exchanges thereby participate in financial industry associations, establish joint ventures, or build market infrastructures in BRI countries, they (partially) shape the functioning and dynamics of these capital markets. This chapter hence analyses the 'malleability of the global financial system' (McNally

and Gruin, 2017: 603) by analysing the construction of Chinese financial infrastructures abroad.

The chapter is structured as follows. Section 1 explains how the internationalisation of Chinese exchanges follows a state-capitalist institutional logic, exploring the rationale behind their internationalisation, its objectives and consequent form. Whereas China's integration into global markets and resistance to conform with neoliberal markets was markedly defined by the sub-logic of control (Chapter 5), the internationalisation of Chinese capital markets is primarily informed by the sub-logic of national development and linked to certain state policies and geopolitical considerations. The following sections then analyse three aspects of this internationalisation process: Section 2 analyses international cooperations between Chinese and global exchanges – the *rule-makers* in global capital markets – in the construction of financial infrastructures. While marked by compromise, global counterparts thereby often give in to Chinese demands and the resulting infrastructures are informed by state-capitalist rather than neoliberal logic. Section 3 then analyses the internationalisation of Chinese exchanges vis-à-vis developing countries, the *rule-takers* of the global financial order. By helping to develop emerging capital markets in its own image, China itself gradually becomes a rule-maker in a process that is equally informed by geopolitical considerations, as demonstrated through the embeddedness of China's market capital internationalisation into the BRI. While Chinese exchanges engage with many exchanges globally, the US and its exchanges are notably absent from this process. Section 4 therefore explores how China's internationalisation is partially informed by an increasingly conflicted US-China relationship where China actively contests financial infrastructures facilitated by US exchanges, for instance, through China's push into US-dominated global commodity markets and how this is linked to the Chinese state objective of 'commodity pricing power'. Section 5 concludes.

## 6.1 The state-capitalist logic of Chinese exchanges going global

The internationalisation of global exchanges in the 1990s and 2000s, was largely informed by competitive pressures and the imperatives to venture into and create new markets in order to generate more profit, leading to the emergence of a handful of

global exchanges that dominated global capital markets (see Chapter 2). Especially in less developed markets, these global exchanges helped to develop new markets with their knowhow and technology, facilitated the opening of those markets and integrated them into global financial infrastructures (Botzem and Dahl, 2014). Global exchanges thereby created markets in their image, informed by neoliberal institutional logic, through which they perpetuated and reproduced the neoliberal global financial order as the *rule-makers* of global capital markets.

Shortly after the global financial crisis, the Chinese exchanges similarly started to internationalise, opening overseas offices, engaging with industry associations and other exchanges or venturing into new markets – a process that accelerated after 2014.[635] But the rationale for their internationalisation is markedly different. Instead of profit, their internationalisation process is informed by China's state-capitalist logic. While the 'market people' (operational staff) at Chinese exchanges want to learn from global exchanges and generally 'improve' Chinese capital markets, the 'party people' (management) aim to facilitate politically important projects as these further their political careers; as one exchange's emerging market strategist noted, '[this] positioning towards the outside world […], it gives you party points in the system if you do it well'.[636] So, while the Chinese exchanges are somewhat entrepreneurial, their actions are primarily determined by state policy (also Duckett, 1996).[637] From the Chinese perspective, 'not every pilot project is only successful if it generates massive revenues'.[638] For the internationalisation of China's exchanges, not profit but state policies matter, and hence, these collaborations are usually connected with policy objectives.[639] As one former Chinese exchange employee explained:

> To be honest, it doesn't have to make economic sense every time. It could be political needs, politically we would have to be more connected to a certain country or region… It could be strategically important, like we will open a door, or this is the very first time we actually acquire a foreign exchange, so this is like the very first move to celebrate.[640]

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[635] Interviews: CEO, asset manager (Singapore, 4 December 2017) and business development, global exchange (Beijing, 7 November 2018).
[636] Interview: emerging markets strategist, global exchange (London, 11 January 2018).
[637] As one interviewee noted, 'You do pick up on a little bit more entrepreneurialism from the exchanges… but it's pretty measured because they know, there's little they can do without the regulator's approval…' (executive director, global exchange; Singapore, 30 November 2017).
[638] Interview: FX trading desk, global bank (Frankfurt, 25 January 2018).
[639] As one interviewee noted, 'the financial market opening up is just part of the bigger picture of economic policies' (interview: financial market consultancy; London, 13 October 2017).
[640] Interview: managing director, broker (Hong Kong, 7 July 2017).

During his opening remarks for the 2018 Boao Forum president Xi Jinping highlighted the significance of this shift, stating that: '[China] will stay committed to the strategy of opening-up for win-win results [and] will pay equal attention to "bringing in" and "going global", and break new ground in opening China further through links running eastward and westward, across land and over sea' (Xi, 2018).[641] Consequently, internationalisation has become an important task for the Chinese exchanges as 'the Chinese authorities have decided that domestic exchanges […] *should compete with overseas markets […] to improve global competitiveness and influence of China's futures markets*'.[642] Especially as the global financial order is perceived to be stacked against Chinese interests, the internationalisation of Chinese capital markets can help to push back against neoliberal global markets.[643] Thereby, this internationalisation contributes to a number of policy objectives and state concerns stemming from China's conflicted relationship with the global financial order and are ultimately informed by state-capitalist logic, especially the need to facilitate national development.

On the one hand, while China is the second largest economy with the second largest capital markets globally, this is in no way reflected in the global financial order which is designed to facilitate and entrench US financial hegemony (see figure 3.1). Similar to other aspects of global finance and its regulation (Sohn, 2013, Gruin *et al.*, 2018, Helleiner and Wang, 2018), China wants to be recognised as a global financial power and contribute itself to the development of 'the rules, norms, and procedures that govern cross-border money and finance' (Drezner and McNamara, 2013: 156). As one Chinese exchange official noted, 'we need to participate in the development of the rules of governance, the common standard for the exchanges globally, we will contribute our thinking'.[644] While this engagement 'shows a very positive image of China's financial market opening'[645], as one Chinese financial industry veteran noted, this is hugely important because 'if you don't participate in the global panels of these infrastructure standard discussions and their making, then the RMB derivative standards will be set by foreign entities or regulators'.[646] Consequently, the Chinese

[641] One interviewee pointed towards the importance of this speech with respect to capital market internationalisation (interview: business development, global exchange; Beijing, 7 November 2018).
[642] Interview: sales department, commodities exchange (Singapore, 30 November 2017; emphasis added); also, interview: representative office, global exchange (Beijing, 25 October 2018).
[643] Interview: international department, Chinese exchange (China, 1 November 2018).
[644] Interview: international department, Chinese exchange (Shanghai, 26 April 2018).
[645] Interview: senior management, insurance company (Shanghai, 16 October 2019); also: FX trading desk, global bank (Frankfurt, 25 January 2018).
[646] Interview: senior management, insurance company (Shanghai, 16 October 2019).

exchanges, want to become 'world-leading exchanges'[647] and 'want to be seen on the political, financial and political stage'[648] and be recognised as being an international marketplace.[649]

On the other hand, Chinese authorities feel that China is treated unfairly in the contemporary, US-dominated global financial order. The uneven and potentially disadvantageous nature of this arrangement became apparent, for instance, through the unilateral decision of the US to pursue quantitative easing (also Chin and Helleiner, 2008: 96) which by some estimates decreased the value of China's foreign reserves by 16% as many had been invested in US treasuries (Eurex, 2016: 13). While Chinese authorities had previously been more open to adopt neoliberal financial practices, especially with the global financial crisis 'they wanted to gain more independence and grew increasingly wary of global finance [after] they realised how much dependent they were on the US-dominated [global] financial system', as one Chinese regulator noted, and they 'were also much more willing to keep their own characteristics'.[650] Global capital markets are increasingly perceived as being stacked against Chinese interests and benefitting Western (especially US) private financial actors instead.

As capital markets simultaneously became more important for the functioning of the Chinese economy (Gabor, 2018, Naughton, 2018, Petry, 2020a), gaining more power in the US-dominated global financial order had become a key policy objective.[651] It is important to note that this became even more pressing as China developed into a net exporter of capital over the years.[652] In order to facilitate this process, the global financial infrastructures that governed these investments should (ideally) function according to state-capitalist logic.

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[647] Interview: representative office, global exchange (Beijing, 25 October 2018).
[648] Interview: general manager, global exchange (Hong Kong, 5 July 2017).
[649] This sentiment that also was captured Bernd Meist, Executive Director at Bank of China Germany: 'China is back, the countries' pride has been restored, they are participating again in global capital markets' ('RMB Internationalisation' Panel, CHINA DAY - Euro Finance Week 2017; Frankfurt, 15 November 2017).
[650] Interview: research department, regulator (Beijing, 30 October 2018).
[651] Especially, as this influences domestic policy goals such as facilitating economic reform, reducing financial instability, facilitating the needs of Chinese retail investors or serving the real economy (Chapter 4).
[652] Interviews: private equity manager (Shenzhen, 22 June 2017), strategy department, exchange (Hong Kong, 30 June 2017) and research department, regulator (Hong Kong, 5 July 2017); also 'Going Offshore and Outbound Investments' Panel, 7th ASIFMA China Capital Markets Conference (Hong Kong, 14 June 2017).

While primarily aimed at policies that support national development, control over these infrastructures is a necessary condition for their establishment.[653] To ensure state control, ownership rather than market dominance has thereby emerged as the preferred channel of managing these infrastructures. Further, the internationalisation of Chinese exchanges is partially driven by geopolitical considerations.[654] Rather than business-driven, China's geopolitical objectives permeate the expansion of Chinese exchanges abroad – informed by the search for strategic economic alliances that transcend finance, tensions in US-China relations, and geopolitical strategies such as connecting financial infrastructures to the Belt and Road Initiative. Thereby, we can see 'a new form of globalisation promoted by China'[655] emerging, which as Grabel (2017: xv; emphasis added) emphasises is 'taking the lead in promoting a *managed* yet ambitious form of global financial […] integration'. One interviewee summarised the rationale behind Chinese exchanges' internationalisation strategy as follows:

> They want to have the largest financial market in the world, they want to have the Chicago and New York of the world based here… but they want it to be China characteristics and they want everybody to just play with that… so, they want the RMB to be the currency of choice and they want everybody to trade in the market, but not too much, because then they could impact it… [chuckles], They want full control, they want all Chinese companies listed abroad to come home and list on Chinese stock exchanges […] and they want to have control of all commodities' price points in China. […] That's basically their strategy.[656]

The Chinese exchanges contribute to this by internationalising and building their own financial infrastructures globally.[657] But as this statement indicates, this internationalisation of China's capital markets is not necessarily an overarching masterplan. Similar to the international activities of other Chinese companies this process involves many different initiatives, issue areas and actors (Breslin, 2013b) – which can be partially contradictory and fall short of fulfilling their stated objectives as already noted in previous chapters. However, as the following sections demonstrate, the patchwork of infrastructural arrangements emerging from this process is informed

[653] Interviews: managing director, broker (Hong Kong, 7 July 2017) and research department, regulator (Hong Kong, 5 July 2017).
[654] This thesis does not argue that geopolitical consideration are part of state-capitalist logic itself; it is rather the case that state-capitalist institutional logic incentivises Chinese exchanges to adhere to national development objectives when organising capital markets and geopolitical considerations are an important national development objective in the context of exchanges' internationalisation.
[655] Observation: Keynote Speech 'Macro-Economic Outlook on China 2018' by Honson To, Chairman, KPMG China, CHINA DAY - Euro Finance Week 2017 (Frankfurt, 15 November 2017).
[656] Interview: general manager, global exchange (Hong Kong, 27 September 2018).
[657] Interview: senior management, insurance company (Shanghai, 16 October 2019).

by state-capitalist logic.[658] From this perspective a *seemingly* coherent picture emerges in which the internationalisation of China's state-capitalist capital markets actively challenges neoliberal capital markets that underpin the global financial order as the Chinese exchanges' different conception of capital markets pervade the market(s) (infrastructures) that they create and influence abroad.

## 6.2 Cooperating with the rule-makers: Chinese exchanges and global exchanges

Chinese exchanges increasingly ventured abroad, interacting more with the actors and institutions of the global financial order. Since 2016, SZSE, SSE, CFFEX and ZCE opened offices in Hong Kong, SHFE, DCE and ZCE opened Singapore offices, SHCH has a London office[659] and the new headquarters of CCP12[660] is based in Shanghai.[661] As the general manager of a global exchange's Asia operations noted:

> They want to be seen on the political, financial and political stage, so they are very active in the WFE, they want to be the chairman there, they want to be in those forums [and] be part of the global organisations, like WFE, FIA and so forth, coming to conferences, sharing expertise and trying to be leading parties in these organisations.[662]

These industry associations are important self-regulatory bodies that enable setting standards for their respective industry (Underhill and Zhang, 2008, Tsingou, 2015).[663] In 2017, SSE Chairman Wu Qing held the WFE chairmanship which as one interviewee noted has been very important 'because you are now not only participating in that [standard-setting] process but also leading in that process in this very important

[658] As demonstrated in Chapter 3, Chinese exchanges are arguably more embedded in state-capitalist structures than most SOEs or private Chinese companies; hence their activities are not as diverse (or commercially oriented) as those of other Chinese economic actors (Breslin, 2013b: 1275-1278).
[659] Interviews: sales department, commodities exchange (Singapore, 30 November 2017) and financial market consultancy (London, 13 October 2017).
[660] CCP12 is the global association for clearing houses. Formed in 2001 as an information sharing arrangements between twelve clearing houses, with the G20 Pittsburgh Summit, central clearing became an increasingly important part of post-crisis regulations (Helleiner *et al.*, 2018, Genito, 2019a); consequently, CCP12 was established as a formal association in 2015, with its Shanghai headquarter officially established in 2017.
[661] This move was, for instance, facilitated by offering free office space on the top floor of one of SHCH's buildings; as one interviewee noted, 'they have been quite engaged in CCP12… and it was decided that the head office of that organisation should be in Shanghai… and they are very proud of that…' (interview: general manager, global exchange; Hong Kong, 27 September 2018).
[662] Interview: general manager, global exchange (Hong Kong, 27 September 2018).
[663] While SSE and SZSE had already joined WFE in 2002, in the push to internationalise CFFEX, SHFE, DCE and ZCE all became WFE members in 2012; similarly, while SHFE and DCE had become FIA members in 2002 and 2003, respectively, CFFEX and ZCE joined in 2015 and 2019.

industry'.[664] Widely celebrated for his internationalisation efforts, Wu Qing then became vice-mayor of Shanghai, indicating the importance of these appointments in the career progression of Chinese exchange officials.[665]

The Chinese exchanges also participated in and sponsored evermore global industry conferences and events organised by FIA, ASIFMA or FOW. These conferences are important as 'sites in which industries are being made' (Rethel, 2018: 188). As Chinese exchanges put 'more efforts into going out, going overseas', through these conferences they saw 'more opportunity to introduce themselves to the world' and 'getting our voice heard'.[666] As one interviewee noted, 'China also needs to get their more important role recognised globally, in these rule-making panels – BIS, FSB, World Bank, CCP12…'.[667] From simply attending these conferences ten years ago, the Chinese exchanges started to speak on panels, opened booths at these events and sponsored them financially.[668] This served as an important stepping stone in the gradual internationalisation of Chinese exchanges and their interactions with global exchanges as the rule-makers of the global financial order.

It is important to note that the contemporary global financial order is not static but malleable and can potentially also accommodate other than neoliberal logics of market organisation (McNally and Gruin, 2017: 601). As the following sections demonstrate, in Chinese exchanges' interactions with global exchanges, state-capitalist logic informs both (1) these international cooperations (process), as well as (2) the overseas financial infrastructures that emerge from those interactions (outcomes).

### 6.2.1 International cooperation: compromise with state-capitalist characteristics

As previously noted, 'markets do not emerge out of a vacuum' (Ahrne *et al.*, 2015: 9) but are organised by specific actors for specific purposes. International cooperations

[664] Interview: senior management, insurance company (Shanghai, 16 October 2019).
[665] Interview: international department, Chinese exchange (Shanghai, 26 April 2018).
[666] Interview: international department, Chinese exchange (China, 14 October 2019); as one Chinese exchange told me during the FOW Asia Derivatives World Conference they are at FOW because 'we want to strengthen our international profile' and 'because we are quite famous within China, but not internationally' (Hong Kong, 11 April 2018).
[667] Interview: senior management, insurance company (Shanghai, 16 October 2019).
[668] Interview: international department, financial infrastructure provider (Shanghai, 9 May 2018); for more details, see also the FIA event archive: https://www.fia.org/conference-archives (27 July 2020).

between local and global exchanges have thereby been crucial. These cooperations emerged globally from the 1990s onwards (Domowitz, 1995), and through them global exchanges disseminated neoliberal logics of market organisation around the globe (Weitzman, 2011, Botzem and Dahl, 2014, Petry, 2020d), thereby reproducing the contemporary global financial order.

As part of their internationalisation process, the Chinese exchanges also entered into cooperations with global exchanges.[669] As one Chinese infrastructure provider noted, 'they are and have been for a long time extremely eager to create relationships […] and they really tried to find ways to learn and to understand how world leading exchanges operate'.[670] This process, however, was largely informed by state-capitalist logic.

For instance, how Chinese exchanges pick cooperation partners is not determined by commercial motives. They create different alliances because they know 'that there are different client pools in Europe, in London, in the US' which they need in order to facilitate their internationalisation process,[671] but they also 'always try to balance for geopolitical reasons'[672] because 'they don't [like] having their eggs in the same basket'.[673] Cooperations are initiatives based on political rather than commercial considerations. It is important to note the agency of Chinese exchanges in this process. As previously noted, this internationalisation is not a grand masterplan but rather the outcomes of multiple actors and initiatives informed by state-capitalist institutional logic. The exchanges thereby act as 'policy entrepreneurs' (Li, 2018a: 26) but within the confines of state-capitalist thinking. One interviewee described this process as follows:

> So, normally we will start by saying, 'okay, let's build a joint working group', have some rounds of tele-conference calls, video-conference calls. […] Then we would report separately to our management, it's for them to decide whether they want to move on or not. Sometimes it's pending, sometimes it's, 'okay, let's meet again', a high-level meeting deciding on what we are going to do next. Then it comes to the second phase, to build up a proposal, to specify what kinds of products and the general arrangements… t+1 settlement, how to settle cash… that's the time when we want to report to our regulators and ask – to test the water – ask what their opinion is. […] Obviously, we have to have a firm idea about the cooperation, so what is going to be done, what are the issues and what are the

[669] Interview: product development, exchange (Frankfurt, 2 February 2018).
[670] Interview: general manager, global exchange (Hong Kong, 27 September 2018); also, interview: representative office, global exchange (Beijing, 25 October 2018).
[671] Interview: APAC director, FX trading platform (Hong Kong, 26 June 2017).
[672] Interview: international department, global exchange (Taipei, 13 July 2017).
[673] Interview: emerging markets strategist, global exchange (London, 11 January 2018).

