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Title:
State-capitalist capital markets? Financial infrastructures, exchanges & the politics of integrating China into global capital markets

Abstract:

Since 2009, China's capital markets have developed to an unprecedented degree and become much more connected with global capital markets. But do Chinese markets function the same as global markets? And if not, how and why are they different?

This paper argues that in contrast to global capital markets whose principal aim is to generate profit, control and directing markets towards specific social and political outcomes are the principles underlying Chinese capital markets, an institutional logic derived from China's state capitalist economic system. Consequently, China's reform and opening is a controlled, contested and highly political process, characterised by the construction of financial infrastructures between China's capital markets and the global financial system, a process that does not follow the rules of global markets and neoliberal, financialised capitalism. Therefore, the reform and opening of capital markets within China's state capitalism between 2009-2018 are analysed, focusing on three dimensions: first, the development of domestic capital markets in China; second, how Chinese capital markets are being connected or integrated with global markets, i.e. trading (in and out of) China; and third, how Chinese capital markets themselves are internationalising and expanding abroad.

In these processes, the paper examines the crucial role of exchanges which have so far received little attention as important actors in IPE. More than just marketplaces, as providers of financial market infrastructures exchanges are themselves powerful actors that exercise considerable influence over capital market development, shaping the very markets that they organise. Therefore, this paper analyses the role of exchanges and their interplay with state institutions in the politics of developing China's capital markets and integrating them into global markets, and the conflicting relationship between profit and control as competing principles underpinning these processes of market development. Next to financial news coverage and other secondary data, the paper draws on 86+ expert interviews with exchanges, brokers, investors and regulators that were conducted in Frankfurt, Hangzhou, Hong Kong, Karachi, London, Shanghai and Singapore.

1. Introduction: Why does Chinese capital market development matter?

30 years ago, capital markets did not exist in China. Fast forward to 2017, when more companies have listed on the stock market in Shanghai that anywhere else in the world, both by number and market capitalisation (Q). Similarly, in 2015 the CSI 300 Futures on CFFEX were the world's most traded futures contract, while SHFE, DCE and ZCE were firmly established in the top ten of global commodity exchanges. This is a startling transformation. In recent years, Chinese capital markets have grown and developed tremendously and they are now the world's second largest futures and stock markets as well as third largest bond markets (Acworth, 2015; WFE, 2016; WFE & IOMA, 2016). Further, while China's capital markets have been closed from the outside world for decades, since 2009 they have become connected to both regional and global financial markets to an unprecedented degree. Especially through its goals to internationalise the RMB and to promote the Belt and Road Initiative, China is becoming a major force in global finance. Today, China's capital markets are connected with Hong Kong, a stock connect to London is planned, a Chinese-German stock exchange operates in Frankfurt, one can trade futures on China's stock market in Singapore, and China is actively facilitating the development of capital markets in several Central and South East Asian countries.

This rise of China is hotly debated in IPE literature where a lot of debates revolve around whether China is a status quo power, accepting or challenging the global order (Hung, 2013; Huotari & Hanemann, 2014). Especially in the area of finance, scholars have been arguing whether China is becoming more assertive, integrating into the existing US-dominated financial order, if it is challenging the status quo of global financial markets or whether global finance is itself adapting to accommodate China (McNally & Gruin, 2017). This becomes apparent in discussions on the internationalisation of the RMB (Lombardi & Wang, 2016), the internationalisation of China's own financial institutions (Gottwald, 2011), its growing role in global financial governance (Nölke, 2015), in development finance (Bräutigam, 2011) and in infrastructure finance with the Belt and Road Initiative. China's rise is further linked to larger debates on state capitalism vs liberal capitalism and how this affects the role of states and markets in the contemporary i/IPE (e.g. Bremmer, 2010).

However, a lot of these debates are either rather of conceptual nature with little empirical grounding or they focus on only a few prominent issue areas such as RMB internationalisation, China's role in the international financial architecture or development finance. The abovementioned transformation of Chinese capital markets – their domestic development, internationalisation and integration into global financial markets – and the politics inherent to these processes have so far not been subject to a lot of scholarly scrutiny within IPE (but see Töpfer, 2017). Partially, this is because China has long been categorised as a bank-based system where capital markets play a rather insignificant role (Gruin, 2013). However, as for instance critics of the financialisation literature have argued (Karwowski & Stockhammer, 2017), the significance of capital markets for an economy is often assessed within a (liberally biased) Anglo-American framework, in which capital markets are viewed as uniform whose primary function is to generate profits (for investors) or provide funding (for companies) – functions that in China are primarily fulfilled by state-owned banks, and ergo capital markets "do not matter". However, since 2009 China's capital markets have developed to an unprecedented degree and become much more connected with global capital markets. But if capital markets are not important for China, this begs the question why they are growing so much. Do China's capital markets function the same as global markets? And, if not how and why are they different?

This paper argues that in contrast to global capital markets whose principal aim is to generate profit, control and directing markets towards specific social and political outcomes are the principles underlying Chinese

capital markets, an institutional logic derived from China's state capitalist economic system. Consequently, China's reform and opening is a controlled, contested and highly political process, characterised by the construction of financial infrastructures between China's capital markets and the global financial system that does not necessarily follow the rules of global markets and neoliberal, financialised capitalism. This paper analyses the reform and opening of capital markets within China's state capitalism between 2009-2018 by looking at three dimensions of their transformation: first, the development of domestic capital markets in China; second, how Chinese capital markets are integrated with global markets, i.e. trading (in and out of) China; and third, how Chinese capital markets themselves are internationalising and expanding abroad.

One key finding of this paper is that exchanges played a crucial role in these processes. More than just marketplaces, as providers of financial market infrastructures exchanges are themselves powerful actors that exercise considerable influence over capital market development and have the power to shape the very markets they organise. While there is a plethora of research in IPE on capital markets, the role of exchanges in developing and organising these markets has only received little attention. This paper thereby aims to make two contributions to IPE literature. First, it aims to shed light on recent developments in China's capital markets, their internationalisation and integration into global markets, thereby contributing to debates on China's rise and its implications for the global liberal (financial) order. Second, it aims to contribute to debates in IPE, CPE and Financialisation Studies by highlighting the crucial role of exchanges in the organisation and development of markets. Hence, this paper analyses the role of exchanges and their interplay with state institutions in the politics of developing and integrating China into global capital markets, and the conflicting relationship between profit and control as competing principles underpinning these processes of market development.

Next to secondary literature, policy documents, financial market data, news and reports, this research project draws on 86+ interviews with exchanges, investors and regulators engaged with China's capital markets as well as ethnographic data from attending 16 industry events in Frankfurt, Hangzhou, Hong Kong, Karachi, London, Shanghai and Singapore between June 2017 and September 2018.[1] The remainder of the paper is structured as follows. Section two provides an overview of existing research on capital market development in China as well as theoretical explanations for capital market development more broadly and the missing role of exchanges in this literature. Section three develops a theoretical argument for the need to analyse the role of exchanges as crucial actors in capital market development, highlighting their role as providers of financial market infrastructures that enable capital markets and their internationalisation in the first place. Section four then analyses the transformation of Chinese capital markets through the activities of exchanges by investigating three aspects of this process. First, the domestic development of capital markets in China is analysed. Second, the integration of China into global markets is analysed – how one can trade (in and out of) China. Third, the internationalisation of Chinese capital markets is analysed, by focusing on Chinese exchanges' expansion abroad. Section five concludes and outlined further areas of research.

[1] Please note that most interviews have been anonymised. However, due to the small size of the exchange industry, a note of caution is necessary. While location and date of an interview are revealed for transparency reasons, one should therewith not draw conclusions about the (corporate) identity of interviewees. For instance, "interview with exchange representative in Frankfurt (January 2018)", could describe an interview with an exchange representative from China or the US that was conducted during a business meeting or industry event in Frankfurt, and would be completely unrelated to Deutsche Börse, the only global exchange with an office in Frankfurt. Where individual people have been interviewed should not be linked to the location of specific institutions.

2. Capital markets (in China) and the role of exchanges

Capital markets in China

While there is a plethora of literature on China's financial system as a whole, scholars have mainly focused on banks, the role of the state in the financial system and the politics of regulating and governing the financial system; comparatively few studies have analysed China's capital markets. Initially, China's stock market was a "policy-driven market" (Heilmann, 2002): a majority of shares in the Chinese stock market was owned by various government agencies (Wang, 2015) and the state decided which firms were listed in the stock market, an arrangement that distorted price discovery and corporate control (Walter & Howie, 2006, 2012). Others have focused on institution building and the creation of the capital markets in the 1990s (Tan, 2004) as well as their regulation and governance which was also influenced by various state institutions Heilmann (2005a, 2005b). Chinese financial markets have been rather caricaturised as state-controlled entities with little resemblance to "proper" markets (Walter & Howie, 2012). This partially changed in 2005 when the market was reformed. As Bell and Feng (2009) highlight this process turned "the state's 'grabbing hand' into a 'helping hand'", from state predation towards a more developmental or entrepreneurial form of market organisation. What many scholars highlighted is the incongruence of the old Leninist institutions that characterised China's economic management and the non-socialist institution of capital markets (Bell & Feng, 2009; Heilmann, 2002). Furthermore, some aspects of the internationalisation of China's capital markets has been analysed by Schlichting (2008) and more recently scholars have focused on how capital markets were opened up to foreign investors (Töpfer, 2017), the emergence of Western-style financial practices (Robertson, 2015) and the impact of foreign investors on Chinese markets (Malkin, 2016). However, most accounts focus on the development of China's capital markets during the 1990s and early 2000s, few have attempted to analyse their development in recent years (Töpfer, 2017).

So, while there is quite some literature on Chinese capital markets, the transformation of China's capital markets in recent years has not been subject to scholarly scrutiny. Especially as since 2009, the focus of most research has shifted more towards other topics, such as the internationalisation of the RMB (Aizenman, 2015; Bowles & Wang, 2013; Germain & Schwartz, 2017; Töpfer & Hall, 2017) or China's role in global financial governance, for instance its engagement in international regulatory bodies such as the G20 (Alex He book) or the FSB (Q) or the establishment of Chinese-led multilateral institutions such as the AIIB or NDB or of policy fora a such as the Boao Forum or the Shanghai Cooperation Organisation. China's role in development finance is another area that is highly researched. Many of these are linked to broader debates on the role of China for the global order (Q), if it is a status quo power, integrating into the global order or a revisionist power challenging or questioning the liberal and US-dominated financial order and often linked to discussions about liberal vs state capitalism (Q). But while these policy aspects of Chinese markets are often analysed, the market side has rarely been looked at. Therefore, the empirical contribution this paper seeks to make is to shed light on the transformation of Chinese capital markets. But how do capital markets actually develop?

Explaining capital market development in (IPE)

While there is a plethora of literature on capital markets in IPE, their social foundations and how they are embedded into political economic contexts, there is comparatively little literature on how and by whom capital markets are organised. Traditionally, political economy literature on capital markets focuses on the re-emergence of international capital markets since the 1970s (Helleiner, 1996; Strange, 1986), their regulation through public institutions (Mügge, 2011; Porter, 2005; Posner, 2009), self-regulation (Underhill

et al., 2012) and re-regulation after the GFC (Helleiner & Pagliari, 2011; Moschella & Tsingou, 2013), and how global capital markets impact national economies, for instance through the promotion of shareholder value maximization (Lazonick & O'Sullivan, 2000) or the effects of international capital mobility (Watson, 1999). A lot of research focuses on investors, especially the emergence and power of (institutional) investors (Engelen & Konings, 2010), such as hedge funds (Ertürk et al., 2010), pension funds (Clark, 2000) or, especially since the GFC, asset managers (Fichtner et al., 2017) and the transformation of banks which have changed significantly by adding a "new market portfolio" to their "traditional credit portfolio" (Aglietta & Breton, 2001: 441), becoming major investors in capital markets themselves (Ertürk & Solari, 2007; Hardie & Howarth, 2013; Rethel & Sinclair, 2012).

However, this investor-focused perspective on capital markets only depicts an incomplete picture. Where do capital markets come from? While studying the relationship between states and markets has been a major research theme in IPE, how and by whom markets are organised in the first place is less well researched. What I mean by that is, that by applying an endogenous view of capital markets, firstly, the market should be understood as an "instituted process" anchored in social institutions & practices, following the thinking of scholars like Polanyi or Keynes. Therefore, how markets are organised matters. Secondly, "markets do not emerge out of a vacuum" (Ahrne et al., 2015: 9). Rather than emerging spontaneously as the likes of Hayek and the proponents of an exogenous view of markets as it is portrayed in financial economics propagate, markets are organised by particular institutions. Who organises markets matters. And one of the major group of actors in the process of organising markets are exchanges. I therefore argue that it is important to put exchanges into the focus of analyses of capital markets, because as organisers or capital markets they have considerable influence to shape markets, their dynamics and outcomes. More than mere platforms of exchange, exchanges are powerful actors in their own right and as the organisers of capital markets they are key to understand capital markets and their transformation. Further, more than a mere technical exercise, the process of organising markets is a very political process.

In the political discourse, exchanges are mostly constructed as arenas rather than as actors, instead of market actors they are seen as marketplaces. The terms stock exchange and stock market are mostly used interchangeably, most often referring to the later. Stock exchanges seem as – and actively created an image of themselves as – seemingly neutral market infrastructures (Botzem & Dahl, 2014). In a way, exchanges are depoliticised entities and their role in shaping capital markets has been largely neglected. Many analyses of capital markets share a similar but outdated understanding of exchanges as "member clubs". Take for instance Abolafia's (1996) famous study 'Marking Markets'. While Abolafia (1996) often refers to exchanges in his analysis, he depicts them as associations owned by their members and his analysis focuses on these (the 'market makers'), the exchange is no actor by itself. Often, exchanges are merely the arenas is which traders act and the analytical focus is on the latter (Beunza & Stark, 2003, 2004; Ho, 2009; Zaloom, 2006).

Therefore, most analyses of stock market liberalisations focused on the abolishment of fees and the breakdown of the monopolies of the respective exchange's members. Augar's seminal work (2001) on the City of London and the demise of gentlemanly capitalism, Moran's (1990) comparative study of financial market reform in Japan, the US and the UK, Cerny's (1989) study of the French "Petite Bang" or of the consolidation of Germany exchanges (Lütz, 1998) all focus on the role of members, highlighting either the changing role of domestic members/brokers or the entry of foreign actors. However, little attention was paid to the institution of the exchange itself, in these analyses is was merely a marketplace that was opened to other players. However, while such traditional scholarly accounts of how exchanges work stress the role of the exchange's members (i.e. the brokers or market makers; see Abolafia, 1996), over time a lot of their power to organise the marketplace and also their responsibility to regulate the market has shifted towards

the exchange itself. In this sense, the role of exchanges in organising and regulating capital markets is even more significant (and more architectural if you will) than that of brokers.

But as Botzem and Dahl (2014: 78) emphasise, this picture of exchanges "leads to a vast underrating of their impact on processes of economic and institutional change." Rather than equating them with a market place, exchanges should be seen as actors in their own right which organise markets (among other things). Thereby, exchanges play a vital role in shaping the dynamics and overall nature of capital markets. Only recently have scholars started to take exchanges seriously as actors, by highlighting their role in the creation of electronic financial markets (Castelle et al., 2016), the proliferation of products such as index-based derivatives (Millo, 2007), the geographical constitution of stock markets (Wójcik, 2007, 2012), their role in financial development (Botzem & Dahl, 2014), European financial integration (Mügge, 2011; Posner, 2009), or as an example for the organisation of markets more generally (Ahrne et al., 2015).[2] More than mere platforms of exchange, stock and derivative exchanges are important and powerful actors in their own right. By introducing exchanges into the analysis of capital markets, this research project does not only aim to contribute to the literature on China's financial markets, but also to the broader literature on the political economy of finance. But how exactly do exchanges influence the development and organisation of capital markets?

3. Exchanges as providers of financial market infrastructures

In the last 25 years, marketisation, internationalisation, and digitisation have fundamentally changed the way exchanges function. In this period, exchanges have undergone a significant transformation from national market places to global market organisers through which they have become even more crucial to understand capital market development.[3] Exchanges today have become providers of financial market infrastructures. However, providing these infrastructures is more than a mere technical exercise, these infrastructures are highly political and an important source of power and authority. By providing and controlling these infrastructures, exchanges are able to shape capital markets, their dynamics and outcomes.

When taking seriously the above discussions that institutions matter for capital markets, it is important to look at their constitutive elements as every capital market has two sides – investors and infrastructures. First, every capital market needs investors, they are the ones that use the market as a site of exchange (Morgan, 2010). However, investors cannot simply trade on capital markets. While capital markets are often described as disintermediation – that is market exchanges without an intermediary – this is not a given. In contrast to the neoclassical understanding that markets are generated spontaneously (Hayek, 1988; Lindblom, 2001), the market is rather an "instituted process" which is anchored in other social institutions and practices Polanyi (2001 [1944]). As Ahrne et al. (2015: 9) emphasize, "markets do not emerge out of a vacuum", they are rather organised by particular institutions, which create the infrastructure for the trading of various financial assets. Second, it is therefore important to note that every capital markets requires a

[2] Further, finance, law and economics scholars have analysed exchanges as an industry that is in the process of transformation (Domowitz, 1995) and needs to be governed (Cantillon & Yin, 2011; Lee, 1998), organised (Pirrong, 1999) or regulated (Macey & O'Hara, 2005), these literatures have rather concentrated on exchanges in isolation and have not analysed the wider socio-political impact of these changes.

[3] Especially since the GFC, financial market reform actually relies even more heavily on exchanges through its emphasis on regulated market places, non-OTC trading and mandatory central clearing.

financial infrastructure to function in the first place – there needs to be a platform on which to trade, the site of exchange itself, as well as financial products which are the traded commodities and services, the objects of exchange (see also Hardie, 2012). In order for investors to trade in the first place, a market infrastructure needs to be in place that enables these transactions. In the case of capital markets, exchanges organise and develop this infrastructure.

In order to better understand the infrastructural power of exchanges, this section is inspired by recent scholarship that has become more interested in the sequential, chain-like organisation of finance (Arjaliès et al., 2017; Seabrooke & Wigan, 2017; Sokol, 2017). What these have in common is an appreciation of the sequentiality, temporality and complexity of financial transactions. Adopting a similar approach, this section analyses the sequential organisation of financial infrastructures that are needed to conduct investments and enable trading. Metaphorically speaking, investors need to be serviced from "cradle to grave". First, they need market data, indices and benchmarks to inform their investment decisions. Second, they need financial products that enable them to invest into something (stocks, bonds, ETFs, currencies) but also to hedge their exposure to these investments (FX, interest rate, commodity & index derivatives). Third, they need a platform that processes their trades and brings together buyers and sellers. Fourth, post-trade services such as clearing, settlement or custodian mechanisms need to be in place. Exchanges have become crucial providers of these financial infrastructures which has important political implications.

First, investment decisions are based on an analysis of the fundamentals of a certain financial product and its market. Will this stock go up or down? Has this industry index underperformed in the last month? Is this (countries') market as a whole overvalued? Information is power in financial markets and in order to reduce uncertainly and inform investment decisions, investors need market data. But who owns this data? Exchanges. As they run most organised markets, exchanges have a monopoly over market data and sell their data feeds to traders – a situated which has recently big debates between brokers and exchanges about the public good character of market information.[4] While exchanges also offer market data for free, this is usually delayed and is therefore useless if competitors use real-time data as speed is key in financial markets and whoever has an 'edge' over his competitors – that is, all other investors – can make a profit (Augar, 2005). With the digitisation of financial markets this has intensified as high frequency trading has become the new norm and traders have tried to shave of nanoseconds of trades (MacKenzie et al., 2012; Patterson, 2012). Exchanges have therefore become 'content providers' (Lee, 2002), selling market data to their clients, and as the gatekeepers of market data they occupy an important position in financial infrastructure. At the beginning of every trade is an investment decision, and in order to make that decision information is needed. Market data is needed to inform that decision, be it through fundamental analysis or by feeding your algos and HFT with that data. In any case, even if you want to speculate, market data is needed. Exchanges own the market data on their platforms and they sell it – and actually make a lot of money with that.