> solutions. You cannot say, we only have the idea, but we don't know how to handle the 1,2,3 that's not how it's going to work.[674]

While somewhat entrepreneurial, the Chinese exchanges need to seek regulatory support, checking whether there is political backing for the cooperations they are hoping to conduct.[675] Through this integration into a state-capitalist institutional framework, the Chinese exchanges' initiatives are always vetted for whether they fit into or contradict state-capitalist logic of market organisation. Project ideas following a neoliberal logic are thereby often dismissed, do not emerge in the first place, or have to be tweaked to fit into a state-capitalist framework. As the consultant to a Chinese exchange noted, 'people [the Chinese exchanges] learned to project images of internationalisation and contributing to policy goals'.[676]

After initial regulatory approval, Chinese exchanges sign Memorandum of Understandings (MoUs) with their foreign counterparts detailing their planned cooperation, such as information exchange, joint product development, providing training for staff, and so on. MoUs thereby have an important signalling function to the Chinese state apparatus as the allocation of top management positions is not determined by quarterly earnings but rather by contributions to state policies.[677] MoUs provide their initiators with status and the possibility to collect tokens.[678] Hence, cooperation agreements are often officially commemorated with a signing ceremony attended by not only senior exchange management but also by top regulators and politicians, often in conjunction with state visits or during an economic forum.[679]

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[674] Interview: international department, financial infrastructure provider (Shanghai, 9 May 2018). According to several sources, most of these initiatives follow such a bottom-up pattern; only in individual cases, such as the Bond Connect or London Stock Connect, the process is top-down as high-level government officials make a deal that then needs to be implemented by the exchanges (interviews: product development, exchange; Frankfurt, 2 February 2018; executive director, global exchange; Singapore, 30 November 2017; business development, global exchange; Beijing, 19 September 2019; and data business director, global exchange; Singapore, 4 December 2017).
[675] This process is also linked to the previously discussed integration through Hong Kong; as one interviewee noted, often 'they [would] use Hong Kong as a testing place to try out all these initiatives and when this is successful, they can extend it to more markets or eventually globally' (interview: executive director, financial infrastructure provider; Hong Kong, 29 June 2017).
[676] Interview: consultant, Chinese exchange (Shanghai, 9 May 2018).
[677] In the last decade, Chinese exchanges signed countless MoUs; by June 2019, SSE, for instance, had signed 56 MoUs (see: http://english.sse.com.cn/aboutsse/internationalization/cooperation/).
[678] Whereas in international markets MoUs are usually just announced before the launch of a project to avoid public failures and share price fluctuations, in China this ceremonial aspect comes first and is 'crucial and indispensable' (interview: CEO, financial industry association; Shanghai, 25 April 2018).
[679] See for instance the following MoU Signing Ceremony between SSE, Luxembourg Stock Exchange, Bank of China: http://english.sse.com.cn/news/events/mediagalleries/c/4946014.shtml (last accessed 27 August 2020).

In these arrangements, the global partner exchanges often make concessions to their Chinese counterparts; one global exchange's executive director noted: 'They definitely try to leverage those relationships to kind of gain as much insight and understanding from the more developed markets as they can possibly… so, they are often asking to send different delegations to Chicago or New York'.[680] As the Chinese exchanges' aim to develop their markets, they will push for (free) trainings and education[681] – which global exchanges provide willingly to keep cooperation conversation going and maintain good relationships.[682]

To facilitate these trainings, international cooperation departments at global exchanges have to lobby internally to free up resources for partnerships which are time-consuming, cumbersome and unprofitable. As two interviewees explained:

> I manage our international business development team, and […] it's our responsibility to kind of manage these relationships, where we have to strike a balance with our internal colleagues as like how much we ask our internal colleagues to spend time on these sorts of discussions, because they have businesses to run, they have day jobs… […] So, I have seen over the years colleagues that… first they are kind of eager to do it, happy to do it, and then they kind of realise, "okay, this is happening often… they visit in 2012, have seven questions… they visit in 2013, have the same seven questions…" [laughs] Different people but a lot of really basic questions, you know? And I think it's fatiguing some of my colleagues, and quite frankly, me sometimes…[683]
>
> If you look at the amount of visits versus the amount of revenues we generate from mainland China, you will be very hard pressed to find something for that… You know, I'm not high enough in the food chain to say, "hey, this is good for PR" … and it's good for PR, you know, I think it has done good for [our] name to be hosting those parties, but they are really abusing the system these days… I think it's just ridiculous, once a quarter minimum we're hosting a delegation… How much business have we done from that? How much time, resources, employment spent? […] I mean, obviously being a salesperson that's the first question I ask, 'how much money? Where's the money?' [laughs] How much

[680] Interview: executive director, global exchange (Singapore, 30 November 2017).
[681] Interviews: general manager, global exchange (Hong Kong, 27 September 2018), executive director, global exchange (Singapore, 30 November 2017) and international department, Chinese exchange (Shanghai, 26 April 2018).
[682] Employees from Chinese exchanges would sometimes even 'intern' at international exchanges for a few months or vice versa; as one interviewee noted: 'We also sent some of our staff to European [exchanges], to spend 3 or 4 months every time… 2-6 staff members, sometimes to study, sometimes to work together with their staff… we will not touch their core business, but just the environment, and we can work together, talk to each other' (interview: international department, financial infrastructure provider; Shanghai, 9 May 2018; also: CEO, financial industry association; Frankfurt, 24 January 2018; and CEO, financial industry association; Shanghai, 25 April 2018).
[683] Interview: executive director, global exchange (Singapore, 30 November 2017); also, interview: general manager, global exchange (Hong Kong, 27 September 2018).

> money have we generated from mainland China? And if you look at how many MoUs we have signed…[684]

One frustrated sales person for a global exchange put this more bluntly – 'nobody likes doing MoUs, everyone tried [but] the Chinese never paid back'.[685] For global exchanges, however, the prospect of future access to China is an important driver of these often-lopsided arrangements, because 'they all know the huge potential that exists… so they make a lot of concessions and spend a lot of money'.[686] Whereas global exchanges gain little in these cooperations, by exploiting training opportunities the Chinese exchanges utilise them to further their national development objective of becoming globally competitive and recognised infrastructure providers.[687] This engagement with international counterparts mirrors China's overall industrial upgrading strategy where international cooperations were used to facilitate innovation and knowledge exchange facilitating national development in a state-capitalist logic (Pearson, 1991, Naughton, 2018: 374).

While sometimes these MoUs are little more than photo or training opportunities for Chinese exchanges, they can be a first step to more substantial cooperation down the road.[688] These, however, pose significant difficulties as one global exchange's executive director described:

> So, there is that kind of information exchange and then […] actual cooperative commercial-type partnerships, and to be candid, that's where it gets challenging for us. Unlike having a discussion with SGX, Eurex or LSE… where you are dealing with commercial organisations… when we have these conversations with Chinese exchanges, *there is that layer of regulator involvement that just makes it challenging to come up with cooperative efforts that are sort of going to be viable from a commercial standpoint*. So, we've had a lot of discussions that then sort of progressed to a point and then kind of hit this… I don't know… limbo land [laughs]… where the exchange says, 'well, we have to get the approval from the

[684] Interview: data business director, global exchange (Singapore, 4 December 2017).
[685] Interview: sales department, global exchange (Hong Kong, 24 September 2018).
[686] Interview: APAC director, global exchange (Singapore, 7 December 2017); also, interviews: research department, regulator (Hong Kong, 5 July 2017), international department, global exchange (London, 10 October 2017), product development, asset manager (Hong Kong, 3 July 2017) and APAC director, global exchange (Hong Kong, 30 June 2017).
[687] While important for their internationalisation strategy, this is also very relevant for the inter-organisational dynamics of Chinese exchanges. First, these business trips are a way to promote exchange staff, 'it's very obvious… they send large delegations, instead of paying a bonus they get a trip to somewhere' (interview: general manager, global exchange; Hong Kong, 27 September 2018). Second, relationship building is important for career advancement; as another interviewee put it: 'A lot of executives that might be running an exchange, they then go to CSRC or maybe take another post… so a lot of […] their resume building is like, "oh, I have this relationship with CME or with NYSE or with Deutsche Börse…" [laughs] So, it's necessary for them in that respect, right?' (interview: executive director, global exchange; Singapore, 30 November 2017).
[688] Interviews: executive director, exchange (Singapore, 29 November 2017).

> regulator' and then nothing sort of seems to… well, very little seems to progress very rapidly…[689]

While it is comparatively easy for two profit-driven exchanges to engage in joint activities, this is much more difficult with China. As one London-based investment banker noted, 'when you talk to them [Chinese exchanges], you always have to keep in mind that you are talking to the state. So, you would talk very different with them than you would talk with Eurex'.[690] These cooperations often negotiate between different institutional logics: how capital markets are supposed to function, what their role in the broader political economy is or how free these markets are from state interference. As one interviewee leading a global exchange's Asian data business noted:

> It's very difficult, commercially, to strike a deal when someone is not motivated by money, but more political means… […] If they don't want to make money with us, we had to find something else that is interesting [for them] … So, the conversation with them went from, "we're gonna make you a huge amount of money", to '*we help you* […] *have much more control* [and] regulatory compliance around your data'.[691]

Thus, in these cooperations, global exchanges adopt the language and rationale of China's state-capitalist exchanges – enabling control instead of profit determines conversations. This supports McNally and Gruin's argument (2017: 601) that global finance is malleable and can potentially accommodate China's diverging interests. Rather than China following neoliberal logic, the rule-makers of the global financial order accept China's way of market organisation.

Overall, only few MoUs turn into strategic partnerships, trading links or joint ventures. Some are limited in scope from the start, but often their failure results from incompatibility between neoliberal and state-capitalist market logics.[692] However, over the last decade more of these projects have been coming to fruition. While this sub-section discussed how cooperation processes between global and Chinese exchanges are skewed towards Chinese interests, the next sub-section explores how

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[689] Interview: executive director, global exchange (Singapore, 30 November 2017).
[690] Interview: strategy department, investment bank (London, 5 March 2019); similarly, as another interviewee noted, 'ultimately, what's required [is] regulatory endorsement for such projects to realise' (interviews: executive director, exchange; Singapore, 29 November 2017).
[691] Interview: data business director, global exchange (Singapore, 4 December 2017; emphasis added).
[692] As the objectives of Chinese and global exchanges are very different, consequently 'you can see the frustration on both sides', as one interviewee noted (interview: business development, global exchange; Beijing, 19 September 2019).

the infrastructural arrangements emerging from those cooperations (outcomes) also mostly follow a state-capitalist logic.

### 6.2.2 Frankfurt, London, Tokyo: an emerging pattern of Chinese infrastructures

Across the globe, a pattern of state-capitalist financial infrastructures is emerging out of these cooperations. The China Europe International Exchange (CEINEX), a Frankfurt-based joint venture between DBG, CFFEX and SSE, is one example for such a policy-driven financial infrastructure. After signing an MoU in 2004, SSE adapted DBG's trading technology in 2007 to facilitate China's stock market development. Over the next years, DBG then spent huge amounts of time and money on training and educating Chinese exchanges in the hope of one day creating a meaningful cooperation.

After years of training and cooperation talks, this materialised in form of a joint venture. On 17 March 2015, the establishment of CEINEX was announced at the 1st Sino-German High-Level Finance Dialogue in a joint statement by Chinese Vice Premier Ma Kai, German Finance Minister Wolfgang Schäuble and Bundesbank President Jens Weidmann that supported plans to co-establish a RMB offshore platform in Frankfurt. In May 2015, SSE, DBG and CFFEX signed an official cooperation agreement in Shanghai,[693] followed by a shareholder agreement ceremonially signed in the presence of German Chancellor Angela Merkel and Chinese Premier Li Keqiang during a Chinese-German government consultation on 29 October 2015.[694] CEINEX was then officially launched on 18 November 2015 with CEINEX Co-CEO Han Chen ringing the opening bell during festivities at the Frankfurt Stock Exchange.[695]

The establishment of CEINEX, however, is intricately linked to Chinese state policies. First, this cooperation is informed by geostrategic considerations. As a Chinese exchange's consultant noted, 'CEINEX is a politically-driven investment to

[693] See: http://english.sse.com.cn/news/events/mediagalleries/c/4945894.shtml (last accessed 23 July 2020).
[694] See: http://www.cffex.com.cn/en_new/ExchangeNews/20151029/24226.html (last accessed 23 July 2020).
[695] See: http://en.people.cn/n/2015/1120/c98649-8979241.html (last accessed 23 July 2020).

have a closer connection to Europe'.[696] While it does not necessarily make sense from a commercial perspective, CEINEX was created 'because of the China-German relationship'.[697] At the Frankfurt-based Euro Finance Week, Continental Europe's largest financial industry conference, CEINEX, for instance, sponsored a designated 'China Day', emphasising Sino-German economic and financial interdependencies[698] and the importance of CEINEX in strengthening these economic bonds between Germany and China.[699] Second, the project was framed in terms of 'serving the real economy'. As one interviewee noted, CEINEX 'is obviously another step to integrate the German and Chinese economies'.[700] Real-economic benefits of synergies between the 'German Industry 4.0' and 'Made in China 2025' industrial strategies were often highlighted and that 'CEINEX […] brings the participants from finance and the real economy together and develops innovative products to support them, […] making the financial centre better serve the real economy'.[701] Third, CEINEX was created to facilitate RMB internationalisation,[702] tasked with setting up offshore RMB trading.[703] Rather than profit-oriented, CEINEX is oriented towards national development objectives. As one interviewee working at a global exchange's business development team noted:

> I mean, of course the Chinese exchanges try to be more commercial and international these days, but because of the fundamental structure of it, there is a limitation of how commercial they can think… […] I feel the conflicting mindsets there because the DBG side, for them it's an investment: if I invest, I want to know when can I break even? 3 years, 5 years? You need to have a business plan, right? *For the Chinese shareholders, it's a step for them to go international, it's*

[696] Interview: consultant, Chinese exchange (Shanghai, 24 April 2018); this is also indicated in CEINEX's slogan 'bridging markets' (see: https://www.ceinex.com; last accessed 15 July 2020).
[697] Interview: business development, global exchange (Beijing, 7 November 2018); as another interviewee noted, 'politically, Germany is an ally' (interview: sales department, global exchange; Hong Kong, 30 June 2017).
[698] Observations: this was discussed during several panels at CHINA DAY - Euro Finance Week 2017 (Frankfurt, 15 November 2017) and CHINA DAY - Euro Finance Week 2018 (Frankfurt, 14 November 2018).
[699] Interviews: business development, global exchange (Hong Kong, 30 June 2017) and business development, global exchange (Hong Kong, 10 July 2017).
[700] Interview: APAC director, global exchange (Hong Kong, 30 June 2017); this argument was also used by the Chinese exchanges to convince their regulator of the benefits of this cooperation (interview: product development, exchange; Frankfurt, 2 February 2018).
[701] Observation: Opening Speech' by CEINEX Co-CEO Chen Han, CHINA DAY - Euro Finance Week 2017 (Frankfurt, 15 November 2017); also: CHINA DAY - Euro Finance Week 2018 (Frankfurt, 14 November 2018).
[702] Interviews: international department, global exchange (Taipei, 5 July 2017) and product development, exchange (Frankfurt, 2 February 2018).
[703] Interview: representative office, global exchange (Beijing, 26 June 2017).

> *a strategic move* rather than… I mean if we don't make money within 3 years, fine… because […] *they are thinking in long, international, strategic steps*.[704]

While CEINEX uses Deutsche Börse's trading and clearing infrastructure,[705] CEINEX is 60% owned by the Chinese exchanges and they set the tone in the cooperation, steer it towards national development goals and require CSRC approval for everything they do.[706] Consequently, CEINEX is very much integrated into state-capitalist institutional structures. This massively influences CEINEX's business model.

Originally, the incentive for DBG to join this lopsided cooperation was to launch CSI 300 futures offshore[707] – the big prize of Chinese offshore markets. As one product developer noted, 'the aim was creating a platform where [CEINEX] can develop products no one else can […] let's not beat around the bush, these are A-share index futures'.[708] CEINEX had even received regulatory approval from the CSRC as this offshore trading could have been controlled by the Chinese counterparts. However, with the 2015 market crash and changing regulatory attitudes towards financial derivatives in China, 'it was bad timing'[709] and these plans had to be abandoned.[710] While the original plan had been a compromise between neoliberal and state-capitalist logic and there was clearly a business case for derivatives (profit), the focus shifted towards equities as state-capitalist logic increasingly determined CEINEX's business strategy. After launching A-share ETFs, in 2018 CEINEX hence started listing Chinese blue-chip companies in Germany, so-called D-shares which enable regulatory-approved Chinese companies a secondary listing in Germany under Chinese Company Law. These D-shares are linked to national development objectives as a CEINEX investor presentation highlights:

- D-shares [help] build trust between Chinese companies and German business partner, promoting business expansion in Europe
- D-share IPO is an effective marketing campaign for Chinese companies in European markets

[704] Interview: business development, global exchange (Hong Kong, 7 July 2017; emphasis added).
[705] As one interviewee noted, 'legally CEINEX is not an exchange, it's just a JV, it's a shell for hosting particular types of activities using other people's infrastructures' (interview: data business director, global exchange; Singapore, 4 December 2017).
[706] Interviews: international department, global exchange (Taipei, 5 July 2017) and general manager, global exchange (Hong Kong, 5 July 2017).
[707] Interview: sales department, global exchange (Hong Kong, 30 June 2017).
[708] Interview: product development, exchange (Frankfurt, 2 February 2018).
[709] Interview: international department, global exchange (Taipei, 5 July 2017).
[710] Interview: sales department, global exchange (Hong Kong, 30 June 2017).

- D-share issuance promotes the cross-border acquisition for Chinese companies
- D-share listed Chinese companies are better positioned to carry out acquisition in Europe
- Europe is an important destination for Chinese cross-border M&A activities
- With the largest pool of hidden champions in the world, Germany offers numerous target firms for Chinese buyers (CEINEX, 2016)[711]

By facilitating the funding opportunities, 'going out' strategy and European expansion as well as international standing and recognition of Chinese companies, D-shares contribute to the 'economic reform' policy for Chinese listed companies (Chapter 4). While D-shares listing progressed only slowly, with the next envisioned project being a Shanghai-Deutsche Stock Connect – it stands to reason that state-capitalist logic will continue to inform this cooperation (Yu and Jia, 2019). CEINEX was not designed to generate profit, its purpose is to facilitate state policies and aspirations in the gradual internationalisation of China's capital markets.

Other arrangements that follow a similar pattern emerged over time. Global counterparts make concessions, and Chinese characteristics and their logic of running markets – not for profit but interlinked with political objectives – prevail. Next to Frankfurt, London is a preferred partner in Beijing's internationalisation plans.[712] This is, for instance, demonstrated by the Shanghai-London Connect, an initiative first announced during the 'UK-China Financial and Economic Forum' in 2015 with the aim of 'establishing deeper connections between UK and China's capital markets' (HM Treasury, 2016). Following this announcement, LSEG and SSE tried 'to work out a mechanism'[713] that accommodated China's state-capitalist logic. As one interviewee noted, 'China is a particular strategic focus' and that LSEG is 'looking to expand and grow [its] business connections with them, […] to be the destination of choice for Chinese companies to come to raise capital, issue debt'.[714] Therefore, LSE 'had to compromise' because 'otherwise it won't happen'.[715]

Hence, the London-Shanghai Stock Connect – formally announced by PBoC's Chairman at the China-led Boao Forum in 2018 – follows state-capitalist market logic,

[711] Observations: this was discussed during several panels at CHINA DAY - Euro Finance Week 2017 (Frankfurt, 15 November 2017) and CHINA DAY - Euro Finance Week 2018 (Frankfurt, 14 November 2018).
[712] There is, for instance, also a London-based FX trading platform between SHCH and R5 designed to facilitate offshore FX trading of Chinese banks.
[713] Interview: business development, global exchange (Hong Kong, 7 July 2017).
[714] Interview: sales director, exchange (London, 12 October 2017).
[715] Interview: emerging markets strategist, global exchange (London, 11 January 2018).

facilitating national development while maintaining Chinese control over market activities. The mechanism that was eventually worked out maintains capital controls[716] and Chinese market characteristics (e.g. no intra-day trading on the Chinese side),[717] while quotas limit trading volumes. Ironically, LSE welcomed these restrictions; as one interviewee explained:

> Having quota is very good […] because that protects you against the reversals of policy. […] If you are without quota, then you have the normal controls and these controls, there is a huge amount of greyness, and when that greyness becomes very dark… well, you are in a lot of trouble… and then it's really, really tough… […] Well, the formal agreement right now is that *there will be a dedicated quota for the initiative and [LSE] is pleased with that. It sounds a bit paradoxical, but [that way] LSE has security*…[718]

In order to make London-Shanghai Connect work, LSE accepted state-capitalist logic. Since then, its development has been largely determined by political issues. After Huatai Securities was the first company to list on LSE in June 2019, further listings – including HSBC's planned Shanghai listing – were paused as Sino-British relations were strained due to the Hong Kong protests. However, amidst the Trump administration's threats to ban Chinese companies from listing on US exchanges, China revived the London Connect by listing China Pacific Insurance in June 2020 (Liu, 2020, Stafford and Hodgson, 2020). Rather than profit-driven, London-Shanghai Connect is determined by Chinese state policies and geopolitical considerations. Motivated by the prospect of future profits from China, the LSEG plays along.