Related to market data, are indices and benchmarks. While there are hundreds of indices that measure the performance of say the US stock market, only two really matter – the Dow Jones and the S&P500, both of which are owned and calculated by S&P Dow Jones Indices. And such indices are incredibly important for financial markets: A staggering $3 trillion assets under management (AuM) are invested in passive funds that track the S&P 500 index alone. Further, these indices are also used as 'benchmarks' from actively managed funds which measure their performance against these funds (on a discussion of benchmarking, see Broome & Quirk, 2015). By 2017, more than $37 trillion active and passive AuM were based on the three largest index providers MSCI, FTSE and S&P DJI, and such benchmarks are crucial as a baseline to

[4] Even OTC markets such as dark pools often heavily rely on market data provided by exchanges.

inform investment decisions (Arjaliès et al., 2017: 38-41). However, this gives index providers considerable power. Similar to credit rating agencies (Sinclair, 2005), index providers should be understood as market authorities which exercise considerable power over investment decisions. By deciding what to include into an index as well as their calculation, they can move money in the same way as rating agencies when they up- or downgrade entities.[5] Now, S&P DJI and FTSE, two of the three largest index providers globally are owned by exchanges while MSCI is hotly debated as a possible acquisition target[6] which again puts exchanges at the centre of a crucial step in the financial infrastructure.[7] Or look at indices, they are very important especially in a time when more and more ETFs track these. Most index providers – all large ones but MSCI – are owned by exchanges. Further, benchmarks such as WTI and Brent in the case of crude oil, are also traded and owned by exchanges, in these cases ICE and CME, and these benchmarks are used as reference prices for commodities globally.

Second, financial products which enable investment in the first place are the next crucial step in the financial value chain. Investors are in need for investment opportunities and, therefore, stocks, bonds and other investment products such as ETFs need to be listed on trading platforms. With the former, by allowing or even attracting foreign listings exchanges play a vital part in creating new investment opportunities. With the latter more complex investment products, indices and market data are again strongly linked to the creation of financial products. Once you have a data stream and an index based thereon has been calculated, as an asset manager you can or obtain an index license from one of the providers to list an ETF (exchange-traded fund) on a trading platform through which investors can then gain exposure to a certain asset category.[8] In this post-GFC age of asset management capitalism and the shift towards more passive forms of investment, this becomes even more pressing (Braun, 2016; Fichtner et al., 2017). Hence, by deciding whom to give an index license and which products to list, index providers and exchanges are again central for the range of possible investment products.

Which financial products are listed on a platform is decided by exchanges. No matter if we talk about the listing of bonds and stocks, or exchange-traded derivatives, exchanges create and launch these products and then try to attract liquidity for them. Further, investors usually require risk management tools to handle their positions, need to hedge their exposure towards different sources of risks such as fluctuations in commodity prices, exchange or interest rates or they might want to speculate against or short a specific asset (Norfield, 2012). Therefore, derivative contracts are needed. The value of derivative products is derived from underlying assets such as interest rates, commodities or currencies and their original purpose was to offer the possibility to hedge against risk and involved the physical delivery of good (e.g. a grain shipment). With the re-emergence of global finance in the 1970s, derivative trading has virtually exploded, growing from $866bn in 1987 to $672tn in 2008, ten times the size of global GDP (BIS, 2016; ISDA, 2010), has transformed into sophisticated bets on the future development of asset prices and are often used for speculative purposes (LiPuma & Lee, 2005; Norfield, 2012). Again, it is important to note the crucial role of exchanges is this process as they decide which products to 'launch' on their platforms (Millo, 2007). That is, an exchange owns (or licenses) an index or benchmark, decides to list a derivative product on their platform

[5] In June 2017 for instance MSCI decided to include China A-Shares into its MSCI Emerging Market Index which is tracked by $1.7 trillion AuM, and although they only made a small change to their index calculation by including 0.78% of Chinese stocks, asset managers must permanently invest $10-15 billion into the Chinese stock market.

[6] Information on MSCI based on interviews with two exchange representatives in London, October 2017.

[7] FTSE Russel is owned by the LSE and S&P DJI is a joint venture between S&P and CME Group. Other large index providers are also exchanges-owned such as Nasdaq Global Indices, Stoxx, CSI or those by ICE Group.

[8] For instance, Blackrock's iShares Core DAX® UCITS ETF, the largest ETF to track the German market, is listed on Deutsche Börse and tracks the DAX index which is calculated by Stoxx – a subsidiary of Deutsche Börse.

to hedge or speculate against price movements, enlist market makers and canvass investors so that they trade on their platform.

Third, investors will of course only invest in a financial asset when they have the possibility to sell it again. Therefore, a functioning trading platform that brings together buyers and sellers is needed.[9] Ideally one with high liquidity – meaning that there are enough buyers and sellers so that market prices can form and do not fluctuate too much. Investors need to have access to such a trading platform – which can be restricted by the platform provider – and must be able to rely on its functioning. Obviously, the provision of trading platforms for financial products has been the traditional business of exchanges (Lee, 1998). In this sense, exchanges fulfil a purpose analogous to that of banks do in credit provision. They are intermediaries that enable the steady transfer of funds between capital market participants. If we define credit as "the power to allow or deny other people the possibility of spending today and paying back tomorrow" (Strange, 1988: 90), exchanges are the facilitators of this disintermediation process of credit allocation, establishing social relationships between market participants (Snider, 2014). However, this traditional business has also changed. On the one hand, exchanges have ventured into different asset classes, offering everything from stocks, bonds, ETFs, FX, commodities as well as derivatives for all of these products. On the other hand, these trading platforms have changed from physical locations such as pits and floors towards digital marketplaces that can in theory be accessed from everywhere – if access is granted (Beunza et al., 2011; Castelle et al., 2016). Exchanges might for instance offer co-location services that enable HFT or connect their platform to another exchange (Meyer & Guernsey, 2015). However, by deciding who is allowed to trade on their platforms, what can be traded and what characteristics these trades have (e.g. if day trading or short-selling is allowed or if there are position limits), exchanges have considerable power about trading activities. Trading platforms are quite straight forward, that is the original function that we associate with exchanges. This does not only refer to exchanges, but also a lot of MTF or dark pools which are operated by exchanges.

Fourth, once a trade is conducted it needs to be executed, that means every trade needs to go through a clearing house and central securities depository, needs to comply with regulatory standards and might need financing through custodian services, liquidity or collateral management solutions. Especially with the introduction of the post-crisis G20 regulations, but also higher capital requirements for banks, the push towards mandatory clearing, increased margin requirements for uncleared derivatives as well as the promotion of more regulated market places through regulations such as Basel III, MiFID II, EMIR and Dodd-Frank, CCPs have gained a much more central role in capital markets. CCPs for instance are now the new institutions that are too big to fail (Stafford, 2017). Again, almost every CCP as well as many CSDs are owned by exchanges – which highlights their importance for capital markets even more. Further, exchanges control a lot of the post-trade activities. Think of clearing for example, all clearing houses are owned by exchanges and they have become even more important with the mandatory clearing of OTC derivatives after the GFC. Also, a lot of the post-trade activities such as settlement, custodian services, collateral/liquidity management or RegTech are done by exchanges (and increasingly so).

In summary, exchanges have become companies with huge variety of business activities which organise, govern and control large parts of financial infrastructures in capital markets. From market data and indices, to the listing/creation and trading of various securities, commodities and derivatives, to post-trading activities such as central clearing, settlement, custodian and collateral management services, exchanges are crucial to the functioning of the entire financial value chain that enables investors to participate in

[9] While spot or primary markets (fixed role markets) serve as a link between borrowers and investors, secondary markets remove the borrower from the equation as everyone is both a buyer and a seller. As Snider (2014) points out, in global finance "today trading is more about the making and selling of specialized financial products than the making of 'things'".

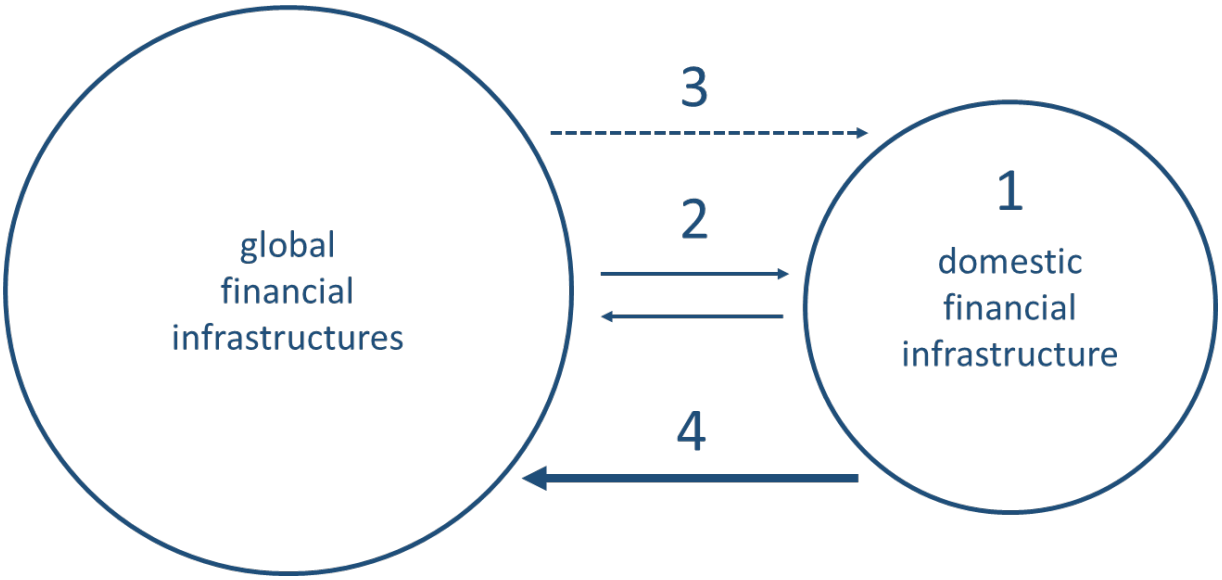
capital markets. While many scholarly accounts of how exchanges work stress the role of the exchange's members (i.e. the brokers or market makers; see Abolafia, 1996), today the role of exchanges has become more significant – and, if you will, more architectural – for the organisation and development of capital markets.

Capital market internationalisation as a network of financial value chains

So how is this role of exchanges in the organisation and development of capital markets linked to their internationalisation? Overall, cross-border capital market integration is not a given, but only possible through institutional change such as widespread regulatory harmonisation (e.g. MiFID), the formation of global financial infrastructures (e.g. through consolidation), or the creation of links between exchanges. In contrast to widespread perception, 24-hour trading is not a given and not possible in most asset classes, especially as many products can often only be exclusively traded on one platform (Meyer & Guernsey, 2015). Rather, cross-border capital market integration is the product of constructing an international network of financial value chains by creating financial infrastructures and creating tradable financial products. Especially since the 1990s, exchanges started to form alliances, create joint ventures, cross-list and jointly develop products or create connectivity by linking their trading platforms, thereby co-constituting financial globalisation. However, this is a very political process in itself. Similarly, since the 1980s capital markets have sprung up globally through the establishment of new stock exchanges (Weber et al., 2009). However, while the role of the state (Lavelle, 2003, 2004), domestic political coalitions (Zhang, 2009) and pressures from global finance in establishing capital markets in developing countries has been highlighted in the political economy literature, the role of stock exchanges as actors in these processes is less understood (but see Botzem & Dahl, 2014).

Where does financial market knowledge come from? As highlighted above, exchanges are crucial actors in the development and organisation of capital markets, and the expert knowledge of how to organise and run markets is not situated in government institutions or domestic political coalitions. What one can rather observe is that both exchanges in emerging markets as well as global exchanges have been crucial in training regulators, traders and exchange operators in how advanced financial markets work or helped to develop these capital markets in the first place. Further, global exchanges have often exported their financial technologies and infrastructures to underdeveloped markets. In contrast to the common assumption, 24h trading does not exist in most asset classes. What exchanges then do is to connect marketplaces. Therefore, exchanges represent not only one of the institutional foundations of modern capitalism (Thiemann et al., 2014), but as Weber et al. (2009: 1319) emphasise, they have become a "core technology of financial globalization."

For an emerging market's capital market development and internationalisation three dimensions need to be considered. First, capital market needs to be sufficiently developed domestically. Second, domestic markets are linked to global finance, either by international investors able to trade into that market and, domestic investors able to trade out of that market or investors might be able to indirectly trade this market (e.g. through an internationally listed product). Fourth, the emerging market's exchanges might internationalise themselves by venturing into other markets. So, from this perspective, the internationalisation of China's capital markets can be understood as a network of financial infrastructures that link China with global markets and enable trading.



[figure 2 – integration into global capital markets, an infrastructure perspective]

By acknowledging the internationalisation of and linkages between capital markets, it is important to take into account how different national capital markets "have a constitutive impact on the structural environment in which they operate and the networks that connect them to other systems" (Engelen et al., 2010: 56). By drawing on financial geography research that has long analysed financial systems as networks between financial firms, centres or interactions between financial systems (Christophers, 2013; Coe et al., 2014; Lai, 2012) that is gradually being applied by IPE scholars and their study of financial markets (Fichtner et al., 2017; Green & Gruin, 2017; Winecoff, 2015).

However, the construction of financial infrastructures is not a merely technocratic task, it is in itself highly political and contested. Whoever organises markets has a lot of power over the social outcomes of market interactions. If a market gets completely integrated into global finance, control over listed companies, the valuation of financial assets and choice of corporate and state strategies gets partially transferred and subjected to the laws of global financial markets. Think for instance about the Asian Financial Crisis or the Eurozone crisis and how pressures from global capital markets led to widespread austerity and structural adjustment programmes, or how many Western European banks were engulfed by the US subprime crisis, turning into a transatlantic financial crisis. In the latter, East Asian financial systems were not affected by the crisis (Sinclair, 2011), not even Japan as a country with highly developed financial system (Gotoh & Sinclair, 2017; Kamikawa, 2013). All of these instances had severe societal consequences, however preceding these events where always political processes that led to the construction of a network of financial infrastructures that enabled this internationalisation in the first place.

One proxy measure for the increased presence and interest of exchanges in China are their office locations. Since 2010, most global exchanges have established China operations. As one interviewee (broker, Singapore) noted, "to gain a footprint in the region, exchanges work themselves through the networks." Most of their operations are therefore business development, sales, marketing or rather "training & education" activities –as they are actually not allowed to sell their products in China, hence they "educate" investors, regulators and exchanges in anticipation of future returns. Of the six global exchanges all (but ICE) are very active in China, regularly conducting trainings to work with regulators, recruit local clients, educate investors, lobby for accessibility, and most importantly, cooperate with the Chinese exchanges. Often, they will partner with a local counterpart such as a Chinese exchange or broker to gain access to the

right people. The Chinese exchanges in contrast want to learn from the industry leaders how to develop markets, products, platforms etc.

Exchanges constantly talk with each other. As one interviewee noted, "to know each other better… we are not only doing the exchange of training, orders… [we facilitate] the exchange of people, the exchange of ideas".[10] Delegations are sent to other exchanges, training workshops are held, marketing teams spending weeks on Powerpoint presentations. Before launching the CSI 300 index futures, Chinese exchanges toured all major international and Asian exchanges who organised workshops and trainings for them to learn more about the international best practice of how to design a product, how the clearing mechanism works, how the trading system works, etc. Such knowledge transfer between exchanges is crucial for facilitating capital market development and also highlights importance of knowledge (as well as the existence of knowledge asymmetries) between providers of market infrastructures. If cooperation seems fruitful, the Chinese exchanges, partially together with their foreign counterparts, will lobby their regulator, the CSRC, whether there is room or political support for the kind of cooperation they were hoping to conduct. Interestingly, Chinese exchanges also engage in framing these projects in certain ways and embed them in state policies, giving projects a BRI or RMB internationalisation spin.

If the regulator gives a green light, the cooperation will often be officially commemorated with a large ceremony and the signing of a Memorandum of Understanding, often in conjunction with some state visit or during an economic forum, photos will be taken, there will be confetti. While many such MoUs have been signed – in the words of one interviewee, "they MoU-ed themselves to death"[11] – they do represent an important step in the cooperation process. On the one hand, they demonstrate that a project was sanctioned by the regulator, on the other hand, they have an important signalling function to the state apparatus – kind of like, "look what we are doing, we are advancing China's internationalisation process" – which is important in a system where the allocation of top management positions is not determined by your quarterly earnings but rather by projects that advance state policies. The ceremony gives you status and the possibility to collect tokens, whereas in international markets MoUs are usually just signed briefly before the launch of a project to avoid failures and share price fluctuations. In the next step of the cooperation, feasibility studies will be written that try to bridge the control-profit divide – after all the two partners have very different objectives, trainings and education will be intensified, often through staff exchanges, so employees from the Chinese exchange will "intern" ("hospitieren") at the international exchange for a few months or vice versa, they will jointly develop projects, work on the development of a financial product, a mechanism of exchange, an index, a market data agreement.[12]

Quite a few projects remain in this state and do not advance any further. Not every MoU turns out to become a strategic partnership, trading link or joint venture. Often the reason for such failures is the incompatibility between control and profit, which is also often the major hindrance in successful projects. While it is comparatively easy for two profit-driven enterprises to engage in a joint activity, this is much more difficult in the case of China. The end result of a lot of these social interactions is the development of some form of infrastructure that connects China with global markets, so the basis for the development of capital market infrastructure in China (and elsewhere) is mainly these social interactions which initiate market development. In this respect, China represents something close to a natural experiment as for decades China has been completely isolated from global capital markets and its domestic markets have only began to form 25 years ago. This makes it an ideal case to study the development and organisation of capital markets, their integration into global markets as well as the politics that drive this process.

[10] Interview with exchange in Shanghai (May 2018).
[11] Interview with exchange in Singapore (November 2017).
[12] Interview with industry association in Shanghai (May 2018).

4. Case study: Capital market development in China, 2009-2018

In China, capital markets were only established in 1990 and basically closed from the outside world until 2003 with the QFII programme; and the internationalisation only really took off after 2009 spurred by the GFC, the internationalisation of the RMB and – most recently – the BRI. Today, Chinese capital markets are the 2nd largest globally both in terms of stock and derivative exchanges, and no.3 for bond markets. So, in a way, Chinese markets represent somewhat of a natural experiment to study the politics of capital market internationalisation. However, Chinese state capitalism is kind of at odds with Western style capital markets. Capital controls are an essential feature of the Chinese political economy and Chinese exchanges are state-owned entities with very different incentive structures than global exchanges. So, how does this process of internationalisation work? What are the mechanisms behind it? Who are the actors in this process? And what are the politics behind it? It is important to note, that the liberalisation and opening of financial markets is part of a larger trend in China towards allowing a greater role for markets in its economy. In 2013, during the Third Plenary Session of the 18th Congress of the CCP, the Chinese government officially declared that "the market should take a decisive role" in allocating resources and in facilitating growth in the Chinese economy.

Who governs exchanges matters a lot for the kind of markets that they are creating, as outlined above such institutional arrangements are important for the ways markets function. Global exchanges are all publicly traded companies with shareholders and are subject to the laws of the market.[13] This means they have to make profitable business decisions to increase shareholder value and serve the global investment community. Global exchanges are interlinked with and co-constitute processes of financialisation, neoliberal views of how markets are supposed to work and the general logic of financialised capital markets – thereby actively promoting financial globalisation. In contrast, Chinese exchanges are rather policy tools of the state. The Chinese exchanges – the stock exchanges in Shanghai (SSE) and Shenzhen (SZSE), the commodity futures exchanges in Dalian (DCE), Zhengzhou (ZCE) and Shanghai (SHFE), the financial futures exchange (CFFEX), a gold exchange (SGE) as well as the clearing house (SHCH) and the trading platform CFETS[14] – are all government agencies, subjected to the China Securities Regulatory Commission (CSRC) or the People's Bank of China (PBoC), and ultimately, the Chinese government.[15]

This different institutional setup of exchanges 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. And this can be observed when analysing the development and internationalisation of Chinese capital markets. First, while global and Chinese exchanges cooperate in the development and internationalisation of Chinese capital markets, this cooperation is not conflict free but often contested as different views of how capital

[13] The largest global exchange groups are ICE, CME, Deutsche Börse, LSE, Nasdaq, CBOE. Other important regional exchanges are SGX and HKEx.