This political dimension is crucial for understanding the formation (or non-formation) of all overseas Chinese financial infrastructures. The Japan-China ETF Connect launched in June 2019 was, for instance, described as 'mostly political symbolism'.[719] The MoU for this initiative was signed during Japanese Prime Minister Shinzo Abe's visit to China in October 2018 (Mondovisione, 2018), during which Xi Jinping also stated that 'Japanese rice was delicious' – widely perceived as an indication of warming Sino-Japanese political ties (Fritz, 2018). Capital market connectivity followed (figure 6.2). Similarly, the historically good Sino-Canadian relationship initially facilitated the development of a trading link between the Toronto

[716] This was done through introducing a depository receipt (DR) model.
[717] Interview: international department, Chinese exchange (Shanghai, 26 September 2019).
[718] Interview: emerging markets strategist, global exchange (London, 11 January 2018; emphasis added).
[719] Interview: research department, regulator (Beijing, 12 September 2019).

Stock Exchange (TSX) and SHCH which would create a Chinese investment channel into the US time zone. This, however, was abandoned shortly before launch due to rising political tensions around Chinese technology company Huawei in 2019.

***Figure 6.2:*** *Opening Ceremony of the Japan-China ETF Connect, 25 June 2019.*


*Source: Flood (2019).*

Rather than profit-driven, the construction of Chinese financial infrastructures abroad is driven by state-capitalist institutional logic. To some extent, these infrastructures are another facet of Chinese economic diplomacy (Heath, 2016), assisting in the implementation and facilitation of state policies as well as the prevalence of geopolitical or national developmental interests.

As this section highlighted, Chinese exchanges have been very active in internationalising and cooperating with global exchanges – the rule-makers of global finance – and these cooperation processes and the resulting financial infrastructures largely follow state-capitalist logic. In a limited way, the Chinese exchanges have thereby themselves become rule-makers in financial markets. Of course, a clear tension in this internationalisation process is the acceptance of these infrastructures through global investors. As Töpfer and Hall (2018) noted, to really take off such initiatives might need to attract the interest of international financial institutions as well. However, these smaller Chinese ventures often only complement global exchanges' existing financial infrastructures that boast deep liquidity and are widely accepted by global financial institutions. It therefore remains to be seen whether global

financial institutions are equally approving of China's emerging internationalisation as they are of its cross-border integration through the Connects (Chapter 5).

## 6.3 Engaging the rule-takers: Chinese exchanges and developing countries

Besides engaging with global exchanges in developed markets, Chinese exchanges have also become very active in developing countries, the rule-takers of the global financial order. However, rather than complementing existing infrastructures as they often already exist and are organised by global exchanges, when it comes to developing countries Chinese exchanges more proactively shape their existing and emerging capital markets. To some degree, they thereby become rule-makers for these countries – changing the rules of how markets work and exporting Chinese state-capitalist logic of market organisation aimed at achieving Chinese policy objectives.

In recent years, dozens of cooperations between Chinese and smaller exchanges emerged across Asia, the Middle East and Eastern Europe. As a Chinese regulator noted, 'all countries need financial infrastructures' and that 'it's a strategic choice of the Chinese government' to help facilitate their development abroad.[720] In contrast to the international activities of global exchanges in developing countries which facilitate market development in order to generate profits and reproduce neoliberal market logic, Chinese exchanges' engagement with these is aimed at facilitating China's national development by contributing to state policies. Thereby, China exports its characteristics of capital market organisation.

From the perspective of many developing countries, Chinese capital markets are considered well-developed and, consequently, Chinese exchanges are often asked – and are most willing – to train local exchanges, provide technology and offer know-how to help them develop their capital markets.[721] Other such engagements involve product cooperations: the Dubai Gold Exchange, for instance, listed RMB-denominated gold futures based on SGE's gold benchmark while the Budapest Stock Exchange announced to launch a similar product (Zhang, 2018), contributing (symbolically) to China's aim to establish globally recognised benchmarks. After close

[720] Interview: research department, regulator (Beijing, 31 October 2018).
[721] Interview: APAC sales director, global exchange (Hong Kong, 30 June 2017).

cooperation with Chinese exchanges over several years,[722] the Moscow Exchange (MOEX) launched RMB/RUB futures in March 2015 and currently works on creating a unified RMB/RUB liquidity pool with CFETS (MOEX, 2019).[723] One aim of this cooperation is to reduce USD reliance, with important effects – the share of the greenback in Sino-Russian trade settlement fell from 90% in 2015 to 51% in 2019.[724]

While 'there is no business case'[725] for many of these activities, these market development processes follow a state-capitalist logic facilitating control over financial infrastructures and directing them towards national development objectives.[726] Most prominently, this can be observed in Chinese exchanges' engagement with BRI countries.

### 6.3.1 Chinese exchanges & the Belt and Road Initiative

While most empirical analyses of the Belt & Road Initiative (BRI) focus on the development of physical infrastructures (such as ports, roads, railways), as Lai *et al.* (2020) pointed out, analyses of BRI's financial aspects are scarce. However, finance is one of the five BRI connectivities (BRN, 2019), as Chinese financial players go abroad to provide financing and support other Chinese companies'.[727] But as several interviewees explained, BRI cannot fully rely on bank lending and capital markets are necessary for financing long-term projects.[728] Additionally, portfolio investment through capital markets is perceived as 'a good solution for BRI'[729] because 'FDI are

[722] Interviews: international department, global exchange (Taipei, 13 July 2017) and private equity manager (Hong Kong, 5 July 2017).
[723] See: https://www.moex.com/n25896?utm_source=www.moex.com&utm_term=rmb (last accessed 27 July 2020); as MOEX CEO Alexander Afanasiev noted: 'In recent years China has become Russia's biggest trading partner, and that cross-border commerce is increasingly settled in our national currencies. Likewise, Yuan-Rouble trading on Moscow Exchange has grown rapidly, increasing sevenfold last year alone' (MOEX, 2015).
[724] As several interviewees noted, these close Sino-Russian collaborations are of geopolitical importance (interviews: research department, regulator; Beijing, 12 September 2019; and strategy department, Chinese exchange; Shanghai, 9 May 2018); see also, Malkin (2020).
[725] Interview: APAC sales director, global exchange (Hong Kong, 30 June2017).
[726] Interviews: general manager, global exchange (Hong Kong, 5 July 2017) and research department, regulator (Hong Kong, 5 July 2017).
[727] Interview: international department, Chinese exchange (Shanghai, 26 September 2019); also, interviews: representative office, global exchange (Beijing, 26 June 2017) and managing director, broker (Hong Kong, 7 July 2017).
[728] Observations: 'RMB Internationalisation' Panel, CHINA DAY - Euro Finance Week 2017 (Frankfurt, 15 November 2017) and 'Financial Connectivity along BRI' Panel, CHINA DAY - Euro Finance Week 2017 (Frankfurt, 15 November 2017).
[729] Interview: research department, regulator (Beijing, 30 October 2018).

increasingly viewed sceptically by other states',[730] and capital markets could enable more indirect forms of financing and control.[731] While some scholars examined BRI-linked financial institutions and their financing of physical infrastructures (Ren, 2016, Yu, 2017, Anguelov, 2020, Liu *et al.*, 2020), one under-researched aspect is the construction of *financial* infrastructures along the BRI. Instead of merely focusing on financing, as the previous discussion has pointed out, financial infrastructures are an important source of power and influence.

As BRI is an important government policy, the Chinese exchanges need to contribute to this endeavour (SZSE, 2018c).[732] As one Chinese exchange official noted, 'as a state-owned exchange we must do something'.[733] SSE and SZSE, for instance, issued BRI 'Vision and Action' plans in which they state that:

> *The overall objective of the 'Vision and Action Plan' is to promote and organise the cooperation of the capital markets along the 'B&R'*, expand the direct financing channels for the 'B&R' construction, mobilise the funds and enterprises from home and abroad, especially the countries in related regions, to jointly participate in the 'B&R' construction, and build a community of shared benefits and destiny for the 'B&R' capital markets. (SSE, 2017; emphasis added)

> SZSE will […] further the bilateral cooperation with the major exchanges along the 'B&R' through signing memorandums and strategic cooperation agreements, joint venture and shareholding, business cooperation and other means, and further explore the multilateral cooperation mechanism with related exchanges, so as *to jointly build smoother channels for communication and exchanges and improve the influence of the exchanges along the 'B&R' in the international market*. (SZSE, 2018d; emphasis added)

In a more concerted effort than the previously discussed individual cooperations with global exchanges, BRI serves as an overarching policy for all Chinese exchanges. CSRC Vice Chairman Fang Xinghai, for instance, pointed out how Chinese futures exchanges should also become more involved in BRI:[734]

> Support futures companies to provide BRI clients with diversified risk management services, […] *to push forward the internationalisation of China's futures market*, enhance its pricing power in the BRI area, and build a regional commodity pricing centre. […] *[They] should actively get involved in financial infrastructure construction of the surrounding countries*, as their capital markets

[730] Interview: managing partner, law firm (Beijing, 18 October 2018).
[731] Interview: research department, Chinese exchange (China, 6 November 2018).
[732] Interviews: consultant, Chinese exchange (Shanghai, 24 April 2018); and executive director, global exchange (Singapore, 30 November 2017).
[733] Interview: international department, Chinese exchange (China, 14 October 2019).
[734] Interviews: product development, Chinese exchange (Shanghai, 11 May 2018); international departments, Chinese exchange (Shanghai, 11 May 2018); and research department, Chinese exchange (Shanghai, 14 May 2018).

> are usually weakly built, […] [and] get involved in the capital market framework design of these countries, as well as organisational arrangement, trading system and legislation, providing assistance to areas including personnel training/education, bilateral business and equity cooperation between exchanges and clearinghouses, to build a regional trade market for BRI countries, and optimizing funds and resources.[735] (CFFEX, 2018; emphasis added)

As Chinese exchange officials noted, the idea is 'to *export the China experience through the infrastructure*, the IT system build up, all the technology […] and in terms of rule-making, how to regulate the market well'.[736] Consequently, since 2016 Chinese exchanges conducted dozens of trainings and workshops with local regulators and exchanges, signed MoUs and bought stakes in several BRI exchanges. As the following sections demonstrate, the Chinese exchanges thereby also influence the workings of these markets, exercise power through these infrastructural arrangements and export state-capitalist capital markets abroad – changing the rules of the game.

### 6.3.2 Pakistan Stock Exchange… with Chinese characteristics

The case of the Pakistan Stock Exchange (PSX) – where Chinese exchanges acquired a 40% stake – is instructive in this respect. While Pakistan was the top-performing Asian capital market in 2016, the product range was limited, data leakages and unfair competition practices were endemic. In order to facilitate the development Pakistan's stock markets and curtail the influence of PSX's existing members – so that 'the big boys aren't manipulating the rules to their own advantage'[737] – Pakistan's central bank was looking for a strategic investor to buy a 40% stake in the partially demutualised exchange.[738]

As, in the words of Chinese Premier Li Keqiang, the China-Pakistan Economic Corridor (CPEC) is a 'flagship project' in China's BRI strategy, the Chinese exchanges scooped in. While foreign investors were only allowed to hold 30% of PSX, CFFEX, SSE and SZSE (together 30%) formed a consortium with Pakistan's Habib Bank (5%)

[735] In addition, CSRC representatives noted that '[they] promoted the opening up of the capital market in a safe and orderly manner and continued to strengthen the pragmatic cooperation in capital markets of "Belt and Road" countries so as to actively promote the capital market to serve the "Belt and Road" construction' (SZSE, 2018c).
[736] Interview: product development, Chinese exchange (Shanghai, 11 May 2018; emphasis added).
[737] Interview: asset manager (Karachi, 9 August 2018).
[738] In 2012, PSX was partially demutualised with 60% of the shares sold to its members while the remaining 40% were owned by Pakistan's central bank.

and China-Pakistan Investment Company (5%) – registered in Pakistan but Chinese-owned – and bought the 40% stake with a financially generous offer and the promise to modernise PSX.[739] As the Pakistani Prime Minister's adviser on finance, Miftah Ismail, stated: 'The government was endeavouring to make Pakistan's financial and capital market among the most competitive in the world [and that] the Chinese investment was a catalyst in introducing technological advancement, diversified financial products and global visibility' (Jabri, 2018). The Rs8.96 billion (US$85 million) deal was sealed on 21 January 2016.

But as one Chinese regulator noted, while 'of course mutual benefit and cooperation is important' in such collaborations '[as] shareholder [China's exchanges] can also exert some influence'.[740] The Chinese exchanges received a majority (4/7 seats) on the Board of Directors, replacing the Securities and Exchange Commission of Pakistan,[741] and obtained the right to nominate PSX's CEO, Chief Financial Officer and Chief Risk Officer. After some resistance from some Pakistani brokers, the Chinese CEO candidate, Richard Morin (the former Mauritius Stock Exchange CEO), was appointed – or 'pushed through', as one interviewee noted[742] – as PSX's first non-Pakistani CEO, while CFFEX's CEO became its vice-CEO.[743] As a Pakistani broker noted, 'after the acquisition [the] dominance of local brokers within the Board has been significantly diluted'.[744] Effectively, the Chinese exchanges superseded both the Pakistani brokers and regulators in the governance of PSX.

The Chinese exchanges also took first steps in reorganising Pakistan's market according to Chinese characteristics. Formerly, 'data leakages' were endemic which gave certain investors access to real-time trading data (think information asymmetries in HFT, only achieved through corruption). But, as one Karachi-based asset manager noted, 'they have introduced greater transparency [and] data leakages were largely reduced or are unheard of which wasn't the case in the past'.[745] As Siddiqui (2017)

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[739] Interview: managing director, investment bank (Karachi, 15 July 2018).
[740] Interview: research department, regulator (Beijing, 31 October 2018).
[741] The remaining three directors are represented by the stockbrokers and general public which own 40% and 20% stakes, respectively (see Siddiqui, 2018a).
[742] Interview: consultant, Chinese exchange (Shanghai, 9 May 2018).
[743] Richard Morin resigned in May 2019 after allegations of running a Canadian wealth management company on the side.
[744] Interview: senior manager, broker (Karachi, 30 August 2018); another interviewee noted that 'the management style has changed in a manner that the broker influence has significantly deteriorated' (interview: asset manager; Karachi, 9 August 2018).
[745] Interview: asset manager (Karachi, 9 August 2018).

noted, PSX 'tightened the regulatory regime', strengthening its role as a 'front-line regulator' through:

> (i) [standardising] the broker back office system so that all brokers follow clearly specified standardised recording and accounting procedures of their dealing/transactions with investors and the same can be audited easily by the Joint Inspection Team on regular and spot-check basis.
>
> (ii) [forming a] specialised company as subsidiary of CDC [Central Depository Company], to be called Professional Clearing Member [PCM] which will take over the responsibility of managing all assets of investors [and] will allow investors the option to use PCM rather than have assets in brokers' sub-account. (PSX, 2018)

PSX 'tightened the regulatory regime' as Siddiqui (2017) noted. In March 2020, PSX piloted SZSE's market surveillance system on its platforms which it aims to roll out by January 2021, including features such as 'real-time monitoring', 'ex-post investigation' or 'data query and reporting' (PSX, 2020). Rather than international standards, these new arrangements closely resemble China's 'see-through monitoring system' and state-capitalist logic of market management.

Next to the deputy-CEO post, CFFEX also has 3-5 full-time staff members working on-site as well as 1-2 people in Shanghai to assist the project.[746] The team aims to develop financial products and mechanisms that would link Chinese and Pakistani capital markets and enable fund raising for Chinese companies in Pakistan to further CPEC projects. CFFEX, for instance, is preparing to list futures and ETFs on PSX (DAWN, 2018) and Chinese investors visited PSX to discuss listing Pakistani products in China (Siddiqui, 2018b), with PSX also licensing its KSE-30 index to Chinese asset managers to create an ETF for the Chinese market (Mangi and Kay, 2018).

The Chinese exchanges also worked at attracting more Chinese investors into Pakistan's market. CLSA, the international arm of China's largest brokerage firm CITIC, bought a 25% stake in Alfalah Securities, a Pakistani broker. Several industry conferences and roadshows were organised to connect Chinese and Pakistani markets like the '"Belt-and-Road" Pakistan Featured Enterprise Projects Roadshow' organised by SZSE where Pakistani investment bankers introduced investment opportunities to

[746]Interviews: consultant, Chinese exchange (Shanghai, 9 May 2018), product development, exchange (Frankfurt, 2 February 2018) and strategy department, Chinese exchange (Shanghai, 24 September 2019).

Chinese investors (SZSE, 2017). Further, PSX actively promotes delegation visits from Chinese companies interested in investing into Pakistan (Daily Times, 2018). As one Pakistani broker stated, 'we believe the PSX acquisition [is] connected to CPEC and strategic asset investment at a broader level, with a case in point being the ongoing transaction of Karachi Electric'.[747] By controlling financial infrastructures, China's exchanges assist the acquisition of physical infrastructures in Pakistan. Formally only allowed 30% ownership, the Chinese exchanges seem to exert a significant degree of control over PSX, its market operations and governance.

Recently, optimism regarding Chinese BRI investment decreased with growing public backlash against the degree of Chinese involvement into Pakistan's economy. This was, for instance, exemplified by an attack on PSX through a separatist militia in June 2019, which cited Chinese investments into Pakistan and PSX in particular as reason for the incursion (Masood, 2019). Similarly, it is too early to assess whether these financial infrastructures will eventually lead to an actual integration between Chinese and Pakistani capital markets. However, at this point, what can be asserted is that Chinese exchanges are deeply entrenched into Pakistan's financial infrastructures, increasingly making the rules of how this market works. In the case of PSX, the role of private financial actors has been reduced,[748] the new management is aiming to change market dynamics[749] and new market monitoring infrastructures have been created that resemble less international practice but more Chinese market characteristics. Amidst an increasing interdependence of Pakistan and China in the context of CPEC (Afridi and Khalid, 2016), by controlling and actively shaping Pakistan's financial infrastructures, Chinese economic actors occupy another position of power within Pakistan's political economy.

[747] Interview: senior manager, broker (Karachi, 30 August 2018); Shanghai Power attempted to buy a 66.4% stake in K-Electric, Pakistan's largest electricity company, 'the largest M&A deal in Pakistan in a decade' (French, 2016); at the time of writing this deal is still ongoing, awaiting regulatory approval (Shahid, 2020).
[748] Interview: senior management, broker (Karachi, 30 August 2018).
[749] Interview: asset manager (Karachi, 9 August 2018).

### 6.3.3 From Abu Dhabi to Dhaka: Chinese market infrastructures along the BRI

PSX is the earliest Chinese acquisition and most advanced BRI cooperation. However, similar developments unfolded in other BRI capital markets. From MoUs, cross-border capital raising to ownership stakes, Chinese exchanges are constructing financial infrastructures in their image.

In the process of creating Astana International Financial Centre (AIFC), for instance, Kazakhstan's government was looking for partners to developing the new exchange Astana International Exchange (AIX). After signing a first MoU in May 2015 (CSRC, 2018), a series of ensuing delegation visits culminated in SSE acquiring a 25.1% stake, becoming AIX's largest shareholder.[750] For China, AIX provided 'additional impulse for the successful implementation of the Silk Road Initiative',[751] and consequently SSE holds positions on the Board of Directors, has operational staff on-site and contributes the Deputy-CEO.[752] Reversely, as AIX's CEO Tim Bennett noted: 'They [SSE] are contributing staff and resources but more importantly they are providing a gateway for us to talk to Chinese funds, Chinese brokers' (Auyezov, 2018).[753] At an SSE promotion event on Kazakhstan's BRI investment opportunities, Akmetzhan Yesimov, Chairman of Kazakhstan's SWF, similarly stressed that listing Kazakh SOEs[754] would 'further offer new development opportunities for China-Kazakhstan industrial cooperation' (cited in SSE, 2018b, also Xinhua, 2018b). Following SSE's close engagement, e.g. by organising several investor roadshows, it is no surprise that: China Development Bank opened one of the first representative offices at AIFC; CITIC acquired Kazakh universal bank Altyn Bank; China International Capital Corporation (CICC) was AIX's first non-Kazakh member;[755] or

[750] During the launch of AIX in July 2018 it was also announced that China's Silk Road Fund would also buy a 5% stake in AIX (Auyezov, 2018), increasing China's influence on this important piece of financial infrastructure.
[751] This was also confirmed by AIX CEO Bennett who noted that together with SSE, 'we want to create a marketplace that will allow the trading securities that are involved in that Belt and Road Initiative' (cited in Bardavid, 2018).
[752] Interviews: product development, exchange (Frankfurt, 2 February 2018) and research department, regulator (Beijing, 31 October 2018).
[753] Similarly, one interviewee noted that SSE actively 'participate[s] in the operation of the stock exchange, […] provide[s] advice and know how' (interview: international department, Chinese exchange; Shanghai, 26 April 2018).
[754] This is in the context of an extensive US$70 billion privatisation programme of Kazakhstan's SOEs via AIX which is an important goal of Kazakhstan's government.
[755] Interview: international department, Chinese exchange (Shanghai, 26 September 2019); by August 2020, three Chinese brokers had become AIX members, forming the largest foreign group of AIX members (see: https://www.aix.kz/aix-membership/aix-members/trading-members/; last accessed 26 August 2020).