[14] CFETS provides the infrastructure for China's interbank lending, OTC derivatives and FX trading. While not officially recognised as an exchange, which is partly due to the unconsolidated nature of the Chinese exchange landscape (no need for M&A as with global exchanges subjected to market pressures). However, CFETS fulfils the same functions and its overseas counterparts in most of its cooperation agreements are global exchanges such as CME or Deutsche Börse.

[15] Hong Kong Exchanges and Clearing (HKEx) is unique in that it shares characteristics of both Chinese and global exchanges.

markets are supposed to function, what their role in the broader political economy is and how free these markets are from state interference. Second, while the Chinese state seeks to develop and internationalise its markets, this is done very carefully and, most importantly, selectively and in a controlled manner. While the Chinese state wants to create markets, in contrast to a "Western", liberal understanding, these markets need to be subjected to control through the state.[16] Third, instead of creating shareholder value, capital markets in China specifically act as policy tools to further state policies such as assisting China's commodities pricing power, the internationalisation of the RMB or the Belt and Road Initiative, both domestically and internationally, the state "directs" markets in a certain way. Fourth, 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-permeated economy, they have both an oligopoly position as well as considerably authority over and within the marketspace. As one interviewee noted, "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."[17] So while profit is the main principle underlying both international exchanges' activities as well as the markets they organise, in the case of Chinese exchanges, control and direction are the main principles of market organisation. The exchanges themselves are (to a large degree) controlled by the state and also attempt to control their markets, the behaviour of its investors and its social function – e.g. "to serve the real economy".[18]

While China introduced market-led reforms after 1978 and its economy transformed from communism to (state) capitalism, China's financial system was initially exempt from liberalisation measures (Naughton, 2007). China's financial system was completely shielded from global markets and foreigners had only very limited access (Breslin, 2007). While since the WTO entry in 2001, pressures to open and liberalise the financial system had arisen (Bowles & Wang, 2013), most scholars agree that although some liberalisation and opening had occurred, until 2009 this has been in a piecemeal fashion and more often window-dressing than actual reform (Andreosso-O'Callaghan & Gottwald, 2013; Walter & Howie, 2012). It is here, in the financial system, where the state exercised the strongest grip on and through which it maintained control over the economy.[19] However, since 2009, Chinese capital markets underwent an extensive transformation as capital markets became a key element in the new Chinese growth model which was based around two policies – rebalancing China's economy and RMB internationalisation.[20]

As emphasised above, Chinese capital markets did not exist until 1992, and only really started to take off since 2009, and they were more or less isolated from the outside world. So, how did Chinese capital markets develop and internationalise? In the following, three dimensions of these processes will be analysed: domestic capital market development in China; trading in and out of China; and Chinese finance going out.

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[16] It is important to note that this notion of control is also why exchanges are the vehicles of financial opening and liberalisation. Exchanges are regulated markets in the double sense, that they regulate markets but also that they can be regulated themselves, much more so than OTC markets where there is no central entity that constitutes the marketplace.

[17] Interview with exchange representative in Hong Kong (June 2017).

[18] This does not mean that Chinese exchanges do not have any agency of their own and that their interests are always aligned with that of the government (see Vic Li on Chinese exchanges as norm entrepreneurs). However, there is no doubt that they are closely connected to the state and ultimately have to comply.

[19] This is also a prominent feature in the developmental state literature (Stubbs, 2009; Woo-Cummings, 1999).

[20] It is important to note, that the liberalisation and opening of capital markets is part of a larger trend in China towards allowing a greater role for markets in its economy. In 2013, during the Third Plenary Session of the 18th Congress of the Chinese Communist Party, the Chinese government officially declared that "the market should take a decisive role" in allocating resources and in facilitating growth in the Chinese economy. This position was reaffirmed during the 19th Congress in 2017.

Thereby, the focus is placed on the construction of financial infrastructures and the role of exchanges in this process.

Domestic capital market development in China

Exchange-traded capital markets in China only started developing in 1990, with the establishment of SSE and SZSE, followed by the formation of DCE, SHFE and ZCE in the mid-1990s. Interestingly, the creation of exchanges was a reaction to a booming OTC market in the trading of company shares in the 1980s. The reason to create the exchanges was thus to create a regulated market, that could be monitored and intervened in by the government. However, as discussed above, the most knowhow about how to create capital markets sits within a small group of global exchanges. So, before creating these exchanges, Chinese officials visited exchanges around the world to learn about best practices of how to organise markets, SHFE is basically a copycat of LME while DCE and ZCE learned a lot from CME and CBOT. Similarly, Chinese exchanges initially relied on foreign technology for their trading system. SSE's initially bought Deutsche Börse's Xetra platform, CFETS and NEX (formerly ICAP) set up a JV inter-dealer trading platform and Nasdaq also provided technology consultancy and services to a lot of Chinese exchanges.[21] As one interviewee noted, "Of course the Chinese could have done it themselves, but it would have been primitive".[22] The same applies to the establishment of CFFEX in 2006, where Chinese toured all major financial futures exchanges in the world to learn how they created their products, ran their platforms, cleared contracts etc. Similarly, before the launch of crude oil futures on INE in 2018, years of industry consultation took place.

However, the Chinese exchanges did not simply copy and paste these international practices. Next to cybersecurity concerns which increasingly prompted them to develop their own systems, they rather adopted foreign systems and know-how to, on the one side, suit their domestic market conditions, but also, on the other side, to direct markets in to serve specific purposes. First, capital markets are used to reform SOEs. Second, capital markets are a way to facilitate social stability as 80% of Chinese investors are retail investors, your mom and pop traders and an increasingly wealthy middle class. Third, capital markets are supposed to serve the real economy. Fourth, Chinese capital markets need to become internationally competitive. As a result, Chinese exchanges design and market infrastructures and influence markets to fulfil these outcomes.

First, while in international markets the main function of stock markets is for companies to raise money, in China this is not the case. Usually, those companies who are listed on the exchange – who gets listed is decided by the government – are SOEs with sufficient funding from state-owned banks. Instead, listing on exchanges was rather done to make SOEs more efficient, by adopting "modern" corporate governance structures and receiving know-how from strategic international investors. As one interviewee noted, "you know, the purpose of stock markets in China was to reform SOEs".[23] One the one hand, Chinese SOEs became more efficiently run, less wasteful companies, on the other hand SOEs were now "publicly" listed companies which gave them a certain legitimacy in international markets, and they could now engage in the global M&A market with somewhat less scrutiny. The Chinese stock exchanges were also vital in facilitating this process, bringing together companies and their shareholders, educating companies about international best practice. As Wójcik (2012: 121) for instance noted while referring to the case of the Warsaw Stock Exchange, one important activity of exchanges is to educate investors, "which is particularly important in the context of a country where stock market did not exist for over half a century before 1991". With China's inclusion into MSCI indices in June 2018, stocks from 222 Chinese companies will have

[21] Interview with exchange representative in Hong Kong (June 2017).
[22] Interview with former exchange representative in Shanghai (May 2018).
[23] Interview with exchange representative in Frankfurt (February 2018).

international investors, hence SSE hosted several events to educate included companies about how to comply with the MSCI governance framework.[24]

Second, capital markets are used as a way to facilitate social stability in China. There is a compromise with the middle class that they can participate in China's economic growth via the stock market, in return of not challenging the political status quo. Further, the promise of a Chinese dream, socialism with Chinese characteristics and political stability are all intricately linked with the performance of the stock market. Especially in the absence of a social security system, or rather abandonment thereof with the introduction of ultracapitalism, and a simultaneous strain on the familial social security system due to an aging population – investing into the stock market serves as a fix to these problems. As a result, the stock market occupies a much more politically sensitive space than internationally. As noted by more than 30 interviewees, protecting retail investors is paramount in Chinese capital markets, both from themselves and from more sophisticated investors. As one interviewee stated, protecting retail investors is important and hence "fairness is the most important goal for Chinese capital markets."[25]

As a result, all elements of the market infrastructures provided by exchanges are designed to facilitate this objective. In contrast to global markets, where HFT is rampant in all asset classes and leads to huge losses for less sophisticated investors, the structure of Chinese markets deliberately and severely constrains HFT strategies. Chinese exchanges for instance do not sell real time market data which would give some investors a price advantage, market data is rather published in bundles, 2 or 4 times per second which is "good for lay people, but bad for professional investors".[26] Further, there are very few order types that investors can use, as against to global markets where certain order types, e.g. flash orders, have caused controversy about fairness in markets (Arnuk & Saluzzi, 2012; Lewis, 2014). So, while there are certain possibilities for algorithmic trading in China (but not "typical" HFT) and exchanges do allow colocation (but not DMA), these are very restricted (see next section).

Further, on the stock exchanges, intraday trading is not allowed but trading is t+1. Again, this is deliberately designed to keep retail investors from trading too much and makes HFT trading impossible. As a result, sophisticated traders cannot gain an edge over lay traders who would lose money due to a speed disadvantage. Similarly, the exchange requires 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, can therefore not react to this information and lose money.[27] In a lot of interviews, retail investors were described as "children" who need to be protected from themselves (e.g. because they love gambling) and others (e.g. predatory, foreign hedge funds) by the exchanges and regulators, and that this is important as the stock market serves a very political function. As one interviewee noted, "nobody wants these investors protesting on the streets because they lost money in the stock market."[28].

Third, while boom and bust circles are accepted as a sort of law of nature in international markets, Chinese exchanges have many measures in place to monitor markets and to prevent "overspeculation" and insure that "financial markets serve the real economy". For this, there are several measures in place. While intraday trading is allowed on futures exchanges, all contracts have position limits that are significantly lower than in international markets. Since the stock market downturn in 2015, trading of index futures on CFFEX for instance has been severely constrained, limiting trading to only 20 lots per day. Similar rules exist for commodity derivatives but are not quite as stringent because the regulators believe that they better

[24] Interview with exchange representative in Shanghai (May 2018).
[25] Interview with exchange representative in Shanghai (June 2018).
[26] Interview with former exchange representative in Shanghai (June 2018).
[27] Interview with exchange representative in London (January 2018).
[28] Interview with hedge fund manager in Shanghai (June 2018).

serve the real economy as companies might use them for hedging purposes. In order to trade index futures or options, investors need to take an exam to prevent them from losses and reduce speculation from uninformed investors. Further, when trading one has to indicate whether a trade is for hedging purposes, for speculation or for arbitrage (although this latter option does not exist for financial futures). There is also a limit for speculative trades and if you want to hedge, you must have the underlying position. For commodity exchanges this usually means that you have to deliver documentation on your physical commodity (trading) exposure, while for financial futures there is also a surveillance mechanism in place.