China Construction Bank listed AIX's first RMB-denominated bond in April 2020 (AIX, 2020). Despite the involvement of Nasdaq and Goldman Sachs as Western minority shareholders, AIFC/AIX seems to be oriented decisively eastwards as SSE has considerably shaped the development of Kazakhstan's new financial hub in accordance with BRI and Chinese national development interests.

Another Chinese advancement into BRI financial market infrastructures has been SSE's and SZSE's investments into the Dhaka Stock Exchange (DSE) in May 2018 where they bought a 25% stake for US$120 million and also pledged technology support worth US$37 million (Anas and Kuronuma, 2018). Similar to PSX and AIX, the Chinese exchanges aim to facilitate market development, thereby creating deep and lasting financial ties between Bangladesh and China.[756] The Chinese exchanges aim to share their 'extensive market development experience and associated regulatory practices', develop new financial products and assist 'in designing, promoting and showcasing Bangladeshi indices in China' and generally work with DSE 'to further deepen Sino-Bangladesh capital market cooperation and promote the building of Sino-Bangladesh "Financial Corridor"' (Mahmud, 2018b, 2018a, SSE, 2018a, SZSE, 2018a). By linking DSE to SZSE's cross-border financing platform V-Next, giving SZSE a seat at the Board of Directors and jointly developing a new benchmark index for Bangladesh's stock market, this emerging integration is gradually taking shape.

While PSX, AIX and DSE are the most advanced cases for establishing financial infrastructures along the BRI, they form part of a broader development.[757] In May 2018, for instance, Abu Dhabi Global Market and SSE announced to jointly establish an Abu Dhabi-based 'Belt and Road Exchange' (Andreasyan, 2018)[758] and the newly established Yangon Stock Exchange is also looking to cooperate with Chinese exchanges as evermore BRI-linked Sino-Myanmar joint ventures are established (Pao, 2017). SZSE also organised BRI investment promotion events in South East Asia (SZSE, 2018b, 2018c), plans technology cooperations with other BRI exchanges (Li, 2017)[759] and established V-Next, a 'cross-border capital service

[756] Interview: research department, Chinese exchange (China, 6 November 2018).
[757] Interview: research department, Chinese exchange (China, 18 October 2018).
[758] This also followed a similar pattern of on-site visits and engagement with key stakeholders and was announced after Xi Jinping visited Abu Dhabi (interview: research department, regulator; Beijing, 30 October 2018).
[759] SZSE and Laos Securities Exchange (LSX), for instance, signed a MOU 'to deepen capital market collaboration through information sharing, personnel exchanges, experience sharing, and personnel training and mutual visits' which was followed by the China-Laos Capital Market Cooperation Communication Seminar organised via V-Next to attract Chinese investors to Laos (SZSE, 2018b).

platform' which facilitates 'the integration of high-quality industries and capitals between China and other BRI countries and developed markets' (SZSE, 2018b). By June 2018, V-Next had held 700+ roadshows which secured over RMB22 billion financing from Chinese investors into BRI projects.[760] In addition, SZSE and SSE encouraged foreign and domestic companies and governments in BRI countries to list BRI bonds on their trading platforms[761] (Suokas, 2018), while CEINEX listed AAIB-Silk Road Green bonds in 2017 (CEINEX, 2017). Further, CSRC advocated for establishing a Shanghai-based industry forum to facilitate BRI exchange cooperation (Xinhua, 2018a). These observations clearly outline the gradual emergence of a network of Chinese financial infrastructures aimed at facilitating BRI.

In all these cases, Chinese exchanges aim to influence the workings and directions of these markets – from monitoring systems, investor structure to index/product creation. As Zeng Zheng, Director of the NDRC Market Research Institute, noted: 'BRI helps you to set standards'.[762] When helping to develop other markets, presumably these will most likely be more aligned with Chinese practices of market organisation than with neoliberal ones. As two interviewees noted, 'exchanges are also infrastructures, right? you can influence policymakers, that's how you get a foot in the door…'[763] and that 'when they buy stakes in AIX or PSX… it gives them a lot of influence and clout in a way they would not be able to have by taking a stake in a Western exchange, right?'[764]

As Beeson (2018: 241) noted, 'if the BRI becomes a reality it will quite literally cement China's place at the centre of a regional network of production processes that will inevitably enhance China's overall economic and geopolitical importance'. By controlling capital markets and influencing market outcomes, a new level of new interdependencies emerges, and new power relations are forged between China and BRI countries. Similar to the argument that in neoliberal markets finance has power over the state due to states' increasing entanglement with markets (Braun, 2018), one

[760] Observation: 'What does the Belt and Road Initiative mean for the market' Panel, FOW Derivatives World Asia (Hong Kong, 11 April 2018); also, interview: research department, Chinese exchange (China, 6 November 2018).
[761] By June 2018, SSE had approved and listed BRI bonds worth RMB80 billion. No data is available for SZSE. This also includes so-called panda bonds issued by foreign companies; Russia's United Company RUSAL was the first company to issue such a bond, placing a RMB1 billion bond on SSE in March 2017.
[762] Observation: 'New Model in International Cooperation' Panel, CHINA DAY - Euro Finance Week 2018 (Frankfurt, 14 November 2018).
[763] Interview: APAC director, global exchange (Hong Kong, 27 September 2018).
[764] Interview: executive director, global exchange (Singapore, 30 November 2017).

could argue that the international activities of China's exchanges increases the power that China has vis-à-vis BRI countries through its growing entanglement with their financial market infrastructures.[765]

This also has implications for the global financial order. While Summers (2020), for instance, argues that BRI is fundamentally constrained because it relies on a US-dominated global financial system, the construction of 'Chinese' financial infrastructures along the BRI indicates how China can potentially circumvent US structural power in finance. As one global exchange's emerging market strategist noted, we are 'passing the moment when a lot of the infrastructure is owned by the Americans' and that instead 'we are seeing right now a shift in power' with China acquiring a 'standard setting role' in those countries.[766]

Individually, Pakistan, Kazakhstan or Bangladesh are not important markets, they are after all small rule-takers in the contemporary global financial order. But similar to the potential effects of the collective construction of physical infrastructures along the BRI, the creation of these financial infrastructures with Chinese characteristics along the BRI significantly deviates from the norms and practices of the contemporary global (financial) order. Hence, through its engagement with the 'backwaters' of global finance where it has gradually become a rule-maker, China is challenging the neoliberal, US-dominated global financial order.

The last two sections have explored the cooperations of Chinese exchanges with exchanges globally, both rule-takers and rule-makers. The following section hence analyses China's exchanges' engagement with US-based exchanges which have so far not been part of this process. Rather than cooperative, with respect to US-dominated market infrastructures, the internationalisation of Chinese exchanges is more confrontational, as China's exchanges actively contest US financial dominance and market practices.

[765] Interview: business development, global exchange (Beijing, 7 November 2018).
[766] Interview: emerging markets strategist, global exchange (London, 11 January 2018).

## 6.4 Contesting hegemonic infrastructures: China and US-dominated markets

While the largest global exchanges and markets are US-based, the US is notably absent from Chinese exchanges' internationalisation process.[767] Until October 2019, not a single Sino-American financial infrastructure had emerged out of their cooperation agreements.[768] While there had been gradual rapprochement and attempts of exchange cooperation during the Obama era, and especially CME – the world's largest exchange group – has been engaged with Chinese exchanges and had even signed a joint venture agreement with CFETS in 2015, geopolitical rivalry has always tainted these cooperations. As one interviewee noted 'CME has not made so much progress… mainly because of the geopolitical situation between China and US…'.[769] With Donald Trump's election, this joint venture basically died and 'all US-China finance cooperations were suspended by the Chinese authorities'.[770]

These disputes over financial infrastructures ultimately result from the fact that the contemporary global financial order is US-dominated. As a plethora of IPE literature has demonstrated, 'free' markets are not fair, but provide advantages for some while disadvantaging others (Chang, 2002a, Weiss, 2005: 744-745). From a US perspective, the global financial order is deliberately liberal as to ensure continued US power through financial practices and market dominance (Seabrooke, 2001, Konings, 2009, Panitch and Gindin, 2012, Winecoff, 2015). The US state actively promoted neoliberal (financial) globalisation and supported the global dominance of US corporations which in turn cemented its global power – US-based global exchanges are one of these groups. As several interviewees highlighted, US absence in China's internationalisation process reflects the existing Sino-American geopolitical rivalry – which was only aggravated through the ensuing trade war.[771] On the one hand, the US has an incentive to slow China's rise as a financial power (Cohen, 2018: 160). As the

[767] Parallels also exist in the process of RMB internationalisation; see Töpfer and Hall (2018: 1057).
[768] In September 2019, CME and SGE announced the cross-listing of their gold futures contracts. While a departure from the existing trajectory, this is a relatively unimportant cooperation, especially as other more substantial cooperations failed due to political tensions; as one interviewee noted, 'this is no technology cooperation, what makes it easier' (interview: business development, global exchange; Beijing, 19 September 2019).
[769] Interviews: international department, global exchange (Taipei, 5 July 2017) and business development, global exchange (Beijing, 7 November 2018).
[770] Interview: business development, global exchange (Beijing, 7 November 2018); also, interviews: representative office, global exchange (Beijing, 26 June 2017), APAC director, global exchange (Hong Kong, 30 June 2017) and business development, global exchange (Hong Kong, 7 July 2017).
[771] Interviews: sales department, global exchange (Hong Kong, 30 June 2017), emerging markets strategist, global exchange (London, 11 January 2018) and representative office, global exchange (Beijing, 25 October 2018).

executive director of a financial infrastructure provider noted, 'globally the USD is dominant, [...] and now we have the offshore RMB, and we can imagine, if the RMB grows very well, globally, then who has more impact? So, they [the US] might want this process to slow down a little bit'.[772] From the perspective of some Chinese regulators, 'the US [are] trying to push us out of the international [financial] system'.[773] This mirrors the argument by Farrell and Newman (2019) on the weaponisation of financial infrastructures, as could be observed with SWIFT in the cases of Iran and Russia.

On the other hand, China is poised to gain influence and fight back against both US attempts to thwart China and what it perceives as unfair practices that benefit the US while disadvantaging China.[774] As one interviewee noted, 'China is not going to let the Americans come and tell them how to run their markets'.[775] Instead, 'China will build up their own infrastructure',[776] thereby openly defying market practices and norms facilitated by the US (exchanges). As Beeson (2018: 245; emphasis added) notes, a main driver of China's assertiveness and international expansion, 'is the sense that *the existing institutional order reflects and entrenches a form of American hegemony that works against Chinese interests* and is designed to contain China's international influence'. Hence, rather than cooperative with respect to global financial infrastructures US-China relations have been more confrontational in nature.

### 6.4.1 Conflicted relation: disputing infrastructures from Chicago to Singapore

While championing free and open (neoliberal) markets and facilitating their development abroad, the US is relatively protective of its domestic capital markets.[777] A case that was repeatedly invoked by interviewees was how in the early 2000s the US prevented Eurex – back then the world's largest futures exchange – to establish a US-based business which would have likely crushed domestic futures exchanges.[778]

[772] Interview: executive director, financial infrastructure provider (Hong Kong, 29 June 2017).
[773] Interview: research department, regulator (Beijing, 30 October 2018).
[774] Interviews: research department, Chinese exchange (China, 18 October 2018) and research department, regulator (Beijing, 30 October 2018).
[775] Interview: strategy department, exchange (Hong Kong, 30 June 2017).
[776] Interview: senior management, insurance company (Shanghai, 16 October 2019).
[777] Interview: product development, exchange (Frankfurt, 2 February 2018).
[778] Interviews: representative office, global exchange (Beijing, 25 October 2018), product development, exchange (Frankfurt, 2 February 2018) and business development, global exchange (Frankfurt, 2 November 2017).

This also characterises the US-China relationship when it comes to financial infrastructures.

An instructive case is the Security Exchange Commission's (SEC) refusal of Chicago Stock Exchange's (CHX) acquisition through Chinese investors. In 2016, a Chinese-led consortium[779] agreed to buy CHX, the ailing, and last independent US-stock exchange where <1% of US equity trading was conducted. This was an attempt to 'buy market infrastructure outside of China'[780] and, more importantly, would have given its Chinese investors a US-exchange license.[781] However, the planned acquisition was questioned by US lawmakers and also became a topic in Trump's presidential campaign who vehemently opposed the deal (Weinland and Lockett, 2017),[782] exactly because it was not perceived as a 'normal' acquisition but linked to China's state-capitalist system.[783] Apparently, the fear was that 'once you let the Chinese in, it's too late'.[784] Consequently, the SEC did not approve the acquisition (for implausible reasons) and, NYSE-owner ICE quickly bought CHX with a huge premium to the bewilderment of observers.[785] As one *Bloomberg* reporter noted, the 'takeover raises the question of why a behemoth would bother with a company that's an afterthought in the U.S. stock market' (Baker, 2018). What this episode highlights is how Sino-American geopolitical rivalries also play out in the provision of financial infrastructures.[786] Other restrictions, such as difficulties for Chinese brokers to operate in US markets or US extraterritorial regulatory reach fall into the same category.[787] Chinese attempts to gain a foothold in US markets were thwarted by the global hegemon.

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[779] Notably, this consortium did not include the Chinese stock exchanges but consisted of several Chinese holding firms active in real estate, financial services as well as US-based private investment and financial firms (Bullock, 2018).
[780] Interview: CEO, financial industry association (Shanghai, 25 April 2018).
[781] Interview: APAC director, global exchange (Hong Kong, 27 September 2018).
[782] During a presidential debate in 2016 after the deal was announced, Trump stated: 'China bought the Chicago Stock Exchange — China, a Chinese company. They are taking our jobs. They are taking our wealth. They are taking our base' (cited in Flitter, 2018).
[783] Interview: emerging markets strategist, global exchange (London, 11 January 2018).
[784] Interview: APAC director, global exchange (Hong Kong, 27 September 2018).
[785] ICE paid US$70 million for CHX compared with US$20-30 million that CHX and the Chinese consortium had agreed on (Bullock and Platt, 2018).
[786] Interviews: emerging markets strategist, global exchange (London, 11 January 2018), CEO, financial industry association (Shanghai, 25 April 2018) and APAC director, global exchange (Hong Kong, 27 September 2018).
[787] Interviews: senior management, insurance company (Shanghai, 16 October 2019) and research department, regulator (Beijing, 30 October 2018).

Reversely, China also actively challenges the practices and market structures of US exchanges. This was, for instance, highlighted by a dispute between US-based ICE Group and China's ZCE that took place in Singapore. In 2015, ICE announced it would list futures contracts on its new Singaporean exchange that were copy-cats of ZCE contracts. While such replications are standard procedure in neoliberal markets which facilitate profit and efficiency, ZCE feared losing liquidity and pricing power – a clear break with state-capitalist logic of running markets. In addition, ICE's approach was perceived as very arrogant by Chinese market participants; according to one global exchange's China representative: 'At the last day of FIA Asia, ICE announced without any consultation or anyone knowing that they would list ZCE copy cats on ICE Singapore… and then they did not even show up to CIFD [China International Derivatives Forum] in Shenzhen the other day… [through] this the CSRC lost face'.[788]

Subsequently, ZCE threatened to sue ICE and the CSRC approached the Monetary Authority of Singapore (MAS) to stop the launch of ICE's products.[789] In the end, ICE Singapore opened with a delay – without the copy-cat contracts (Stafford, 2015). As one interviewee noted, '[ICE] more or less decided to back down, not wanting to ruffle any feathers'.[790] This was a decisive event as the *Financial Times* noted:

> The move by the Zhengzhou Commodity Exchange is likely to send shockwaves through the global futures industry because it signals that China will not tolerate foreign exchanges copying its futures contracts, and comes despite the practice of offering "lookalike" contracts being accepted around the world for years. It also *highlights how China appears determined to challenge a long-accepted industry norm in the way futures markets function*. (Grant, 2015; emphasis added)

Effectively, China had pressured the US-based, world's second largest exchange group to delist contracts in a third country because they contradicted China's state-capitalist logic of how capital markets should function, effectively exporting their institutional logic. Essentially, they challenged how markets created by global rule-makers such as ICE work, thereby actively contesting hegemonic US market organisation practices. As threats by the Trump administration to force the delisting of Chinese companies

[788] Interview: business development, global exchange (Beijing, 7 November 2018); FIA Asia refers to the annual FIA Asia Derivatives Conference held in Singapore; FIA Asia and CIFD have become the two most important industry events for Asian capital markets; they are always held consecutively in the same week and participants very often attend both events.
[789] Interview: commodities product development, exchange (Singapore, 1 December 2017).
[790] Interview: APAC sales director, global exchange (Hong Kong, 30 June 2017).

from US exchanges demonstrate, financial infrastructures have gradually become a 'battleground' in an increasingly confrontational US-China relationship.

### 6.4.2 Challenging the benchmarks: USD-markets and commodity pricing power

China's contestation of US financial infrastructures becomes most obvious in global commodities markets. To facilitate national development goals, Chinese exchanges have actively challenged US-dominated, USD-denominated commodities markets in order to gain 'commodity pricing power' (大宗商品定价权).

China is one of the largest consumers of commodities globally – consuming 14% of crude oil, 55% of iron ore, 50% of coal and 65% of copper production, globally (Roberts *et al.*, 2016: 111). But as China is resource-poor, it needs to import most of these commodities. As one interviewee noted: 'China is a growing economy, so you need commodities – you need oil, you need gold, you need platinum, aluminium, you need steel… So, they want to have a say in the supply and demand chain'.[791] In addition to these economic issues, stabilising food prices is also an important issue for securing social stability within China (Huang McBeath and McBeath, 2010).[792] Hence, commodity pricing is an important issue for the Chinese authorities; as one exchange's strategy director noted:

> Well, think from their point of view… you know, they are the world's biggest customer and if that doesn't give you some pricing power, then what does? They don't want to be a price taker, and *they certainly don't want to be a price taker in commodities that they regard as strategic for their economic development when the institutions, the group of investors that is setting that price is in the US*. So, there is a geopolitical angle, for sure…[793]

Next to investments into physical infrastructures such as mines and commodity trading companies (Mohan and Power, 2008, Yao *et al.*, 2010), a crucial yet understudied dimension in China's resource strategy (Ayers, 2013, Economy and Levi, 2013) are

[791] Interview: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017).
[792] The nature of this challenge changed over time; as the *Financial Times* noted, 'for the leadership today, the problem is not so much keeping China fed but rather providing middle-class Chinese consumers with the foods they desire at prices they can accept' (Shepherd, 2020); this feeds back into the discussion in Chapter 4 on using capital markets to facilitate social stability. This is also exemplified by discussions about the social implications of rising pork prices due to an African swine fever epidemic, which Hu Chunhua, Chinese vice-premier and member of the politburo, called a 'major political task' (cited in Hancock, 2019).
[793] Interview: strategy director, exchange (Singapore, 29 November 2017; emphasis added); also, interview: executive director, global exchange (Singapore, 30 November 2017).

commodity futures markets[794] which function as reference prices or benchmarks for physical commodity trading (Chapter 2).

While historically, commodity trading took place in production sites for commodities, production and trading have been increasingly decoupled – LME, for example, is the world's largest base metals exchange but the UK is no longer a major producer or consumer of copper, zinc or tin.[795] Benchmarks are formed where liquidity is concentrated, and basically all commodity benchmarks are based on futures trading conducted in New York, Chicago and London, trading is denominated in USD, dominated by US financial institutions and organised by US-based exchanges groups (Newman, 2009, Bush, 2012: 128).[796] For instance, if China wants to import oil, 'even if they do not like the WTI price – there's nothing they can do, they need to use it' because that is the global benchmark.[797] As one exchange's executive director noted, 'there are a lot of customers who are sourcing in Asia, delivering in Asia… […] physical storage and trans-shipment tends to be here, but the liquid futures markets are not […], they tend to be dominated by all the US exchanges; [but] for them the US price is not the ideal reference price'.[798] As Spiro (1999) highlighted in the case of petrodollars, commodity futures benchmarks are therefore important building blocks of US financial hegemony in the global financial order (Eichengreen, 2012: 123).

Whereas discussions about global commodity markets had been going on for a while in China, a rethinking took place after the 'battle of the beans' in 2004 (Giraudo, 2020) and the 2007-2008 global food crisis (see Ghosh, 2010, Clapp and Helleiner, 2012).[799] In that period, as 'futures rose sharply, and severe market turmoil hurt Chinese producers' the idea emerged 'to avoid these fluctuations'.[800] First announced in a 2012 report from newly elected president Xi Jinping, 'commodity pricing power' became a key policy objective in China's financial market internationalisation.[801] As one Hong Kong-based broker noted, 'there is an increasing influence from the political

[794] Interview: APAC director, financial infrastructure provider (Hong Kong, 26 June 2017).
[795] Interview: financial derivatives department, broker (Hangzhou, 24 April 2018).
[796] Most global commodity benchmarks are traded on CME (CBOT, COMEX, CME, NYMEX) and ICE (NYBOT, LIFFE, International Petroleum Exchange); LME, which was acquired by HKEx, is a notable exception.
[797] Interview: senior management, commodity trading platform (Hangzhou, 22 April 2018).
[798] Interview: executive director, exchange (Singapore, 29 November 2017).
[799] Interview: product development, exchange (Hong Kong, 12 July 2017).
[800] Interview: research department, Chinese exchange (China, 18 October 2018).
[801] Interviews: research department, regulator (Beijing, 30 October 2018), product development, Chinese exchange (Shanghai, 27 September 2019), international department, global exchange (Taipei, 13 July 2017) and business development, global exchange (Hong Kong, 10 July 2017).

side that "China cannot really just be a price taker"'.[802] Hence, the Chinese exchanges aim to gain sufficient market global shares to become recognised benchmarks and, thereby, 'have a fair say'[803] in the global pricing of commodities.

This idea has also been met with criticism. Free market advocates argue that these prices are set by markets and that it's a 'misconception'[804] and 'absurd' that China wants to have a 'say' in pricing and that Chinese companies should simply participate in global markets.[805] However, there are several factors through which global commodity markets *do* represent an uneven playing field for Chinese investors. First, while some Chinese investors started trading on US commodity exchanges and trading during Asian time zones has increased substantially in recent years,[806] only few Chinese companies can participate in global markets due to Chinese capital controls.[807] Second, prices created in Chinese markets would better reflect local demand and supply rather than those determined in the US where Chinese companies felt they had to pay a premium. As one interviewee working for a global exchange's China operations noted:

> Every five years they need to agree on a price with the Australian iron ore producer backed by the Western buying power, and they always got very ripped off in the negotiations, you know, because you have to reference to the market price and the market didn't take place anywhere near you, it takes place globally… so, that's something the government is putting focus on.[808]

Overall, 'there has been a lot of talk that when a Chinese order came in[to international markets], that the price jacked up', as one interviewee noted.[809] While some interviewees suggested this is because 'they are just not good at trading [because] they do not really separate large trades into smaller ones or think forward to smooth out fluctuations',[810] others indicated that there might be 'front-running' through more

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[802] Interview: managing director, broker (Hong Kong, 7 July 2017); also, interview: product development, exchange (Frankfurt, 2 February 2018).
[803] Interview: product development, exchange (Frankfurt, 2 February 2018).
[804] Interview: research department, Chinese exchange (Shanghai, 14 May 2018).
[805] Interview: general manager, global exchange (Hong Kong, 27 September 2018).
[806] Interview: research department, regulator (Hong Kong, 5 July 2017).
[807] Interviews: sales department, commodities exchange (Singapore, 30 November 2017), APAC director, global exchange (Hong Kong, 27 September 2018) and international department, global exchange (London, 10 October 2017).
[808] Interview: business development, global exchange (Hong Kong, 7 July 2017).
[809] Interview: product development, exchange (Hong Kong, 26 September 2018); another interviewee stated that 'Chinese (companies) felt unfairly treated, cheated or discriminated against in global market because when they want to buy, prices go up, when they want to sell, prices go down…' (interview: consultant, Chinese exchange (Shanghai, 9 May 2018).
[810] Interview: consultant, Chinese exchange (Shanghai, 9 May 2018).

sophisticated algorithmic traders.[811] Some even suggested that the US was telling Korea and Japan to buy iron ore to increase the price for China;[812] according to several sources such conspiracy theories are widespread among certain circles of Chinese academics, politicians and regulators.[813] While it is difficult to verify these claims, important is that many Chinese authorities *think* that markets are stacked against them which motivates the push towards commodity pricing.

However, even if participation was possible and Chinese companies were not cheated in global markets, this still leaves the third issue of market organisation and regulation. Importantly, Chinese companies and authorities have 'no good relations to the FED and financial officials in the US',[814] which was summarised by one global exchange's emerging market strategist as follows:

> The way I look at it is this shift of power, yes? It's the price taker vs price setter, […] the structure of the market… […] Because what is traded in Chicago… the China macroeconomic environment and supply and demand might have a huge impact, *but the Chicago bourse is going to be supervised by a US institution. It's them who are going to be assessing any moment of crisis, any volatility and any remedy to an unstable market…* whether its margining or whatever… […] and currency… in which currency they are going to be denominated… […] this is very, very important… all of us as economists, we all have studied the advantages for the US of the world being USD-dependent, right?[815]

If these markets were situated in China and regulated by Chinese exchanges, the state could exert control over these markets – 'if they have better control of the exchange, of the market operation, that [cheating] should not be happening'[816] and that Chinese customers 'would not be dependent on CME, on the US'.[817] The Chinese exchanges could detect 'insider information, market manipulation or mispricing' through see-through monitoring,[818] above-mentioned front-running and algorithmic trading could be curbed by adopting 'Chinese' trading rules, and oligopolistic behaviour by producing companies as it exists in global markets could be forestalled (Massot, 2020:

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[811] Interview: product development, exchange (Hong Kong, 12 July 2017).
[812] Interview: research department, regulator (Beijing, 30 October 2018).
[813] Interviews: consultant, Chinese exchange (Shanghai, 9 May 2018), general manager, global exchange (Hong Kong, 27 September 2018) and research department, Chinese exchange (Shanghai, 14 May 2018).
[814] Interview: research department, Chinese exchange (China, 18 October 2018).
[815] Interview: emerging markets strategist, global exchange (London, 11 January 2018; emphasis added); also, interview: representative office, global exchange (Beijing, 25 October 2018).
[816] Interview: representative office, global exchange (Beijing, 25 October 2018).
[817] Interview: APAC director, global exchange (Hong Kong, 27 September 2018).
[818] Interviews: product development, Chinese exchange (Shanghai, 27 September 2019) and consultant, Chinese exchange (Shanghai, 9 May 2018).

9). As one Chinese asset manager noted, 'their aim is to set the rules themselves by creating their own products – because this is where the power lies'.[819] Further, having an RMB-denominated contract could facilitate RMB internationalisation and eliminate the currency risk that Chinese companies currently face as they need to trade everything in USD (Mathews and Selden, 2018).[820] As one interviewee working in Hong Kong for a global exchange noted, 'the crude oil that they buy in Middle East, in Russia… it's all done in USD… […] so, *they want to their own benchmark to block the influence of the US*'.[821]

Having their own benchmarks would give Chinese companies 'better' prices than the global prices they had to accept otherwise. As China's *Global Times* stated 'commodity pricing power reflects a country's national strength in the existing world economic order' (Zhe, 2016). Therefore, China is trying hard to gain ground in global commodity markets. As CSRC Vice Chairman Fang Xinghai noted in 2016: '[China] is facing the chance of a lifetime to become a global pricing centre for commodities […] it would be a "historic mistake" not to grasp [this] rare opportunity' (cited in Tan, 2017). The main policy, thereby, has been for the Chinese exchanges to develop and internationalise strategically important commodity contracts,[822] starting with crude oil, gold and iron ore.

While these are the first Chinese commodity contracts where international investors are officially allowed to invest and rules slightly differ, the rules and contract specifications are very similar to domestic Chinese markets (Chapter 4). Contracts are denominated in RMB,[823] overseas participants can only trade through Chinese brokers

[819] Interview: managing partner, asset manager (Shanghai, 15 May 2018).
[820] Interviews: strategy department, exchange (Hong Kong, 30 June 2017), hedge fund manager (Shanghai, 16 April 2018), business development, financial infrastructure provider (London, 9 January 2018) and research department, Chinese exchange (China, 18 October 2018).
[821] Interview: business development, global exchange (Hong Kong, 19 September 2018; emphasis added).
[822] Maintaining a controlled opening process, instead of completely opening their markets, the Chinese exchanges 'choose a particular product and then they will just use it as a testing ground and then they open it up one by one' (interview: research department, regulator; Hong Kong, 5 July 2017; also, interviews: business development, global exchange; Hong Kong, 7 July 2017; emerging markets strategist, global exchange; London, 11 January 2018; product development, exchange; Hong Kong, 12 July 2017; and business development, global exchange; Hong Kong, 10 July 2017).
[823] As one interviewee noted, '[while] you can use USD or RMB as collateral margin, […] for the calculation of clearing only RMB is used' (interview: product development, Chinese exchange; Shanghai, 27 September 2019).

and there is no DMA,[824] stringent compliance and reporting requirements exist,[825] every trader needs to take an exam, something similar to the 'one household, one account' system (一户一码制度) exists that enables 'see-through' monitoring (穿透式监管),[826] there is no portfolio margining that would decrease the cost of trading, and 'window guidance' (窗口指导) is conducted 'to help investors to manage the process'.[827] As David Martin, Managing Director at J.P. Morgan Securities Singapore, who participated in industry consultation for INE's contract noted: '[this contract] is MiFID 10 on steroids'.[828] Although China's exchanges consulted international investors in their contract design,[829] their products (mostly) maintained the characteristics of China's state-capitalist capital markets – ultimately 'it's an international market with Chinese characteristics'.[830]

The first and most important contract in this process were crude oil futures listed on Shanghai International Energy Exchange (INE).[831] Global oil markets are dominated by WTI and Brent, USD-denominated contracts traded in New York and London on US exchanges (CME and ICE). And while these 'light sweet' grade crudes only make up 19% of global oil production, they are the reference prices for almost every oil transaction globally. China in contrast mostly imports 'medium sour' crude that while accounting for 44% of global production is mostly referenced to WTI and Brent where they pay a premium.[832] As China imports 70% of its consumed crude oil,

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[824] On DCE (iron ore) and ZCE (PTA), trades must go through a Chinese broker; further, while trading on INE can be conducted through foreign brokers, trades need to be cleared through Chinese brokers so that the CFMMC can continue to monitor trading behaviour (interview: product development, Chinese exchange; Shanghai, 27 September 2019; and observation: 3rd FOW China & Global Derivatives Market Development Forum; Dalian, 16 October 2018).

[825] Interviews: sales department, global exchange (Hong Kong, 27 September 2018) and consultant, Chinese exchange (Shanghai, 9 May 2018).

[826] Every international investor on DCE, for instance, needed to open a Non-Resident Account (NRA) account (a regulatory requirement by SAFE), even if they are different entities of the same institution (e.g. Trafigura Japan, Trafigura Singapore) (observation: DCE Iron Ore Futures Internationalisation Symposium; Dalian, 15 October 2018).

[827] Interview: product development, Chinese exchange (Shanghai, 27 September 2019).

[828] Observation: 13th Annual Asia Derivatives Conference (Singapore, 29 November 2017); this was a reference to HKEx CEO Charles Li's earlier statement on the same panel where he compared the implementation of MiFID II in Europe with the oversight in Chinese markets which he called MiFID 10.

[829] I attended such a consultation workshop: DCE Iron Ore Futures Internationalisation Symposium (Dalian, 15 October 2018).

[830] Interview: sales department, global exchange (Hong Kong, 24 September 2018).

[831] INE is a subsidiary of SHFE that was newly created in 2013 to facilitate commodity pricing power.

[832] Interview: product development, Chinese exchange (Shanghai, 27 September 2019); while Oman crude oil on DME is also medium sour grade, it is far less used than WTI or Brent as a benchmark, the contract is denominated in USD, and DME is basically a US exchange subsidiary as it is majority-owned by CME and all trades executed on DME are cleared through and guaranteed by CME Clearing.

having a say in global oil pricing became a key policy objective. As one broker explained:

> Look, crude oil is strategically important to China, we should start building another Asia pricing centre for oil as soon as possible! China is one of the largest oil production and consumption countries, so we would like to have more say in oil pricing, rather than just being a price taker.[833]

And this move seems to be paying off: only six months after its launch in March 2018, INE's crude oil contract had gained a market share of 16% in global oil futures markets, displacing Dubai Mercantile Exchange (DME) – which is 50% owned by CME – as the world's third-largest oil contract,[834] while the market shares of WTI and Brent dropped from 60% to 52% and 38% to 32%, respectively (Evans, 2018). Further, the contract was already used as benchmark on its first trading day in deals between Unipex (Sinopec's trading arm) and a Chinese teapot refinery and – more surprising – between Unipex and Shell which signed a 1-year forward agreement based on the INE reference price. As Alejandro Barbajosa, Vice President at Argus Media, noted: 'It shows the determination of a key participant in the Chinese market to bring along international participants like Shell into this market… […] that single piece of news on the first day of trading is very meaningful, because I can't recall any other crude futures contract in history which from day one has had indexation against it'.[835]

Whereas it took WTI three and Brent five years to gain an average daily trading volume of 50,000 contracts, INE reached this threshold after three months and quickly became the most traded benchmark during Asian time zones.[836] By September 2019, international investors accounted for 9% of trading volume and 27% of open interest for INE's crude oil contract[837] – signalling international investors' acceptance of this market with Chinese characteristics.[838] This Chinese crude-oil contract thereby has the potential to significantly influence the RMBs role in the global financial order (see

[833] Interview: managing director, broker (Hong Kong, 7 July 2017).
[834] Interview: product development, Chinese exchange (Shanghai, 27 September 2019).
[835] Observation: 'Crude oil & international pricing' Panel, FOW Derivatives World Asia Conference (Hong Kong, 11 April 2018).
[836] Interview: product development, Chinese exchange (Shanghai, 27 September 2019).
[837] Interview: product development, Chinese exchange (Shanghai, 27 September 2019).
[838] As Sonia Hung from INE noted, while it was a 'learning process' in which international players had 'to accept the [Chinese] rules', overall foreign investors were very accepting of and happy with the internationalisation progress (Observation: 'Crude oil & international pricing' Panel, FOW Derivatives World Asia Conference; Hong Kong, 11 April 2018; similar remarks were also made during the DCE Iron Ore Futures Internationalisation Symposium; Dalian, 15 October 2018).

McNally, 2020) as also exemplified by increasing talk in mainstream financial media such as *Reuters* about the emergence of 'petro-yuan' (Duguid, 2018).

Next to crude oil, several other commodity contracts were also selectively opened. The internationalisation of iron ore (DCE) and gold (SGE) as strategically important commodities were widely celebrated as success.[839] Other launched products include rubber, PTA and low-sulphur fuel oil futures where 'the idea [was] to capture this benchmark ahead of the IMO 2020'. [840] Other contracts prepared for internationalisation pending regulatory approval include methanol (ZCE), soy beans (DCE), copper (SHFE) and products along the oil/energy stream such as diesel, kerosene or bunker oil (INE).[841] The internationalisation of these contracts follows state-capitalist logic, facilitating national development objectives such as 'serving the real economy' while maintaining control over these commodity markets – and expanding this logic internationally.

While it is too early to fully assess the impact of these contracts, their performance so far has been promising and their potential is huge. They demonstrate China's increasing attempts to actively challenge US-dominated global commodity markets, a shift that is also highlighted by related developments with less direct government intervention. HKEx's acquisition of LME in 2012, for instance, was mainly driven by the promise of commodity links to China. While not officially state-led, several sources noted that this acquisition was highly welcomed by Chinese authorities.[842] Similarly, many interviewees noted that the creation of APEX (Asia-Pacific Exchange) as a private Chinese-led commodity exchange in Singapore and its subsequent success has only been possible because of unofficial government support;[843] after all, as former CEO of Shanghai Pudong Development Bank, DCE and

[839] Interview: strategy department, Chinese exchange (Shanghai, 9 May 2018).
[840] Interview: product development, Chinese exchange (Shanghai, 27 September 2019); IMO 2020 refers to a regulation by the International Maritime Organisation that limits the use of high-sulphur fuel oil from 1 January 2020 onwards as the maximum sulphur limit for fuel oil is decreased from 3.5 wt% to 0.5 wt%.
[841] Interviews: product development, Chinese exchange (Shanghai, 27 September 2019) and international department, broker (Shanghai, 22 September 2019).
[842] Interviews: former CEO, global exchange (London, 8 January 2018), strategy department, exchange (Hong Kong, 30 June 2017), managing director, broker (Hong Kong, 7 July 2017), business development, financial infrastructure provider (London, 9 January 2018) and international department, global exchange (London, 10 October 2017).
[843] Interviews: international department, global exchange (Taipei, 13 July 2017), managing director, broker (Hong Kong, 7 July 2017), sales department, exchange (Singapore, 30 November 2017), sales department, broker (Singapore, 1 December 2017), CEO, asset manager (Singapore, 4 December 2017), research department, regulator (Beijing, 30 October 2018) and business development, global exchange (Beijing, 7 November 2018).

CFFEX, APEX's founder and CEO Eugene Zhu is 'something like a celebrity in [Chinese] financial markets'.[844] More research needs to focus on these more indirect aspects of Chinese cross-border investment patterns that rely on social networks (see Töpfer, 2017).

While IPE scholars have mostly focused on the financialising role of commodity futures (Ghosh, 2010, Isakson, 2014) and their regulation (Clapp and Helleiner, 2012, Baines, 2017), a focus on financial infrastructures reveals the hidden politics inherent to the everyday operations of global commodity markets. With the US-China trade war, the term 'commodity pricing power' is no longer used openly.[845] However, as one interviewee – who is tasked with building a physical oil market in China to accompany INE's futures market – noted, the credo was to 'talk less, but do more'.[846] While recently silent, China's contestation of what it perceives as 'unfair' US-dominated (commodity) markets is in full swing – thereby challenging the neo-liberal logic of global markets that underpin the global financial order and entrench US financial hegemony.

## 6.5 Conclusion: exporting capital markets with Chinese characteristics

> What we are seeing right now a shift in power like that… passing the moment when a lot of the infrastructure is owned by the Americans which are really behind the pipes of the system… the things that nobody looks at, yes? And these infrastructures are designed in a way that they reward a lot being hard currency and being a known place… and there is a huge [emphasised] cost for emerging markets… including China… and its being challenged! I find it very, very, very interesting – because we have never seen that! We have never seen a liberalisation process with power. We have always seen a liberalisation process as a price taker, never before as a price setter… and I find it very interesting!
>
> Emerging markets strategist, global exchange (London, 11 January 2018)

With their internationalisation, the Chinese exchanges are extending their state-capitalist logic of running capital markets abroad through their creation of financial infrastructures. They do this vis-à-vis both the rule-makers and rule-takers of the global financial order. They complement existing rules by cooperating with (non-US

[844] Interview: managing director, broker (Hong Kong, 7 July 2017); also, interview: sales department, exchange (Singapore, 30 November 2017).
[845] Interview: business development, global exchange (Beijing, 19 September 2019).
[846] Interview: senior management, commodity trading platform (China, 25 October 2019).

based) global exchanges, whereby Chinese characteristics often dominate process and outcome. They facilitate the development of capital markets in developing countries, especially by creating new financial infrastructures along the BRI, shaping these markets in their image. And they actively contest US-based exchanges and their financial infrastructures as exemplified by USD-denominated commodity markets and attempts at gaining commodity pricing power.