As HKEx's Charles Li quipped at FIA Asia in November 2017, "while Europe is struggling with MiFID II, in China you have MiFID 10." That is, in China the exchanges and regulators know everything about trading as basically every single trade can be traced back to a Chinese I.D. card. As an investor in China, you have one margin account with your broker who then opens several trading accounts on your behalf with all the exchanges. After trading hours are over, all the exchanges will send their data to the China Financial Margin Monitoring Center which monitors an investor's trading across markets. Therefore, when you traded CSI 300 futures to hedge a stock market position that you did not have, your trades will be retrospectively annulled, and the exchange might ban your account from trading, maybe for a month, maybe indefinitely. As one interviewee mentioned, "when you read Futures Daily [a 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."[29]

Commodity exchanges will monitor the open interest-to-trading volume ratio, the rationale being that more open interest indicates more hedging as against to mere trading, i.e. speculation. If the ratio is over 1:2, exchanges might increase intraday execution fees, increase margins (btw, margin accounts need to be prefunded), or they would call brokers to tell them to tell their most active clients to stop trading or to trade less. As brokers would otherwise get in serious trouble with the exchanges, this chain of command is actually quite effective.[30] In addition, all almost all contracts on Chinese futures exchanges need to be physically delivered. Only index futures are cash settled, while bond futures and options are also physically delivered, i.e. you receive the underlying bonds or futures. This is in stark contrast to international markets where almost all contracts are cash settled as exchanges can make money with that and there is no mandate to facilitate the development of the real economy through actual commodity trading.[31] The Chinese exchanges also engage in a lot of educational activities to get commodity companies, e.g. steel mills, mining, energy or food-processing companies to hedge their risk in commodity markets. They further try to educate and professionalise retail investors in addition to trying to get them to use institutional investors instead of investing themselves.

Despite news headlines about rampant speculation in Chinese markets and ever-recurring warnings about a crash and "hard landing", Chinese capital markets are actually deliberately designed to fulfil certain outcomes. Overall, one can observe that while learning from global markets, the Chinese exchanges created financial infrastructures within China that instead of primarily facilitating the earning of profits, for both investors and themselves, the market infrastructures are designed to control markets and direct them towards certain policy objectives that they need to meet, such as facilitating industrial upgrading, protecting retail investors and making financial markets serve the real economy. Thereby, exchanges are crucial in mediating state-society relationships and fostering domestic market development in a strategic way.

[29] Interview with broker in Shenzhen (May 2018).
[30] Interview with broker in Shanghai (April 2018).
[31] As one interviewee (former exchange representative in Hangzhou, May 2018) noted, SGX only had one contract that could be physical delivered, everything else was cash settled as the exchange had no interest in organising delivery and much more money could be made with cash settlement.

Trading in and out of China

In contrast to a Big Bang style deregulation of financial markets, the opening up of Chinese capital markets is rather conducted in a very controlled manner that is always reversible. Capital controls are still very much in place and central for the functioning of the state-controlled Chinese economy. So, the mechanisms that are in place to enable trading in and out of China are quite different from "free", international markets. In international markets, most trading is conducted OTC which dwarves markets for exchange traded products, in the opening up of Chinese markets, however, OTC markets play a very minor role. Here the crucial role of control comes in again. In MiFID II exchanges are fittingly categorises as 'regulated markets'. While the nature of exchange markets is necessarily more regulated in the sense of being more organised, crucially for the Chinese case, exchanges (and thereby the markets they organise) can also themselves be more closely regulated – in the sense of being able to be controlled. This is a crucial feature of the Chinese opening process. As one interviewee 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."[32]

Therefore, the Chinese state has come to rely on exchanges as as a vehicle to control trading flows and as the crucial actors in the process of opening up its markets. So, while you do see a gradual opening, by channelling this opening through exchanges it is a very controlled process. Overall, there are three dimensions to this integration process with global markets. First, through international investors having a presence in China trading Chinese markets (onshore-onshore). Second, through channels that enables trading between onshore and offshore, for either Chinese investors trading outside of China (onshore-offshore) or international investors trading into China (offshore-onshore). Third, through indirectly trading China in offshore markets (offshore-offshore). In all of these, exchanges (both Chinese and global) play a central role in mediating the relationship between the Chinese state and global financial markets.

Onshore-onshore

Now, officially foreigners are not allowed to trade in Chinese markets which is also a commonly used rhetoric by the Chinese administration. However, thousands of foreign companies, from proprietary trading firms such as Optiver, over commodity traders up to industry giants such as Goldman Sachs trade in Chinese markets every day. What seems like a contradiction at first is again actually a very controlled process aimed at educating and developing the local market.

The reason why these foreign companies are allowed to trade in Chinese markets is that they have established local entities called non-financial wholly foreign-owned enterprises (WFOEs). Non-financial meaning that these WFOEs are set up as physical commodity trading companies enabling foreigners to open accounts with Chinese brokers and trade commodity futures markets for "hedging" purposes. While this might seem like a creative move to work around Chinese regulations that ban foreigners from trading, as several interviewees noted, setting up WFOEs is accepted by the authorities – because these companies are registered in China and therefore subjects to Chinese laws and the control of the regulators. First, the authorities decide who gets a WFOE license and the process is very thorough, takes up to two years (find news QUOTE) and you are only allowed to conduct certain business activities. Second, foreign traders can bring important know-how into the Chinese market. When talking about international prop firms setting

[32] Interview with exchange representative in London (January 2018).

up shop in China, one interviewee 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."[33] A few select international players are let into the market (also in form of joint ventures) with the aim of training and educating local investors, making them fit for international markets.

Third, as non-financial companies whose only business is basically to trade in capital markets, with many of their activities WFOEs operate in grey areas, and of course the regulators define which of their activities are legitimate. In the prominent case of the Russian trading firm Yishidun International Trading for example their trading activities on CFFEX were retroactively declared illegal, and they had to pay a considerably fine and were banned from trading. Similarly, Citadel's Shenzhen trading account was suspended from trading after SSE and SZSE investigated market manipulation (in this case "spoofing"). Therefore, although foreign behemoths such as Goldman Sachs, Citadel or Deutsche Bank are active in Chinese markets, they have to play according to Chinese rules and in contrast to global markets, they are at the very bottom of the food chain as the Chinese authorities use exchanges as a mechanism to exert control over global markets going local.

Onshore-offshore

Since 2009, you saw a large increase of cross-border capital flows between China and the outside world, especially with HK as an important hub or gateway between China and the rest of the world. But again, this is not a Big Bang scenario, rather this opening process is controlled and reversible. If you look at the possibilities to trade in and out of China, most of the mechanisms and connections in place are based on the aforementioned social interactions between Chinese and global exchanges. Now, how can Chinese capital markets be accessed from abroad and how can Chinese investors trade out of China?

Again, in this process of being able to trade China, exchanges are vital. If you look at the QFII and RQFII quota schemes that allow international investors to invest into certain Chinese assets, you can see that this strongly correlated with financial products that are offered by exchanges. On the one side, you have FTSE – which is owned by the LSEG – on whose index's is the basis for the mostly traded China ETF is based (iShares by BlackRock). This ETF can only be traded through the quota system (or later, stock connect). However, international investors need to be able to hedge their positions, this is where the iShares FTSE A50 Index ETF Options (launched by HKEx) and the A50 Index Futures (launched by SGX) come into play. Without these financial products launched by HKEx and SGX, international investors would not be able to hedge their China exposure and therefore be more reluctant to trade China altogether. Hence, the infrastructural environment provided by exchanges is crucial to trade China.

The earliest schemes to trade into and out of China were QDII and (R)QFII quotas. Chinese state-owned banks and other SOEs such as were given a QDII quota to engage in hedging activities, e.g. trade in metals in London or agricultural commodities in Chicago. However, since 2015 no new QDII quotas have been handed out due to fears of too many capital outflows. Reversely, foreign investors were granted QFII and RQFII quotas to invest into China. But these quotas were only issued to ca. 200-300 institutions, with restrictions on what can be traded (no commodity futures, few financial futures) as well as on the expatriation of profits (only 20% for QFII). In recent years however, exchanges have been very active in creating additional mechanisms whose flows are by now also larger than those quota schemes.

[33] Interview with former exchange representative in Shanghai (June 2018).

As several interviewees have pointed out, the establishment of the Stock Connect between Shanghai and Hong Kong in 2014 has been a turning point in this development. Basically, the Stock Connect enables traders who can access the HKEx to trade stocks on SSE, and vice versa. In 2016, another Connect was launched between SZSE and HKEx.[34] However, for the Connects, "home-rules" apply, so for international investors in HK who want to trade A-Shares previously identified characteristics of the Chinese markets such as limited order types, the 10%-price fluctuation limit and t+1 (no day trading) apply. Another crucial aspect about the Connect Scheme is that it is a "closed loop". If a mainland investor invested in HK shares through the Connect and decided to sell these, the resulting HKD-denominated proceeds get transferred into RMB and channelled back to the investor's mainland account, the same applied to HK investors who invest in A-Shares. So, while capital flows between the two markets are enabled, capital controls remain completely intact. In addition, if trading gets to wild, quotas are in place and the exchanges can restrict trading. As one interviewee stated, "with Stock Connect you have this beautiful sort of capital control mechanism […] they [the Chinese authorities] can always turn of the tap…"[35] The Stock Connect is designed in a way that the Chinese exchanges (and thereby the state) can control capital flows.