Most of these projects are not commercially successful. While this is not necessarily the aim of the Chinese exchanges as they aim to contribute to state policies, it does create a clear discrepancy between their internationalisation efforts and whether the financial infrastructures that emerge from those are accepted by global financial actors. Financial infrastructures only then truly become a source of global power if they are widely used. Especially when venturing into global markets, this could dent China's internationalisation efforts, highlighting the differences between profit and control/national development as underpinning the functioning of these capital markets. But even when commercially unsuccessful, these infrastructural arrangements serve multiple purposes, extending Chinese influence and power into other areas, for instance by cementing geostrategic alliances (e.g. in Europe) or facilitating long-term state strategies such as BRI.

It is important to note that this internationalisation of China's capital markets is not an overarching masterplan but involves many different initiatives, issue areas and actors – which can also fall short of fulfilling their stated objectives. But as part of a larger systemic shift in the global political economy, this emphasises how Chinese markets are not only qualitatively different from Western-centric conceptions of markets but also actively *challenge* those neoliberal capital markets that underpin the global financial order – through defining and contesting how capital markets function overseas.

By exporting its way of running markets into a range of other countries, China could in time very well impact global norms of how finance is conducted. This process is relatively nascent and therefore a definitive answer cannot be provided. However, while China might not comprehensively and effectively challenge the US-dominated global financial order, we can still observe the creation of a parallel system of capital markets with Chinese characteristics inserting themselves into the international realm (Paradise, 2016). This issue is further discussed in the following conclusion.

# 7 Conclusion: Chinese capital markets and the global financial order

> China has decided it is going global and enter the world. […] Perhaps one of the most interesting background dynamics to this whole story is China's influence on the global financial system which is now on the verge of being such that it doesn't have to integrate with the rest of the world [by] following international standards, Euroclear, SWIFT… everyone expected, "oh, sooner or later China will come on these standards…" That may not necessarily happen! *China wants to go international with its own standards, on its own terms and now has increasingly the clout and the power to do so…*
>
> Group strategist, exchange (Hong Kong, 30 June 2017)

Underpinned by capital markets which are organised through (mainly US-based) global exchanges, the contemporary neoliberal global financial order is a major source of US financial hegemony. Global exchanges thereby define the rules of the game of global finance which other countries have to follow. However, as this thesis demonstrates, this is not necessarily always the case. Since the global financial crisis, China has become home to the world's second largest capital markets. These have also internationalised at an unprecedented degree, whereby China has become an important puzzle piece in global finance. Whether China will adapt to the global financial system, create its own way of running markets and how it consequently interacts with the US-dominated, contemporary global financial order are pressing questions in contemporary IPE scholarship. The findings of this thesis aim to contribute to this debate.

Overall, this thesis focused on three questions. First, whether – similar to other aspects of its economy – the Chinese state engages in a 'pragmatic use' of capital markets. Second, whether Chinese capital markets consequently function like 'global' markets or differently. Third, and most importantly, whether this has implications for China's increasing integration into the US-dominated, neoliberal global financial order. In analysing the organisation of capital markets through exchanges' construction of financial infrastructures, this thesis demonstrates that what can be observed in China is a gradual development of capital markets whose underlying objectives are twofold: for the state to *control* markets and to direct market outcomes towards *national development* goals. These objectives follow from the institutional logic of China's state-capitalist economic system which informs the organisation of China's capital markets and which, consequently, function fundamentally different from the 'global' capital markets that underpin the global financial order.

Of course, market control and direction are not absolute, and capital market development in China is also characterised by failed attempts to control market outcomes (e.g. the 2015/2016 market crash; Chapter 4), failed policy experimentation (e.g. unsuccessful cooperations; Chapter 6) or external pressures influencing the decisions of Chinese authorities (e.g. SGX A50 futures; Chapter 5). In addition, state-capitalist logic can itself be contradictory as it entails at times conflicting policy objectives such as preventing overspeculation (financial stability) while simultaneously enabling the participation of speculating Chinese retail investors to facilitate social stability. However, what can be observed in China is that a way of thinking about, managing and governing capital markets has emerged that is fundamentally different from the neoliberal capital markets that underpin the global financial order. As a result, these *state-capitalist capital markets* represent an *alternative*, *resistance* and even *challenge* to the global financial order (table 7.1).

***Table 7.1:*** *China's capital markets: alternative, resistance & challenge to the global order.*

| | **relation to global order** | **sub-logics** | **effectiveness** | **time period** | **major milestones** |
|---|---|---|---|---|---|
| **domestic development** | alternative | CONTROL / NATIONAL DEVELOPMENT | very strong | since 1990: creation of Chinese exchanges | 2009: rapid post-crisis expansion |
| **integration** | resistance | CONTROL / national development | strong | since 2003: introduction of QFII / first joint ventures | 2014: Stock Connect |
| **international-isation** | challenge | control / NATIONAL DEVELOPMENT | medium/ small | since 2014: China's exchanges going abroad | 2016: PSX acquisition |

*Source: author's table.*

First, when considering the domestic development of Chinese capital markets, one can observe a 'growing influence of capital markets, their intermediaries and processes in economic and political life' (Pike and Pollard, 2010: 30) that started in the 1990s, but really took off after 2009. This financialisation process, however, unfolds within the context of China's state capitalism, whereby China's state-owned exchanges manage capital markets through the provision of financial infrastructures. Resulting from their state-capitalist institutional setting, the patterns of incentives and constraints that Chinese exchanges create within capital markets in China differ significantly from neoliberal markets. Instead of being detached from the state, linked to a neoliberal

policy paradigm and primarily focused on facilitating the creation of private profit, they are embedded in and function according to the institutional logic of China's state capitalism. On the one hand, they attempt to *control* financial and social risks emanating from increasing financialisation, on the other hand they facilitate *national development* by trying to steer market outcomes. Rather than a break with China's state capitalism, the activities of Chinese exchanges help to sustain and facilitate China's existing socio-economic system. While control is not absolute, this has been a very effective development, and China's state-capitalist capital markets emerged as a clear *alternative* to the neoliberal capital markets that underpin the global financial order.

Second, since the global financial crisis, Chinese capital markets have integrated into global markets to an unprecedented degree. But rather than giving in to pressures to conform with neoliberal logic, China has managed to integrate into global finance while maintaining its state-capitalist logic of market organisation. By focusing on financial infrastructures rather than capital controls, the thesis provides an explanation for the persistent differential organisation of markets despite an increasing integration. Through the construction of financial infrastructures that facilitate state-capitalist logic, the Chinese exchanges redefined the rules of China's international integration: by prohibiting *offshore* markets that would undermine domestic control; reinforcing its rules of organising markets *onshore* vis-à-vis global financial infrastructure providers and investors active within China; and continuing to control the rules of its extensive *cross-border* integration with global markets, using Hong Kong as a gateway into China. As global financial institutions all want a piece of the China business they largely comply with the rules of China's global integration. State control of market behaviour and steering market outcomes towards national development objectives are maintained through the financial infrastructures created by China's exchanges, albeit control is the crucial factor determining this process which began in the early 2000s. These findings hence highlight China's *resistance* to conform with the neoliberal market logic underpinning the global financial order.

Third, since 2014 one can observe an increasing expansion of China's capital markets abroad as Chinese exchanges actively engage with and venture into global markets, facilitating the creation of new financial infrastructures overseas. This process plays an important part in the Chinese state's objective to change the rules of the game in global finance or to at least create a level-playing field that does not

disadvantage China. Hence, rather than control, national development objectives primarily drive this process. With their internationalisation, the Chinese exchanges are effectively extending their state-capitalist logic of running capital markets abroad, vis-à-vis both the rule-makers and rule-takers of the global financial order. First, Chinese exchanges complement existing rules by cooperating with global exchanges, the *rule-makers* of the global financial order. While marked by compromise, global counterparts often give in to Chinese demands and the resulting infrastructures are informed by state-capitalist rather than neoliberal logic. Second, they facilitate the development of capital markets in developing countries, the *rule-takers* of the global financial order. By developing emerging capital markets in its own image, China itself gradually becomes a rule-maker in a process that is also influenced by geopolitical considerations. Third, Chinese exchanges actively contest US-based global exchanges and financial infrastructures, as exemplified by China's push into US-dominated global commodity markets in order to achieve 'commodity pricing power'. Through this process, China impacts the global rules of how finance is conducted, although this is a relatively nascent process. However, rather than neoliberal, the internationalisation of Chinese exchanges follows a state-capitalist logic, thereby *challenging* the neoliberal markets that underpin the global financial order.

## 7.1 Contributions

Through the actions and practices of Chinese exchanges, the power of the Chinese state is facilitated within and through state-capitalist capital markets. These findings contribute in several ways to deepen our understanding of China's rise in global finance as well as the politics of global finance more broadly. The main contribution of this thesis is to our understanding of China's evolving relationship with the global financial order. By analysing China's capital market development, their integration into global markets and internationalisation, the thesis fills an empirical gap in the study of Chinese markets as this aspect of China's financial and economic transformation has only partially been examined yet. By linking state capitalism, capital markets and the neoliberal global financial order through a detailed empirical analysis of market organisation through exchanges, the thesis sheds new light on the relationship between Chinese state capitalism and global finance. It demonstrates how

China's capital markets facilitate state control and national development goals in stark contrast to neoliberal institutional logics that underpin the contemporary global financial order and thereby facilitate US financial hegemony. Thereby, the thesis demonstrates how China's capital markets *represent an alternative* to, *resist pressures to conform with* and *even actively challenge* the global financial order, providing a more accurate analysis of China's ascent in global finance.

It is important to note that those three empirical developments are not equally effective. While China's alternative and resistance are substantial, to date its challenge of the global financial order is comparatively small – especially considering which aspects of neoliberal global markets have not yet been (successfully) challenged by Chinese exchanges. This difference could simply stem from the fact that internationalisation is the most nascent process, especially as a more long-term, strategic perspective distinguishes state-capitalist logic from short-term profit orientation in neoliberal markets. Similar to the construction of physical infrastructures along the BRI, the Chinese exchanges play a long game in the construction of international financial infrastructures which might just amount to a more substantial challenge in the future as these infrastructures serve as 'tipping points' in global financial transformations (Green and Gruin, 2020: 19). However, a second consideration is that projecting abroad what works domestically (market control and direction towards national development) requires a certain degree of acceptance from global finance. Consent is crucial for hegemonic orders, and while the Chinese authorities might be able to command global financial institutions to comply with Chinese rules when they venture into China (McNally and Gruin, 2017), achieving this outside of China might be difficult. Hence, internationalising state-capitalist logic might not amount to a significant challenge in the long run and might not replace US hegemony (Liu and Tsai, 2020). Finally, while internationalisation is an important policy, domestic considerations like containing financial and social risks are arguably more crucial for the functioning and continued existence of Chinese state capitalism. This also applies to Chinese exchanges themselves: while internationalisation successes can help Chinese exchange officials to make a career, domestic failures most certainly put it to an end. Hence, while important, internationalisation is often not prioritised over domestic considerations (Germain and Schwartz, 2017). This offers valuable insights into questions around China's integration with the global financial order.

The findings of this thesis contradict the idea that China's capital markets will sooner or later liberalise, get more 'developed' and 'sophisticated' and eventually converge with global markets. The thesis rather argues that no matter how deep the reforms, Chinese capital markets are likely to remain distinct from neoliberal capital markets as those markets are organised to support China's state-capitalist economic system. This suggests that China is not a status quo power that eventually integrates into the liberal global financial order (Ikenberry, 2011). However, these findings also suggest that it is unlikely that China will fundamentally challenge the global financial order (Hung, 2013, Huotari and Hanemann, 2014). On the one hand, while global finance adapts to accommodate China (McNally and Gruin, 2017), global investors and exchanges only do so when they must, for instance when wanting to venture into China or engage in cooperations with Chinese exchanges. On the other hand, rather than encompassing aspirations to redefine how capital markets work globally, these Chinese financial infrastructures primarily exist to facilitate China's state-capitalist economic-system through financial means; certainly domestically and with respect to the participation of foreign financial actors, and selectively internationally, e.g. with respect to commodity pricing or facilitating BRI.

Therefore, one could argue that China is 'carv[ing] out some independence from U.S. structural power in the international financial system' (Chin and Helleiner, 2008: 97). While China does influence the global financial order, China's power is rooted in an increasing autonomy from the US-dominated global order (Cohen, 2008). Instead of completely rewriting the global game, China plays according to its own rules. Essentially, the Chinese exchanges create a parallel system of capital markets with Chinese characteristics domestically which are partially inserted into the international realm. This development also extends beyond the realm of exchanges and into other financial infrastructures. One example is the China International Payments System (CIPS) which was created to circumvent the SWIFT system due to fears of being overly dependent on this US-controlled infrastructure which might be potentially used against China (see Farrell and Newman, 2019, Kida et al., 2019).[847] While these international efforts are still fragmented, they represent part of the foundation for a parallel financial order centred around China that is facilitated and

[847] The creation of international financial institutions also falls into this category (Callaghan and Hubbard, 2016, Yu, 2017); another, less successful example is also the creation of a Chines / BRICS rating agencies (Helleiner and Wang, 2018, Mennillo, 2020).

informed by China's state-capitalist institutional logic (see also, Paradise, 2016, Alden and Alves, 2017, Stephen, 2020). In this process, we can observe how China increasingly develops a second alternative game. Future research could therefore explore the different dimensions and nuances of this emerging parallel order.

Next to contributing to debates on China's relationship with the global financial order, this research makes three smaller contributions to IPE discussions on the politics of global finance. First, this thesis contributes to debates on financialisation. By analysing the link between Chinese state capitalism and its increasingly important capital markets, this research explores a form of financialisation in China that is largely decoupled from neoliberalism. By analysing how China's state-controlled exchanges organise these capital markets, it demonstrates how the Chinese authorities attempt to partially control financialisation processes. Hence, this thesis argues that states cannot only be important actors that facilitate financialisation, but they can also exercise a considerable degree of control over these processes, shaping their very form and political outcomes. In the Chinese case, that exchanges are state-owned and are embedded within state-capitalist institutional structures has important consequences for how they manage capital markets, facilitating a more state-controlled form of financialisation within the context of China's state capitalism. This is done not through command-and-control measures but by utilising exchanges as 'pivotal points' through which to manage and steer capital markets, whereby the Chinese exchanges act as intermediaries between the Chinese state, society and finance. Rather than breaking with China's state capitalism, the activities of Chinese exchanges help to sustain and facilitate China's existing socio-economic system and mediate both its inherent contradictions by facilitating and steering capital market development.

Second, an important conceptual contribution of this thesis is examining the diverging roles of exchanges as important actors in capital markets globally. While exchanges are one of the institutional foundations of contemporary capitalism, in existing IPE literature they have only rarely been analysed as actors, let alone powerful ones. By highlighting the agency of exchanges in shaping capital markets, this thesis advances a nuanced understanding of the source of exchanges' increasing power in global finance – the provision of financial infrastructures: from market data and indices, to creating and facilitating the trading of various financial products, to post-trading activities such as central clearing. By providing these financial infrastructures,

exchanges enable the functioning of capital markets. But this also puts exchanges in a position from which they can potentially exercise structural power, affecting companies, investors and states entangled in these infrastructures. Rather than mere marketplaces, this thesis hence argues for analysing exchanges as important political actors in the politics of global finance.

Third, and following from the previous point, by analysing exchanges and their organisation of capital markets within different institutional settings, this thesis enables critical reflections upon how capital markets are understood in IPE. While exchanges are crucial actors in capital markets, market organisation of these markets is informed by their institutional contexts. Hence, in contrast to *neoliberal capital markets* facilitated by (mainly US-based) global exchanges, in China one can observe the development of *state-capitalist capital markets*. Controlling markets and directing their outcomes towards national development policies are the underlying principles in Chinese capital markets – following an institutional logic derived from China's state-capitalist economic system. Reversely, the markets they create reproduce these institutional logics in their respective life worlds. The form, dynamics and social outcomes of capital markets differ substantially, depending on the institutional embeddedness of markets and market organisers (i.e. exchanges). While global exchanges are important agents of neoliberal financial globalisation, in China exchanges facilitate state control and direction associated with Chinese state capitalism. Situating exchanges and their market organisation activities into specific institutional contexts through financial infrastructures, allows for a better understanding of the diverging roles that exchanges occupy within capital markets, differences in how they structure the infrastructural arrangements of markets as well as the divergent market outcomes resulting from these processes.

## 7.2 Future research avenues

Based on these findings, three avenues for future research are suggested that address limitations of the analysis as well as further areas of study: exploring the differential role of exchanges in global finance; further analysing China's financial transformation and state-capitalist institutional logic; and investigating institutional logics of capital markets beyond China.

### 7.2.1 Politics of financial infrastructures: exchanges in global finance

Next to an analysis of China's integration into global finance, this thesis provides an overview of exchanges, their transformation and how they are powerful actors in global finance. This, however, is by no means an exhaustive account of their role(s) in the global financial system and additional research is needed to analyse exchanges, their power, its specific manifestations and contestations. More detailed analyses of exchanges' roles within different aspects of financial infrastructures are required – from the private authority of index providers (Petry *et al.*, 2021), the increasing relevance of clearing houses (Genito, 2019a), to power struggles about market data and access. Other aspects of exchanges' business models also merit further analysis: SIX, the Swiss exchange group, for instance, operates credit card terminals and ATMs across Europe, while ICE acquired Ellie Mae for US$11 billion, aggressively moving into the US mortgage data market (Stafford *et al.*, 2020). Exchanges and index providers are also leading the way in defining criteria and creating products for ESG investments, which will become an ever more important asset class in the fight against climate change. Especially, in a changing post-crisis financial ecosystem and regulatory environment further research should analyse whether/how exchanges have become more integrated into hybrid systems of public-private governance (Braun, 2018) and how their relationships with states have consequently evolved, both with respect to other state-owned exchanges as well as exchanges as neoliberal corporations.

Challenges to the power of exchanges, for instance through developments in financial technology (think, blockchain), other financial actors such as banks, dark pools or asset managers could also be further examined. As the power to organise markets globally is largely held by a few global exchanges, questions about whether these create new systemic vulnerabilities in the global financial system need to be addressed (Campbell-Verduyn *et al.*, 2019). This also includes a closer examination of the dissemination of their market practices in developing countries' capital markets and a re-evaluation of their role in financial globalisation and the global spread of capital markets (Weber *et al.*, 2009). Finally, as this thesis highlights, exchanges occupy different roles in capital markets. A future avenue of research could therefore be a detailed, comparative analysis of exchanges in both developed and emerging economies, as state-entities and neoliberal corporations, their diverging roles in capital markets and how this translates into power vis-à-vis other actors.

On a more conceptual level, by highlighting the structural power of infrastructure providers the thesis contributes to current IPE debates on infrastructural power that often focus on relational entanglements between states and (financial) markets. Indeed, the importance of infrastructures as an analytical category goes beyond the field of finance, ranging from (the financialisation of) physical infrastructures like telecommunication, railway or logistics (Hildyard, 2016, Goodfellow, 2020), discussions on current reconfigurations in an increasingly digitised capitalist economy (Srnicek, 2016, Langley and Leyshon, 2017, Zuboff, 2019), to the global competition for infrastructure provision between China's Belt-and-Road-Initiative and the US-led Blue-Dot-Network (Cai, 2018). Contestations of Chinese technology companies and mobile apps (e.g. Huawei, TikTok, WeChat) as part of the US-China trade war similarly indicate the importance of infrastructure providers in the global economy (Mascitelli and Chung, 2019). The structural power of infrastructure providers and the conditions for its emergence hence require further analysis.

### 7.2.2 Within China: institutional logic(s) of China's financial opening

One limitation of this research is that the focus on exchanges necessarily obstructed the view on other actors within China's capital markets. As Wójcik (2012) noted, stock markets consist of intermediaries, investors *and* issuers. While this thesis touched upon changes in investor structures or company listings, the primary focus on exchanges as market organisers (intermediaries) shifted the analytical focus away from those other important actors in capital markets, which require further analysis. The same goes for foreign and domestic rating agencies, investment banks or industry associations and their changing roles within China's financial system. Finally, the growing importance of FinTech also require more scholarly attention (Gruin, 2019b), not to mention the implications of a digital yuan.

Another limitation is that this thesis mainly focuses on the organisation of Chinese equity and futures markets. Other infrastructural arrangements within China's financial system, such as OTC derivatives, FX or bond markets are only partially analysed. Anecdotal evidence from the interviews and fieldwork conducted for this thesis, however, suggest strong similarities but also some differences between these

markets and the analysed developments in exchange-organised markets. On the one hand, fixed income products are, for instance, traded on CFETS which is an exchange-like centralised platform, and they are centrally cleared via SHCH. Consequently, Chinese FX or OTC derivative trading, for instance, functions very differently from practices in global markets.[848] Similarly, the opening of China's bond markets to foreign investors through Bond Connect closely follows the example of Stock Connect.[849] On the other hand, investor structures differ substantially as banks are allowed to operate in those market segments while retail investors are often prohibited[850] and instead of CSRC, the PBoC regulates those markets. These different actor constellations might facilitate other mechanisms and patterns of market control. Further, the politics inherent to organising Chinese FX markets likely differ from, say, commodity futures as different state policies and national development objectives shape market organisation. Which infrastructure providers are involved, how are markets organised and how do they interact with other actor constellations? Do they equally facilitate state-capitalist institutional logic in these other aspects of China's financial system? And whether and how are they integrating with the global financial order? Will the continued opening of China's government bond markets facilitate the creation of an alternative safe asset to US treasuries that underpins the global financial system, but according to Chinese rules? What implications do these infrastructural arrangements have in the case of FX markets and what are its potential implications for IPE debates about RMB internationalisation? A closer examination of these other market segments and assessing similarities and differences within the infrastructural arrangements underpinning China's financial system will be an important area of research in the future.

Finally, China's state-capitalist institutional logic itself requires closer examination. While this thesis focuses on how state-capitalist logic informed capital markets, during a relatively short time frame, as the brief historical overview of China's capital market development (section 3.2) suggests this logic is not static but changes with Chinese state capitalism as state-market configurations within China's

[848] Interview: senior management, insurance company (Shanghai, 16 October 2019).
[849] Observation: HKEx/Risk.net 'Chinese Bonds – Riding the Waves of Foreign Inflows' Webinar (28 November 2018).
[850] Interview: managing partner, law firm (Beijing, 18 October 2018); also, observation: 'The Derivatives Landscape in China' Panel, 13th Annual FIA Asia Derivatives Conference (Singapore, 29 November 2017).

economic system evolve (Wang, 2015, Lardy, 2019, ten Brink, 2019). As *the Economist* (2020c) noted, under the leadership of Xi Jinping, 'a more muscular form of state capitalism' is developing as both more market discipline *and* party discipline are simultaneously introduced across the economy. Thereby, closer attention needs to be paid to how bureaucratic politics such as struggles between Chinese elites affect market development (Li, 2018a). Different party factions might influence capital market development (Shih, 2007), especially when it comes to policy *priorities* of Chinese exchanges and their market organisation activities – what is more important, BRI, economic reform or poverty reduction? And how might priorities shift over time? Especially as China's state-capitalist institutional logic is internally contradictory with partially conflicting objectives that potentially benefit some actors over others, a closer examination of the politics inherent to this institutional logic is warranted. The agency of political actor groups in shaping institutional logics, its limits and implications should be explored further to create a more nuanced picture of the dynamics and adaptability of China's state-capitalist institutional logic.

### 7.2.3 Beyond China: institutional logic(s) of market organisation globally

Finally, this thesis complements IPE's conceptual toolbox for the analysis of capital markets. While capital markets can follow and facilitate neoliberal logic, this is not necessarily the case as capital markets are embedded within specific institutional settings whose institutional logic shapes how they function. In China, capital markets are situated within and function according to the institutional logic of state capitalism whereby capital markets actively contribute to the perpetuation of China's state-capitalist system, both domestically and internationally. This conceptual point is especially important when extending an analysis of the differential organisation of capital markets beyond China. 'Less liberal' economies today account for an increasing share of global capital markets. While until 2006 the BRICS countries, for instance, accounted for only between 5-10% of global stock and futures markets, by 2018 they accounted for 25% of stock market capitalisation and 45% of global futures trading, globally (FIA, 2018, WFE, 2018). For future research endeavours, it might therefore be worthwhile investigating how capital markets are shaped by institutional logics that differ from 'global', 'Anglo-American' or 'neoliberal' capital markets.

While this case study focuses on *Chinese* state-capitalist institutional logic, anecdotal evidence points towards the existence of non-liberal capital markets elsewhere. Similar to China's A50 story, since 2017 Indian exchanges have tried to force offshore derivatives trading onshore to regain control over trading and facilitate domestic market development (Petry *et al.*, 2021: 169, Shah, 2020). Brazil's and Russia's exchanges have tried to gain commodity pricing power, and along with Korea and Turkey index provider MSCI is investigating limited investor access (i.e. non-compliance with neoliberal norms of open markets) in those four countries' capital markets (Tan and Robertson, 2018). Like Chinese exchanges' BRI investments, the Japanese and Korean exchanges have invested into underdeveloped exchanges in Laos, Myanmar or Cambodia on behalf of their respective government's regional economic strategies.[851] Further, in Korea, Taiwan or India foreign ownership of national exchanges is severely limited and state-exchange relationships more closely resemble the Chinese institutional logic than those in the West (OECD, 2018).

These empirical examples are important in the context of *other* state capitalisms. Viktorov and Abramov (2016), for instance, explore the Russian state's post-crisis expansion into its financial markets to pursue its development agenda. The development of local currency bond markets in East Asia through hybrid public-private institutions also points in this direction (Rethel and Sinclair, 2014). Similarly, developmental states such as Korea have not revoked their role in shaping national financial and economic systems (Thurbon, 2016), and Islamic Finance also follows different logics than neoliberal markets (Rethel, 2011). What are communalities and differences between state-capitalist capital markets? Between neoliberal capital markets? Do capital markets exist on a continuum between neoliberal and state-capitalist institutional logic or are these logics more variegated? Are there cross-temporal similarities and differences between capital markets in 21st-century state capitalisms and 20th-century developmental states? More research is needed that comparatively analyses these different institutional logics and how they influence capital markets.

While China's challenge to the neoliberal markets that underpin the global financial order is nascent, is it alone? State-capitalist economies are quickly becoming major global financial players as their economies increasingly adopt market-based

[851] Interview: research department, exchange (London, 9 October 2017).

financial practices (Bonizzi, 2013, Alves *et al.*, 2019). With a shift in the global economy away from a predominance of 'Anglo-American' capitalism and the rise of state-capitalist economies, these developments potentially challenge the power relations that are facilitated by neoliberal capital markets and are embedded within and also reproduce the US-dominated global financial order. If commonalities (and cooperations) exist between state-capitalist capital markets and they play according to different rules, together they could truly change the game. One example includes increasing Sino-Russian financial cooperation (Malkin, 2020), partially established to decrease US dollar dependence (Simes, 2020). Further research is required to analyse the potential development of such parallel systems of capital markets that exist alongside and might collectively pose a more substantial challenge to the contemporary, neoliberal global financial order.

This thesis therefore proposes analysing these *varieties of capital markets* as a research agenda to understand the interplay of different models of capitalism and institutional logics, their financialisation trajectories and how they interact with, integrate into and ultimately shape the global financial and economic order.

## 7.3 Concluding remarks

Since 2009, China's capital markets have developed and internationalised to an unprecedented degree, turning China into an important player in global finance, but – as this thesis demonstrates – one that plays according to its own rules. In the case of capital markets, one can even observe an increasing bifurcation as China's exchanges gradually establish a parallel system of state-capitalist capital markets alongside neoliberal global markets. In addition, more and more financial assets are being re-allocated towards China as global exchanges and investors flock to China and start to play according Chinese rules. As *The Economist* (2020b) stated, 'Wall Street's taste for China reflects a long-term bet that finance's centre of gravity will shift east'. The findings of this thesis therefore also suggest that global finance is malleable and adapts to Chinese markets where it must (McNally and Gruin, 2017).

Studying a moving target, however, is never straightforward. When this research project started in September 2016, PSX was still owned by Pakistani brokers, INE's crude oil futures contract was in the planning stage, Shenzhen Stock Connect or

Bond Connect had not been launched yet, and MSCI had just decided *not* to include China into its indices for a fourth consecutive year. While China's insertion into global finance had begun to take shape (e.g. Shanghai Stock Connect), the research for this thesis was explorative in the double sense: both because it analysed a facet of China's financial transformation that had been underresearched and also because the creation of these financial infrastructures was unfolding during the research process. When finalising my fieldwork in October 2019, China's capital market development had shaped up formidably. While this thesis analysed the 2009-2019 period, empirical developments have continued (and are continuing) to unfold at the time of writing. For practical reasons, these events have necessarily been excluded from the analysis. However, as the findings of this thesis suggest, the capital markets that have emerged within China's state-capitalist institutional setting will likely continue to form an alternative to, resist pressures to conform with and increasingly challenge the global financial order.

Napoleon allegedly said that 'when China wakes, she will shake the world'. While China's rise within the global order has so far not been accompanied by an earthquake that shook the neoliberal global financial order in its core, the tectonic plates of global finance are slowly shifting. In the face of this systemic competition between different ways of organising financial and economic life, more research is required to understand the mechanisms, form and content of these capital markets with Chinese characteristics, their place within China's state capitalism and their evolving relationship with the global financial order.

# Appendix

## Appendix I: information on interviews

| | |
|---|---|
| 1 | Interview: sales department, financial data provider (Hong Kong, 7 June 2017). |
| 2 | Interview: product development, exchange (Hong Kong, 20 June 2017). |
| 3 | Interview: product development, asset manager (Hong Kong, 20 June 2017). |
| 4 | Interview: international department, exchange (Hong Kong, 21 June 2017). |
| 5 | Interview: private equity manager (Shenzhen, 22 June 2017). |
| 6 | Interview: representative office, global exchange (Beijing, 26 June 2017). |
| 7 | Interview: APAC director, infrastructure provider (Hong Kong, 26 June 2017). |
| 8 | Interview: former investment banker (Hong Kong, 26 June 2017). |
| 9 | Interview: APAC director, FX trading platform (Hong Kong, 26 June 2017). |
| 10 | Interview: director e-brokering, investment bank (Hong Kong, 27 June 2017). |
| 11 | Interview: managing partner, asset manager (Hong Kong, 27 June 2017). |
| 12 | Interview: CEO, asset manager (Hong Kong, 28 June 2017). |
| 13 | Interview: business development, asset manager (Hong Kong, 28 June 2017). |
| 14 | Interview: executive director, infrastructure provider (Hong Kong, 29 June 2017). |
| 15 | Interview: business development, global exchange (Hong Kong, 30 June 2017). |
| 16 | Interview: sales department, global exchange (Hong Kong, 30 June 2017). |
| 17 | Interview: strategy department, exchange (Hong Kong, 30 June 2017). |
| 18 | Interview: APAC director, global exchange (Hong Kong, 30 June 2017). |
| 19 | Interview: APAC sales director, global exchange (Hong Kong, 30 June 2017). |
| 20 | Interview: product development, exchange (Hong Kong, 30 June 2017). |
| 21 | Interview: director, financial infrastructure provider (Hong Kong, 30 June 2017). |
| 22 | Interview: product development, asset manager (Hong Kong, 3 July 2017). |
| 23 | Interview: international department, global exchange (Taipei, 5 July 2017). |
| 24 | Interview: general manager, global exchange (Hong Kong, 5 July 2017). |
| 25 | Interview: research department, regulator (Hong Kong, 5 July 2017). |
| 26 | Interview: private equity manager (Hong Kong, 5 July 2017). |
| 27 | Interview: executive director, investment advisor (Hong Kong, 6 July 2017). |
| 28 | Interview: managing director, index provider (Hong Kong, 6 July 2017). |
| 29 | Interview: business development, global exchange (Hong Kong, 7 July 2017). |
| 30 | Interview: managing director, broker (Hong Kong, 7 July 2017). |
| 31 | Interview: business development, global exchange (Hong Kong, 10 July 2017). |
| 32 | Interview: executive director, broker (Hong Kong, 10 July 2017). |
| 33 | Interview: hedge fund manager (Hong Kong, 11 July 2017). |
| 34 | Interview: product development, exchange (Hong Kong, 12 July 2017). |
| 35 | Interview: business development, global exchange (Hong Kong, 12 July 2017). |
| 36 | Interview: international department, global exchange (Taipei, 13 July 2017). |
| 37 | Interview: research department, exchange (London, 9 October 2017). |
| 38 | Interview: international department, global exchange (London, 10 October 2017). |
| 39 | Interview: business development, global exchange (London, 11 October 2017). |
| 40 | Interview: CEO, alternative trading system (London, 11 October 2017). |
| 41 | Interview: sales director, global exchange (London, 12 October 2017). |
| 42 | Interview: international department, global exchange (London, 13 October 2017). |

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| 43 | Interview: financial market consultancy (London, 13 October 2017). |
| 44 | Interview: sales department, energy exchange (London, 17 October 2017). |
| 45 | Interview: consultant, global exchange (London, 17 October 2017). |
| 46 | Interview: business development, global exchange (Frankfurt, 2 November 2017). |
| 47 | Interview: China strategist, global exchange (Frankfurt, 2 November 2017). |
| 48 | Interview: international department, global exchange (Frankfurt, 2 November 2017). |
| 49 | Interview: executive director, clearing house (Frankfurt, 15 November 2017). |
| 50 | Interview: executive director, exchange (Singapore, 29 November 2017). |
| 51 | Interview: strategy director, exchange (Singapore, 29 November 2017). |
| 52 | Interview: executive director, global exchange (Singapore, 30 November 2017). |
| 53 | Interview: sales department, exchange (Singapore, 30 November 2017). |
| 54 | Interview: sales department, commodities exchange (Singapore, 30 November 2017). |
| 55 | Interview: sales department, broker (Singapore, 1 December 2017). |
| 56 | Interview: product development, exchange (Singapore, 1 December 2017). |
| 57 | Interview: data business director, global exchange (Singapore, 4 December 2017). |
| 58 | Interview: CEO, asset manager (Singapore, 4 December 2017). |
| 59 | Interview: APAC director, global exchange (Singapore, 7 December 2017). |
| 60 | Interview: APAC director, commodities exchange (Singapore, 8 December 2017). |
| 61 | Interview: former CEO, global exchange (London, 8 January 2018). |
| 62 | Interview: business development, infrastructure provider (London, 9 January 2018). |
| 63 | Interview: senior manager, infrastructure provider (London, 10 January 2018). |
| 64 | Interview: emerging market strategist, global exchange (London, 11 January 2018). |
| 65 | Interview: CEO, financial industry association (Frankfurt, 24 January 2018). |
| 66 | Interview: FX trading desk, global bank (Frankfurt, 25 January 2018). |
| 67 | Interview: product development, exchange (Frankfurt, 2 February 2018). |
| 68 | Interview: hedge fund manager (Shanghai, 16 April 2018). |
| 69 | Interview: senior manager, commodity trading platform (Hangzhou, 22 April 2018). |
| 70 | Interview: financial derivatives department, broker (Hangzhou, 24 April 2018). |
| 71 | Interview: consultant, Chinese exchange (Shanghai, 24 April 2018). |
| 72 | Interview: CEO, financial industry association (Shanghai, 25 April 2018). |
| 73 | Interview: international department, Chinese exchange (Shanghai, 26 April 2018). |
| 74 | Interview: international department, broker (Shanghai, 26 April 2018). |
| 75 | Interview: consultant, Chinese exchange (Shanghai, 9 May 2018). |
| 76 | Interview: international department, infrastructure provider (Shanghai, 9 May 2018) |
| 77 | Interview: strategy department, Chinese exchange (Shanghai, 9 May 2018). |
| 78 | Interview: international department, Chinese exchange (Shanghai, 11 May 2018). |
| 79 | Interview: product development, Chinese exchange (Shanghai, 11 May 2018). |
| 80 | Interview: international department, Chinese exchange (Shanghai, 11 May 2018). |
| 81 | Interview: research department, Chinese exchange (Shanghai, 14 May 2018). |
| 82 | Interview: managing partner, asset manager (Shanghai, 15 May 2018). |
| 83 | Interview: international department, broker (Shenzhen, 18 May 2018). |
| 84 | Interview: managing director, investment bank (Karachi, 15 July 2018). |
| 85 | Interview: asset manager (Karachi, 9 August 2018). |
| 86 | Interview: senior manager, broker (Karachi, 30 August 2018). |
| 87 | Interview: business development, index provider (Hong Kong, 18 September 2018). |

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|---|---|
| 88 | Interview: business development, global exchange (Hong Kong, 19 September 2018). |
| 89 | Interview: research department, broker (Hong Kong, 20 September 2018). |
| 90 | Interview: sales department, global exchange (Hong Kong, 24 September 2018). |
| 91 | Interview: research department, asset manager (Hong Kong, 24 September 2018). |
| 92 | Interview: product development, exchange (Hong Kong, 26 September 2018). |
| 93 | Interview: international department, broker (Hong Kong, 26 September 2018). |
| 94 | Interview: general manager, global exchange (Hong Kong, 27 September 2018). |
| 95 | Interview: sales department, global exchange (Hong Kong, 27 September 2018). |
| 96 | Interview: APAC director, global exchange (Hong Kong, 27 September 2018). |
| 97 | Interview: business development, index provider (Hong Kong, 27 September 2018). |
| 98 | Interview: research department, Chinese exchange (China, 16 October 2018). |
| 99 | Interview: research department, Chinese exchange (China, 18 October 2018). |
| 100 | Interview: managing partner, law firm (Beijing, 18 October 2018). |
| 101 | Interview: business development, global exchange (Beijing, 19 October 2018). |
| 102 | Interview: managing partner, law firm (Beijing, 19 October 2018). |
| 103 | Interview: representative office, global exchange (Beijing, 25 October 2018). |
| 104 | Interview: business development, broker (Beijing, 26 October 2018). |
| 105 | Interview: consultant, Chinese exchange (Beijing, 29 October 2018). |
| 106 | Interview: research department, regulator (Beijing, 30 October 2018). |
| 107 | Interview: research department, regulator (Beijing, 31 October 2018). |
| 108 | Interview: international department, Chinese exchange (China, 1 November 2018). |
| 109 | Interview: research department, Chinese exchange (China, 6 November 2018). |
| 110 | Interview: business development, global exchange (Beijing, 7 November 2018). |
| 111 | Interview: strategy department, investment bank (London, 5 March 2019); |
| 112 | Interview: business development, global exchange (Frankfurt, 24 April 2019). |
| 113 | Interview: business development, global exchange (Hong Kong, 19 August 2019). |
| 114 | Interview: former asset manager (New York, 19 August 2019). |
| 115 | Interview: research department, index provider (Frankfurt, 20 August 2019). |
| 116 | Interview: senior manager, index provider (Zurich, 23 August 2019). |
| 117 | Interview: strategy department, index provider (Frankfurt, 29 August 2019). |
| 118 | Interview: business development, broker (Beijing, 12 September 2019). |
| 119 | Interview: research department, regulator (Beijing, 12 September 2019). |
| 120 | Interview: business development, global exchange (Beijing, 19 September 2019). |
| 121 | Interview: international department, broker (Shanghai, 22 September 2019). |
| 122 | Interview: research department, index provider (Shanghai, 23 September 2019). |
| 123 | Interview: hedge fund manager (Shanghai, 24 September 2019). |
| 124 | Interview: strategy department, Chinese exchange (Shanghai, 24 September 2019). |
| 125 | Interview: international department, broker (Shanghai, 25 September 2019). |
| 126 | Interview: international department, Chinese exchange (Shanghai, 26 September 2019) |
| 127 | Interview: product development, Chinese exchange (Shanghai, 27 September 2019) |
| 128 | Interview: international department, Chinese exchange (China, 14 October 2019). |
| 129 | Interview: product development, Chinese exchange (China, 14 October 2019). |
| 130 | Interview: senior manager, insurance company (Shanghai, 16 October 2019). |
| 131 | Interview: senior manager, commodity trading platform (China, 25 October 2019). |
| 132 | Interview: senior manager, asset manager (Frankfurt, 28 February 2020). |

| location | | department | | institution | |
|---|---|---|---|---|---|
| Hong Kong | 43 | senior management | 24 | exchange | 68 |
| London | 14 | business development | 24 | asset manager | 18 |
| Singapore | 11 | international department | 22 | other fin. infrastructures | 15 |
| Frankfurt | 11 | research | 14 | broker | 14 |
| Karachi | 3 | product development | 14 | investment bank | 5 |
| Taipei | 2 | investment management | 11 | regulator | 4 |
| New York | 1 | strategy | 10 | index provider | 4 |
| Zurich | 1 | sales | 6 | law firm | 2 |
| Mainland China | 46 | other | 7 | industry association | 2 |
| Shanghai | 21 | | | | |
| Beijing | 14 | | | | |
| Zhengzhou | 3 | | | | |
| Shenzhen | 3 | | | | |
| Hangzhou | 2 | | | | |
| Zhoushan | 2 | | | | |
| Dalian | 1 | | | | |
| TOTAL | 132 | TOTAL | 132 | TOTAL | 132 |

| nationality institution | % | nationality interviewees | % | gender interviewees | % |
|---|---|---|---|---|---|
| Global/Western | 47 | China | 47 | male | 69 |
| China | 35 | Global (i.e. Western) | 32 | female | 31 |
| Hong Kong | 9 | Hong Kong | 12 | | |
| Other Asian | 9 | Other Asian | 9 | | |