In fact, all other Connect schemes that enable foreign investors to participate in Chinese markets and vice versa rely on similar mechanism that the Chinese exchanges who run these markets have deliberately designed to keep a grip on what is traded and where money is going. For example, the same logic also applies to the Shanghai Gold Exchange which opened an international board in 2014, the largest physical gold market in the world. Here also, while international members and domestic members can trade both on the domestic and the international board, depending on which board you trade gold is stored in either domestic vaults or in an international vault based in the Shanghai FTZ which is considered to be outside of China for customs purposes. While you might receive a permission from the PBoC to bring gold into the country, 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. Here again, while both international and domestic participants trade in the Shanghai gold market, capital controls remain intact.[36]

Another important case is the MSCI inclusion. Lots of discussions between SSE, SZSE and MSCI. Stock Connect was decisive factor in this. In all of these cases, exchanges have deliberately design market infrastructures in a way that while enabling some form of integration with global markets, capital outflows can be avoided and capital flows can always be monitored and even stopped if need be.

Offshore-offshore

A third option to trade China is by trading financial products offshore that are based on a Chinese underlying or indirectly related to China. This represents somewhat of a challenge to China as it cannot control these processes. As a result, China does everything in its power to avoid these kinds of trading activities.

One very important example in this case is the SGX FTSE China A50 Futures Contract. The A50 is the only financial futures contract outside of China that is based on a Chinese underlying, the 50 largest A-Shares traded on SSE and SZSE, and was launched on SGX in 2006, where it quickly became the most-traded contract on SGX. And this contract gave investors the possibility to speculate on the development of the Chinese stock market, something that is completely at odds with the Chinese model of controlling markets. So, why did this contract develop in the first place? After all, you cannot just list a product based on a Chinese underlying.

[34] In addition, a HK-China Bond Connect was launched in 2017, but this goes beyond the scope of this paper.
[35] Interview with HKEx in Hong Kong (June 2018).
[36] Interview with exchange representative in Shanghai (June 2018).

The story behind the A50 is actually quite revealing about the politics inherent to the provision of financial infrastructures. In order to create a futures product based on the Chinese stock market, an index based on market data from the Chinese stock exchanges needs to be developed. This was done by a joint venture between FTSE and Xinhua Finance which was established in 2000. From the Chinese side, the rationale behind this JV was for the Chinese news agency's financial information and services arm Xinhua Finance (established in 1999) to gain know-how into how to develop financial indices from one of the world's leading index providers. FTSE on the other side saw huge opportunities in Chinese markets as back then virtually no mainland Chinese indices existed because the Chinese exchanges did not license their market data, and the only existing "China" indices were based on Chinese companies who had listed abroad in New York, London or Hong Kong. With China's official press agency as a partner, the JV was part of the inner circle and SSE and SZSE licenced their market data to them to construct an index on the Chinese stock market. Now, after creating these indices what the JV that was registered in Hong Kong did, and unbeknownst to the Chinese exchanges, was to sign another agreement with SGX, licensing their index to create a financial product.[37] According to several interviewees this was only possible because the original market data agreement with SSE/SZSE did not mention derivatives at all – neither allowing or prohibiting the further use of the index. Apparently, this issue was not even on the radar of the Chinese exchanges, they just did not think about this possibility.[38]

At first, the Chinese exchanges also did not mind the contract. However, as the contract started gaining traction, they became concerned as their domestic markets behaved weirdly – because more and more often stock prices in China were driven by the futures contract in Singapore; the tail was wagging the dog. As Euromoney noted, this reflects "an uneasiness in China at the idea that derivatives on Chinese stocks and instruments can be traded somewhere else in the world with absolutely *no control* from the People's Republic itself" (emphasis added; Wright, 2006). As an immediate response, SSE sued SGX for using their market data. And also, despite originally having close ties with China and being a natural choice for cooperations to facilitate China's capital market integration, Chinese exchanges stopped their cooperations and SGX was shut out of all further internationalisation plans. As one interviewee noted, "Singapore has lost the China game".[39]. This also set an example for other global exchanges, who all would love to list a Chinese index contract, but nobody dares to do so without permission from the Chinese exchanges after the SGX experience. 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?"[40]

But more importantly, this also facilitated the development of the domestic financial futures market in China. According to several sources, while the Chinese authorities were originally against (or at least wary of) building a domestic financial futures market, after the success of the offshore A50 contract, the creation of CFFEX and the launch of their own index futures became almost a necessity. When in 2010 the CSI 300 futures were launched, the process had been speeded up significantly to regain control over their market. With their own contract in place (which became incredibly successful), the Chinese exchanges could monitor trading, set the rules and punish abnormal market behaviour.

Today, although past its heyday, the A50 contract is still one of the most actively traded on SGX. While the Shanghai court unsurprisingly agreed with SSE, the case was not brought to an international court which

[37] This was not a first for SGX, who did the same with Japanese and Indian benchmark indices. As one interviewee put it: "Look, their domestic market is tiny. Their whole business model is based on building products on foreign markets without asking them, they have a reputation for this." (CHECK SOURCE).
[38] Interview with exchange in Hong Kong (June 2017).
[39] Interview with broker in Hong Kong (July 2017).
[40] Interview with global exchange in Singapore (November 2017).

could have completely prevented the trading of the A50, because it was not SGX but the FTSE-Xinhua Finance JV that was at fault, but SSE could hardly sue China's official press agency. To save face, the issue was buried. In 2007, the Xinhua News Agency declared that it did no longer had any relations with Xinhua Finance, the FTSE-Xinhua Finance JV was dissolved in 2010, and FTSE now holds all the rights to the A50. Hence, the contract still exists today – although only as a "dirty hedge" as it's no longer a good benchmark for the Chinese market which has grown tremendously since 2006 and investors would prefer using the CSI 300 for hedging purposes. The Chinese however have learned from their mistake, and CIS, the Chinese index provider, a wholly-owned by the SSE, SZSE and CFFEX who calculates the CSI 300 index, does not license its index to anyone but CFFEX and selected Chinese funds (e.g. to list ETFs in Hong Kong). When Chinese authorities clamped down on CFFEX's CSI 300 market (China's own financial futures market) after a stock market crash in August 2015, Chinese investors used their Singaporean subsidiaries to continue their speculative activities with SGX's China A50 Futures. As a result, trading in China A50 Futures more than doubled to 95.8 million contracts in 2015 (Acworth 2016).

A second noteworthy case is a dispute between ICE and ZCE, again playing out in Singapore. ICE – the world's second largest exchange group – wanted to list a cotton futures contract on its new ICE Futures Singapore platform in 2015. However, this contract was a copy-cat of a future that can be traded on the ZCE. In global markets, such replicated financial products are not unusual. However, ZCE feared about losing pricing power with this listing and subsequently threatened to sue ICE. In addition, and the CSRC approached Singapore's regulator MAS to stop the launch of the product. ICE Futures Singapore opened with a delay, and it did not offer the copy-cat cotton futures. So, in order to not lose control over their market and save face, China pressured the US-based and world's second largest exchange about trading a contract in a third country.

Chinese markets "going out"

The internationalisation of Chinese capital markets through Chinese exchanges expanding abroad is a third dimension of the transformation of Chinese capital markets. Here again, in contrast to the internationalisation of global exchanges that we witnessed in the 1990s and 2000s, the driver of the internationalisation process is not profit but again control over markets or being able to direct markets towards certain outcomes. In this third dimension, exchanges are crucial actors in mediating relationships between states as well as facilitating Chinese state power.

The internationalisation of Chinese exchanges is a carefully controlled process of institution building mainly conducted through acquisitions or joint ventures, and in contrast to more commercially oriented Western exchanges, the international expansion of Chinese exchanges is directed towards achieving Chinese state policies, most notably RMB internationalisation, the quest to gain commodity pricing power and the Belt and Road Initiative. Overall, the expansion of Chinese markets abroad can be divided into three projects: engaging with capital markets in developed countries, trying to gain commodity pricing power, and engaging with capital markets in developing countries, each of which have their own political objectives and inherent politics.

When engaging with developed markets (e.g. the UK), one aim is usually to promote RMB internationalisation, as most large institutional investors are based here. A second important aim is to gain prestige or status by cooperating with these mature markets, as they enter these partnerships as equals. Third, knowledge exchange and gaining know-how about how to develop and run sophisticated markets is very important. And fourth, such cooperations on the exchange level is often deeply entangled with the political system and helps to strengthen not only financial or economic but also political ties between the two countries.

Chinese exchanges have also started to open offices internationally with the aim of connecting with international investors. Since 2016, SZSE and SSE have opened HK offices, SHCH has opened a London office and SHFE opened a Singapore office. Further, the Chinese exchanges cooperate a lot with global exchanges, often involving workshops, staff exchanges for training purposes or other educational seminars. Interestingly enough, the global partner exchanges make many concessions to their Chinese counterparts in these cooperations. Often, international development departments have to lobby a lot internally to free up resources for these partnerships which operating units often finds very time-consuming and not very profitable. For the global exchanges, however, the chance of a slice of China pie in the future is an important driver of these, often lopsided, arrangements.

This does not only apply for these rather informal cooperations which exist between all Chinese and global exchanges but also manifests itself in concrete projects that emerge if these cooperations are successful. While dozens of MoUs were signed between these exchanges, most stall or fall flat because these cooperations also suffer from the control-profit conundrum, as the interests of Chinese and global exchange often diverge substantially, and it is hard to find a compromise. However, those projects that do get realised often have very Chinese characteristics.

CEINEX for instance is a JV between SSE, CEINEX and DBG where the Chinese parties own 60% of the stakes, but the JV uses the complete DBG trading and clearing infrastructure as part of the deal. CEINEX was specifically established to promote RMB internationalisation by creating a liquidity pool of RMB-denominated assets in the European time zone. Further, DBG poured substantial resources into this project, providing their IT infrastructure, facilitating knowledge transfer, while the majority shareholders are the two Chinese exchanges and the project itself has not been commercially successful.

Now, while several interviewees noted that the project has not been a commercial success, others point out that it was an important step in connecting the two financial markets and to forge a financial bond between Germany and China. After year of cooperation talks and intensely lobbying their respective governments and regulators, it does not come as a surprise that the establishment of CEINEX was out outcome of the Sino-German High Level Finance Dialogue in 2015 and the JV agreement was ceremonially signed in the presence of Angela Merkel and Li Keqiang. This politicisation is also further enacted through events such as the Euro Finance Week – Continental Europe's largest financial industry conference and exhibition – where CEINEX started sponsoring a China Day that emphasises Chinese-German economic and financial interdependencies, and the important role that CEINEX plays in this process. In 2018, CEINEX started listing Chinese blue-chip companies in Germany, so-called D-Shares. Which gives Chinese companies the choice of a secondary listing in Germany and German investors the opportunity to directly invest into Chinese economy.

One interesting characteristic of this aspect on Chinese market internationalisation is the absence of the US. Similar to being one of the latest receivers of a RMB clearing bank (Töpfer & Hall, 2017), the US is notably absent from Chinese exchanges' internationalisation. Here again, the politics of this internationalisation process become very apparent. On the one side, the US is relatively protective of its capital markets. In 2016, a Chinese consortium[41] agreed to buy the ailing Chicago Stock Exchange (CHX),

[41] The consortium was led by Chongqing Casin Enterprise Group, after Chongqing Jintian Industrial Co., Chongqing Longshang Decoration Co. and U.S.-based Xian Tong Enterprises Inc. left the consortium after the process was stopped by the US government. No Chinese exchanges were involved in this case. This, however, according to interviewees (interviews with two exchanges in Singapore, December 2017) was not surprising due to the politically sensitive nature of the acquisition which would have been even more contested through the involvement of state-owned Chinese exchanges. In the context of Chinese state capitalism which is largely based on interpersonal networks and a permeation of state institutions throughout the economy (Nölke, 2015),

where less than 1% of US equity market trading was conducted and which was the only remaining independent stock exchange in the US – i.e. not belonging to ICE, Nasdaq or Cboe. However, the planned acquisition became a topic in Trump's presidential campaign and once president Trump vehemently opposed the deal. Unsurprisingly, the SEC did not approve the acquisition (for implausible reasons) and, US exchange group ICE quickly snatched up CHX – to the bewilderment of many financial reporters, as this was unusual for ICE and not the most sensible business deal (they paid between USD50-100mio. (the terms of the agreement were not publicly disclosed) whereas the Chines consortium had offered USD20mio.). As one Bloomberg reporter wrote, the "takeover raises the question of why a behemoth with a company that's an afterthought in the U.S. stock market" (Baker, 2018).

On the other side, as several interviewees highlighted, (unsurprisingly) this the lack of cooperation between the US and China is also due to geopolitical considerations or rivalries – something that has become even more pronounced since Trump became president. While ICE has shied away from China business after their Singapore experience, CME has been heavily involved with Chinese exchanges and tried to gain access to the Chinese market. But although they are the most active international exchange in China and they had signed a joint venture agreement with CFETS XX years ago, their project has basically died with Trump.[42] Nasdaq provided some technology to China's domestic markets but there is little international cooperation – with the notable exception of AIX (see next section).

In contrast to the US case, there is substantial cooperation between TMX and SHCH. On the one side, historical ties between Canada and China have been very strong (since that one Canadian doctor came to China), but also the two companies can work together as equal partners as against to the US exchanges. This gives the Chinese counterpart more leeway in shaping the cooperation arrangement, and as a result the markets emerging from this, in their image.

Next to their ongoing engagement with advanced markets, in recent years Chinese exchanges have become incredibly active in less developed markets. Here, one can observe a reversal of roles of sorts with Chinese exchanges taking the lead in helping to develop capital markets abroad. They send their staff to train local partner exchanges, they provide the technology to build advanced markets and offer their know-how in this process. The Chinese exchanges seem to adopt the knowledge that they learned from their decade-long interaction with global exchanges to these lesser developed markets. However, there are two crucial difference between a lot of the engagement that global exchanges had with not only China but also other emerging (capital) markets as discussed previously and the expansion of Chinese exchanges. First, Chinese exchanges are taking significant ownership stakes in their counterparts, thereby they exercise a lot more control about the direct operations of their partners. Second, their acquisitions are not really commercially driven but rather contribute to Chinese state policies, most prominently the Belt and Road Initiative.

BRI is a hot topic at the moment with lots of new research coming out by the day. However, most research on BRI focuses on the establishment of new international financial institutions, such as the AIIB or the Silk Road Fund, its relevance for China's political economy such as the ability to export overcapacity, or how Chinese investments in infrastructures impact on host countries. However, when talking about infrastructures, most BRI analyses focus on physical infrastructures such as railways, ports or electricity grids – but actually one underexplored aspect of BRI is also the establishment of financial infrastructures. As has been highlighted earlier, the establishment of financial infrastructures is crucial for capital market development and controlling these is a very political issue and more that a merely technocratic process.

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it is fair to assume that this acquisition attempt was if not openly supported at least not opposed by the Chinese government. A situation similar to the establishment of APEX in Singapore.

[42] Interview with exchange in Hong Kong (July 2017).

What one can observe is that Chinese exchanges started to heavily invest into these along the Belt and Road. From the perspective of countries such as Kazakhstan, Cambodia or Bangladesh, Chinese capital markets are very mature and, consequently, Chinese exchanges can – and are most willing to – offer a lot of technology and know-how to these markets. So, what one can observe is dozens of cooperations with smaller exchanges in South East Asia, South Asia, Central Asia, the Middle East and even Central and Eastern Europe. Some of these involve product cooperations, the Dubai Gold Exchange for instance has listed an RMB denominated gold future based on SGE's gold benchmark while the Budapest Stock Exchange is about to launch a similar product soon. But most significantly, Chinese exchanges have started buying significant ownership stakes in local exchanges with the promise of helping them to develop their markets and facilitate technology transfer. Since 2016, Chinese exchanges have bought 40% in PSX, 25% in AIX, 25% in DSX and have agreed to jointly build a Belt and Road Exchange with ADGM in Abu Dhabi.

The case of PSX is very interesting in this respect. In 2012 the exchange was partially demutualised with 60% of the shares owned by its members. However, Pakistan's central bank was looking for a strategic investor to help in the development Pakistan's stock markets. Enter China. Now, foreign investors were only allowed to hold 30% of the exchange. Circumventing this rule, CFFEX, SSE and SZSE (together 30%) formed a consortium with a Pakistani bank (5%) and the China-Pakistan Investment Company (5%) – which is registered in Pakistan although technically being Chinese – and bought the remaining 40% stake in PSX with a financially generous offer and the promise to modernise PSX. In return, the Chinese consortium received four out of seven director positions and received the right to nominate the CEO and other top management positions. After some resistance from the Pakistani members, the Chinese CEO candidate – a Canadian who had served as the CEO for the Stock Exchange of Mauritius – was installed as CEO, while the CFFEX CEO became the vice-CEO of PSX. In addition, a team from CFFEX is working at PSX to develop new financial products and mechanisms that would link Chinese and Pakistani capital markets and enable the listing of Chinese companies in Pakistan, for instance to fund BRI projects. further, the Chinese are currently trying to change capital market regulations in Pakistan, for instance through lowering capital gains taxes. So, from formally being able to hold 30% of the exchange, they completely control PSX and are even rewriting domestic financial regulation.

5. Conclusion: China's state-capitalist capital markets & the neoliberal financial order

In conclusion, we can observe a gradual integration China's into global markets through the (social and physical) construction of a network of financial infrastructures. However, this is not a purely technical issue but rather a very political process that is selective, reversible, strategic & oriented towards Chinese state policies. One key fault line in the process of negotiating a market (infra)structure is that between the Chinese entities and their global – or rather Western – counterparts, different understandings prevail about the function of markets. While in the West, markets and also the business models of exchanges are about generating profit, the markets that Chinese exchanges, regulators and markets want to create are more about control, purpose or direction. Exchanges are policy tools to enhance state policies & power and that is very much reflected in the market structures that are developed. While many Western commentators argue that what we assume are "proper" markets do not exist in China, this assessment actually reflects the neoliberal bias that our view of markets inhibits. Chinese markets are regulated the same way that Western markets were regulated during the Keynesian area after Glass-Steagall. Therefore, in the integration of Chines capital markets, not only can the emergence of a state-capitalist capital market be

observed but also the contested politics between East and West, the Chinese and the US model, of what a market is in the first place.

McNally and Gruin (2017) make a theoretical argument that in contrast to the common perception of a static global financial system, global finance might change as a result of China's ascent into the financial sphere. The empirical evidence in this paper seems to prove their point. However, instead of a global financial system that is changing to accommodate China, we might rather see China carving out a piece of the pie and creating its own system that functions according to a different set of rules with global finance compromising and making concessions in those spaces where the two systems meet. This is not only the case with exchanges as demonstrated in this paper, but also with a lot of other JVs both in the financial sector and every other sector. Now, while a lot of research has highlighted the different role and way of other aspects of China's political economy, what this paper has highlighted is that capital markets also function very differently in China which could be observed through the dealings of Chinese (and global) exchanges. To conceptualise this conundrum, this paper developed the concept of "state capitalist capital markets" – capital markets whose primary underlying principle is control and directing markets towards certain political and social outcomes rather than the realisation of profit, a logic that follows from the state capitalist institutional setting in which these are based.

However, this creates a new set of questions that should be addressed, such as: What are the geopolitical considerations of such politicised market making? In how far do questions of Geofinance feature in this? How can this be reconciled with the contradictions within Chinese capital markets such as rampant speculation vs a regulatory regime promoting that markets should serve the real economy? In how far does this alternative market making by the world's 2nd largest and 2nd most powerful economy challenge of US-dominated Global Financial Order? In the debates on China's quest for commodities, such as China's role in Africa, is how far is there a financial market perspective to this story? Further, questions about financial market stability arise such as whether the Chinese financial system is more stable or more fragile than our Western system? Finally, on a more theoretical level, in political economy research, capital markets are usually juxtaposed with banks as mechanisms for corporate financing. From such a perspective, capital markets are often portrayed as uniform and should by definition be irrelevant in countries like China. However, as demonstrated in this paper, first, while not important for corporate finance, capital markets play an important role in the Chinese political economy and its internationalisation. And, second, when questioning the assumption that the primary role of capital markets must be the maximisation of profit, one can see that control is an important alternative principle that permeates the development and internationalisation of Chinese capital markets. Therefore, this begs the question if we should instead of viewing capital markets as uniform rather speak of a "varieties of capital markets"?

Open questions remain. In the last 20 years, however, China's capital markets have been growing and changing rapidly with both Chinese and global exchanges playing an important role in this process. Whether China will adapt to the global financial system, create its own way of running markets and how it interacts with the (neo)liberal global financial order are pressing questions that contemporary IPE scholarship should aim to address.

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