## Appendix II: information on ethnographic events

| training & education | event ethnography | placement | ethnographic sites |
|---|---|---|---|
| | 1 | | 7th ASIFMA China Capital Markets Conference (Hong Kong, 14 June 2017). |
| | 1 | | S&P DJI 'Eyes on Asia: A Brave New World' Lunch Thought Leadership Seminar (Hong Kong, 15 June 2017). |
| 1 | | | MSCI 'Adding A Shares into Emerging Markets' Webinar (22 June 2017). |
| 1 | | | BritCham 'Connecting Mainland & International Capital Markets' Breakfast Seminar (Hong Kong, 29 June 2017). |
| 1 | | | Hong Kong Exchange Group investor presentation organised by Orient Securities (Hong Kong, 6 July 2017). |
| | 1 | | Eurex Annual Derivatives Forum (London, 12 October 2017). |
| | 1 | | LSE Market Opening ceremony for the 25th anniversary of the FTSE250 (London, 12 October 2017). |
| 1 | | | SGX 'Trading Strategies on Greater China via SGX-listed Futures Contracts' Webinar (27 September 2017). |
| | 1 | | CHINA DAY - Euro Finance Week 2017 (Frankfurt, 15 November 2017). |
| | 1 | | 13th Annual FIA Asia Derivatives Conference (Singapore, 29 November 2017). |
| 1 | | | AsiaRisk/HKEx 'ETFs: Realising the China Opportunity' Webinar (28 November 2017). |
| 1 | | | MSCI 'Integrating ESG into Passive, Active and Factor Portfolios' Seminar (Frankfurt, 28 February 2018). |
| | 1 | | FOW Derivatives World Asia (Hong Kong, 11 April 2018). |
| 1 | | | Standard Chartered 'RMB Investors Forum: reform & reinvention in China's markets' Webinar (22 July 2017) |
| | | 1 | 6-week placement at Hong Kong office, global exchange (June/July 2017). |
| | | 1 | 2-week visit at Singapore office, global exchange (November/December 2017). |
| | 1 | | 5th Annual Hedge Fund China Conference (Shanghai, 21 April 2018). |
| 1 | | | MSCI/iShares 'Bring your A Game to Investing in China' Webinar (20 September 2018). |
| | | 1 | 2-week visit at Hong Kong office, global exchange (September 2018). |
| | 1 | | DCE Iron Ore Futures Internationalisation Symposium (Dalian, 15 October 2018). |
| | 1 | | 3rd FOW China and the Global Derivatives Market Development Forum (Dalian, 16 October 2018). |
| 1 | | | Seminar at Renmin University by at research department of Chinese regulator (Beijing, 20 October 2018). |
| | 1 | | CHINA DAY - Euro Finance Week 2018 (Frankfurt, 14 November 2018). |
| 1 | | | HKEx/Risk.net 'Chinese Bonds – Riding the Waves of Foreign Inflows' Webinar (28 November 2018). |
| | 1 | | Eurex Annual Derivatives Forum (Frankfurt, 11 April 2019). |
| 1 | | | MSCI 'China and the future of equity allocations' Webinar (14 August 2019). |
| | 1 | | Eurex Annual Derivatives Forum (Frankfurt, 28 February 2020). |
| 11 | 13 | 3 | TOTAL 27 |

## Appendix III: list of 50 largest stock and derivative exchanges

| | |
|---|---|
| 1 | ASX (Australian Securities Exchange) |
| 2 | Stockholm Stock Exchange |
| 3 | OM/OMX (Optionsmarknade) |
| 4 | Helsinki Exchange |
| 5 | Amsterdam Stock Exchange |
| 6 | Paris Bourse |
| 7 | London International Financial Futures & Options Exchange |
| 8 | Euronext |
| 9 | Toronto Stock Exchange |
| 10 | Kong Kong Exchange (HKEx) |
| 11 | London Stock Exchange (LSEG) |
| 12 | Chicago Mercantile Exchange (CME) |
| 13 | Chicago Board of Trade (CBOT) |
| 14 | SIX Group (Swiss Exchange) |
| 15 | Borsa Italiana |
| 16 | Singapore Exchange (SGX) |
| 17 | Deutsche Börse (DBG) |
| 18 | Eurex |
| 19 | Nasdaq |
| 20 | International Petroleum Exchange (IPE) |
| 21 | Chicago Board Options Exchange (CBOE) |
| 22 | Intercontinental Exchange (ICE) |
| 23 | BME (now SIX) |
| 24 | New York Stock Exchange (NYSE) |
| 25 | International Securities Exchange (ISE) |
| 26 | Tokyo Stock Exchange (now Japan Exchange; JPX) |
| 27 | Osaka Securities Exchange (now JPX) |
| 28 | Taiwan Stock Exchange (TWSE) |
| 29 | Korea Stock Exchange (KRX) |
| 30 | Archipelago (now ICE) |
| 31 | New York Board of Trade (NYBOT) |
| 32 | New York Mercantile Exchange (NYMEX) |
| 33 | Shanghai Stock Exchange (SSE) |
| 34 | Shenzhen Stock Exchange (SZSE) |
| 35 | London Metals Exchange (LME) |
| 36 | BSE (Bombay Stock Exchange) |
| 37 | NSE (National Stock Exchange) |
| 38 | Dalian Commodities Exchange (DCE) |
| 39 | Zhengzhou Commodities Exchange (ZCE) |
| 40 | Shanghai Futures Exchange (SHFE) |
| 41 | China Financial Futures Exchange (CFFEX) |
| 42 | Johannesburg Stock Exchange (JSE) |
| 43 | Moscow Exchange (MOEX) |
| 44 | B3 (Brazil Exchange) |
| 45 | MIAX (Miami International) |
| 46 | BMV (Mexican Exchange) |
| 47 | Borsa Istanbul |
| 48 | Taifex (Taiwan Futures Exchange) |
| 49 | Bursa Malaysia |
| 50 | Tocom (now JPX) |

## Appendix IV: summary of Abnormal Trading Rules

| 类型 Types | 中金所（CFFEX） | 郑商所（ZCE） | 上期所（SHFE） | 能源中心 INE） | 大商所（DCE） |
|---|---|---|---|---|---|
| **单合约自成交 Self Trade** | 单个交易日在某一合约上的自成交次数达到 5 次及以上的<br>Five (5) or more self-trades in the same contract in one (1) trading day. | | | | |
| **单合约频繁报撤单 Frequent Cancellation of Orders** | 1. 单日在股指期货某一合约上的撤单次数超过 400 次（含 400 次）。Cancellation of orders on one index futures contract exceeds 400 times within a single trading day.<br>2. 单日在国债期货某一合约上的撤单次数超过 500 次（含 500 次）。Cancellation of orders on one treasury futures contract exceeds 500 times within a single trading day.<br>套期保值交易的撤单数量不受此限。Hedging is exempt from this rule. | 1. 单日在某一合约上的撤单次数超过 500 次（含 500 次）。Cancellation of orders on one contract exceeds 500 times within a single trading day.<br>2.当某个交易日某一合约停板后，客户当日在涨停板价位买单撤单量或者在跌停板价位卖单撤单量超过 100 笔的，属于频繁报撤单行为。When a contract hits price limit, if the cancellation of buy orders at the upper limit or the cancellation of sell orders at the down limit has exceeded 100 orders, the action will be deemed as frequent cancellation of orders.<br>3.客户有上述停板价位频繁报撤单超过 100 笔的行为且当日客户在该合约涨跌停板价位撤单量累计达到 10000 手的，视为情节严重的行为，不受次数限制，郑商所于当日闭市后，给予该客户全部品种限制开仓交易不低于一个月的纪律处分。<br>If a client has the above action, and his/her cancellation of orders at price limit on the same trading day and of the same contract has totalled 10,000 lots, the act will be deemed as a severe violation. In this case, by market closure, ZCE, despite the times of violation, will close client's access to opening positions on all products for at least one month. | 单日在某一合约上的撤单次数超过 500 次（含 500 次）。<br>Cancellation of orders on one contract exceeds 500 times within a single trading day. | | |

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| **单合约大额报撤单**<br>**Frequent Cancellation of Large-amount Orders** | 1. 客户单日在某一合约上的撤单次数超过 100 次（含 100 次），且单笔撤单量达到或者超过交易所规定的限价指令每次最大下单数量 80%。<br>股指单笔撤单量≥16 手/次;<br>国债单笔撤单量≥40 手/次;<br>1. Cancellation of orders on one contract exceeding 100 times within a single trading day, and the size of each cancelled order having reached or exceeds 80% of the maximum size of one limit order. Which means index future s≥16 lots/time<br>Treasury futures≥40 lots/time<br>2. 套期保值交易的撤单数量不受此限。2. Hedging is exempt from this rule. | 客户单日在某一合约的撤单次数 50 次以上且每笔撤单量 800 手以上。<br>Cancellation of orders in one contract exceeds 50 times in one single trading day, and the size of each cancelled order has exceeded 800 lots. | 单日在某一合约上的大额撤单次数超过 50 次（含 50 次），单笔撤单的撤单量达到 300 手以上（含 300 手）。<br>Cancellation of orders in one contract exceeds 50 times (including 50 times) in one single trading day, and the size of each cancelled order has exceeded 300 lots. | | 单日在某一合约上的撤单次数达到 400 次（含 400 次）以上的，且单笔撤单的撤单量超过合约最大下单手数的 80%。(玉米为 1600 手/次、鸡蛋≥240 手、焦炭≥400 手、期权≥80 手)<br>Cancellation of orders in one contract exceeds 400 times (incl. 400 times) in one single trading day, and the size of each cancelled order has exceeded 80% of the order limit. (Corn 1600 lots/time, egg ≥240 lots, coke ≥400 lots, options ≥80 lots) |
| **日内过度交易**<br>**Excessive Trading (Intraday Position Opening Limit)** | 股指期货日内过度交易行为的监管标准调整为单个合约 500 手，套期保值交易开仓数量不受此限。The intraday position opening limit will be lifted to 500 lots. Hedging trades are exempted from this. | | | | |
| **第一次超限**<br>**First Time Breach** | 客户第一次达到处理标准的，交易所于当日对客户所在期货公司会员电话提示，要求其及时将交易所提示转达客户，责令其对客户进行教育、引导、劝阻及制止。大商所会于当日对客户所在会员的首席风险官进行电话提示。For any Client reaching the threshold for the first time, the Exchange will alert the Client's FF Member on the same day. The FF Member shall promptly forward the Exchange's alert notice to the Client and educate, guide, dissuade, and prevent the Client from engaging in rule-breaking trades. | | | | |
| **第二次超限**<br>**Second Time Breach** | 同一客户第二次达到处理标准的，交易所将该客户列入重点监管名单，同时将客户异常交易行为向会员通报（重点监控）For any Client reaching the threshold for the second time, the Exchange will place the client on a watch list and notify relevant Members about the abnormal trading behaviour. | | | | |

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| **第三次超限**<br>**Third Time Breach** | 同一客户第三次达到处理标准的，交易所于当日闭市后对客户采取限制开仓的监管措施，限制开仓的时间原则上不低于 1 个月（限开仓）↓ For any Client reaching the threshold for the third time, the Exchange will, at market close on the same day, suspend the Client from opening new positions for no less than one (1) month (in general). |
| **实控组超仓**<br>**Excessive OI of Related Accounts** | 被交易所认定为实际控制关系账户的一组客户持仓合并计算后超出交易所规定客户持仓限额。For accounts that are deemed as accounts with actual control relationship, the aggregate holding positions exceed the position limits. |
| **一般程序**<br>**General Procedure** | 1、交易所在当日收市后通知客户所在的期货公司，要求客户次日第一节交易时间前（中金所为上午）自行平仓；The Exchange will, after market close on the same day, notify the relevant FF Members to require the Clients concerned to close their positions in the first trading session on next day. |
| | 2、客户在次日上午第一节交易时间内未自行平仓的，交易所对该组客户的持仓进行强行平仓，当日闭市后对该组实际控制关系账户采取限制开仓不低于 1 个月的监管措施。（即只要交易所动手强平则限开仓 1 个月）If any such Clients fail to complete the position closing within the first trading session of the next trading day, the Exchange will implement forced position liquidation. Where the forced position liquidation is to be performed by the Exchange, it will, after market close on the same day, suspend all accounts within the group from opening new positions for no less than one (1) month (in general). |
| **第一次超限**<br>**First Time Breach** | 交易所将该组实际控制关系账户列入重点监管名单，并向会员通报。If the group reaches the threshold for actions by the Exchange for the first time, the Exchange will place accounts within the group on a watch list and notify relevant Members |
| **第二次超限**<br>**Second Time Breach** | 交易所于次日对该组实际控制关系账户采取限制开仓的监管措施，限制开仓的时间原则上不低于 10 个交易日。If the group reaches the threshold for the second time, the Exchange will, starting from the following trading day, suspend accounts within the group from opening new positions for no less than ten (10) trading days in general. |
| **第三次超限**<br>**Third Time Breach** | 交易所于次日对该组实际控制关系账户采取限制开仓的监管措施，限制开仓的时间原则上不低于 6 个月。If the group reaches the threshold for the third time, the Exchange will, starting from the following trading day, suspend accounts within the group from opening new positions for no less than six (6) months in general. |
| **备注**<br>**Notes** | 1.客户单日在多个合约上因自成交、频繁报撤单、大额报撤单达到交易所处理标准的，同一种异常交易行为按照一次认定；If on a single trading day, the client meets the criteria of the Exchange to take actions for self trade, frequent order cancellation, or large-amount order cancellation with respect to its activities in two (2) or more contracts, the same kind of abnormal trading behaviour in relation to these different contracts will be deemed as a single occurrence of that abnormal trading behaviour.<br>2.客户单日在多个合约上因套期保值交易、套利交易、立即全部成交否则自动撤销指令（FOK）和立即成交剩余指令自动撤销指令（FAK）等产生的自成交、频繁报撤单、大额报撤单等行为不构成异常交易行为; If on a single trading day, the client engaged in the activities such as self trading, frequent order cancellation, and large-amount order cancellation resulting from such transactions as fill-or-kill (FOK) orders, fill-and-kill |

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| | (FAK) orders, arbitrage and hedging trades in two (2) or more contracts, this situation will not be deemed as abnormal trading behaviours.<br>3.实际控制关系账户视为同一客户；A group of accounts with actual control relationship is treated as the same client. |

| **Reference:** |
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| **SHFE:** 1.《上海期货交易所异常交易监控暂行规定》修订案 SHFE Interim Provisions(amendment)on Abnormal Trading Supervision Regulations (since 23 July 2012) |
| 2.《〈上海期货交易所异常交易监控暂行规定〉有关处理标准及处理程序》修订案(2013 年 12 月 2 日起施行) SHFE Interim Provisions(amendment) for Processing Standards and Procedures on Abnormal Trading Supervision Regulations (since 2 December 2013) |
| 3.关于停止适用《〈上海期货交易所异常交易监控暂行规定〉有关处理标准及处理程序》修订案个别条款的通知(2015 年 12 月 16 日起实施) Notice on annulling certain items in SHFE Interim Provisions(amendment) for Processing Standards and Procedures on Abnormal Transactions Supervision Regulations (16 December 2015) |
| **DCE:** 1.大连商品交易所异常交易管理办法（试行）DCE Interim Provisions Abnormal Trading Administrative Measures (since 8 November 2010) |
| 2.关于《大连商品交易所异常交易管理办法（试行）》有关监管标准及处理程序的通知（2010 年 11 月 15 日发布）DCE Interim Provisions(amendment) for Processing Standards and Procedures on Abnormal Trading Administrative Measures (Effective since 15 November 2010) |
| 3.关于停止适用《<大连商品交易所异常交易管理办法（试行）>有关监管标准及处理程序》个别条款的通知 Notice on annulling certain items in DCE Interim Provisions(amendment) for Processing Standards and Procedures on Abnormal Trading Administrative Measures (since 25 April 2016) |
| **ZCE:**1.郑商所异常交易行为监管工作指引（试行）（2010 年 11 月 8 日） ZCE Interim Guidance on Abnormal Trading Supervision (since 8 November 2010) |
| 2.关于修订《郑州商品交易所异常交易行为监管工作指引（试行）》有关认定标准及处理程序的通知（2012 年 7 月 20 日起实施） Notice on revising the Interim Guidance for Processing Standards and Procedures on Abnormal Trading Supervision (Effective since 20 July 2012) |
| 3.关于《关于修订<郑州商品交易所异常交易行为监管工作指引（试行）>有关认定标准及处理程序的通知》的补充通知（2016 年 8 月 31 日起实施） Supplementary Notice on revising the Interim Guidance for Processing Standards and Procedures on Abnormal Trading Supervision (since 31st August 2016) |
| 4.关于《关于修订<郑州商品交易所异常交易行为监管工作指引（试行）>有关认定标准及处理程序的通知》的补充通知（2011 年 5 月 6 日发布） Supplementary Notice on revising the Interim Guidance for Processing Standards and Procedures on Abnormal Trading Supervision (since 6th May 2011) |
| 5.关于修订《<郑州商品交易所异常交易管理办法（试行）>有关监管标准及处理程序》个别条款的具体规定（自 2015 年 10 月 8 日起实施） Notice on annulling certain items in ZCE Interim Provisions for Processing Standards and Procedures on Abnormal Trading Supervision Guidance (25th April 2016) |
| **INE:** 1 上海国际能源交易中心异常交易行为管理细则 Rules of INE for the Administration of Abnormal Trading Behaviours |
| 2. 上海国际能源交易中心实际控制关系账户管理细则 Rules of INE for the Administration of Accounts Involving Actual Control Relationship |
| **CFFEX：** 1.中国金融期货交易所异常交易监控指引 （试行）（2010 年 11 月 15 日实施 2015 年 4 月 10 日第一次修订）CFFEX Abnormal Trading Supervision Guidance (Effective since 15th November 2010 and revised on 10th April 2015) |
| 2.关于股指期货异常交易监管标准及处理程序的通知（会服系统自 2015 年 8 月 26 日开始执行） Notice on processing standards and procedures on Abnormal Trading of indices futures (issued through member service system and effective since 26th August 2015) |

*Source: Investor material from a Chinese broker.*

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