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The Financial Centres of Shanghai and Hong Kong: Competition or Complementarity?

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September, 2007

Abstract

The contemporary rise of China in the new geo-economy is increasingly pressurising the spatial distribution of financial activity in mainland China and Hong Kong. With the re-emergence of Shanghai, many people foresee the future demise of Hong Kong as the most important financial centre for the Chinese mainland. This paper shows that this conviction seems rather premature. Based on the concepts of comparative advantage and market segmentation, the extent to which Shanghai and Hong Kong can be considered complementary financial centres is assessed. By using the listings of mainland China based companies on the stock exchange of each financial centre, it is shown that both cities do not only appear to have distinct hinterlands but they also differ strongly in terms of sectoral specialisation.

Key words: geography of finance; financial centres; urban competition; Hong Kong; Shanghai; China.

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1. Introduction

Within the contemporary global financial landscape, the success of financial centres is driven by their flexibility. Recent financial deregulation processes have initiated the integration of global financial markets. These processes, together with significant progress in the development of information and communication technologies, have caused a substantial improvement of capital mobility and an increasing volume of international capital flows (see Obstfeld and Taylor, 2004). Despite the apparent decentralising character of ICT improvements, the notion that ‘geography matters’ is (though not uncontested see O’Brien, 1992) widely acknowledged. In fact, the existence of a worldwide system of financial centres which function as basing points for global capital, clearly demonstrates the importance of location in this debate.

Though location remains essential, it is subject to an increasingly dynamic environment. As the characteristics of global finance are rapidly changing, so are these of financial centres. In order to maintain or improve their relative position within the global market, financial centres have to be flexible and able to adjust to changing market conditions. Therefore, the competitive power of financial centres depends upon their adjustability in providing the conditions of existence needed for the profitable production of financial services (Lee and Schmidt-Marwede, 1993). Yet, the provision of these specific conditions often creates tensions and specific forms of rivalry between financial centres in a variety of ways. For example, Faulconbridge (2004) discusses the rise of Frankfurt after the launch of the Euro and its potential threat to London’s pre-eminent position. Furthermore, Engelen (2007) evaluates the possible decline in importance of Amsterdam due to the current shift of investment activities to larger financial centres like London and New York. Therefore, dealing with this continuous competitive flux results in each financial centre trying to create advantages over its rivals in different geographical areas or market segments.

The contemporary rise of China in the new geo-economy is providing an interesting new case on this topic. China’s struggle to become better internationally integrated is reflected in significant processes of spatial restructuring of financial centres in mainland China and Hong Kong (Zhao, 2003). For Hong Kong, with its already long tradition as an international financial centre (see Jao, 1997), this results in being confronted with increasing competitive pressures. On the one hand there is the traditional rivalry with Singapore and the re-emergence of Shanghai (Yeung, 2001) and on the other hand one can observe the rise of

relatively new localities of importance like Beijing and Shenzhen. For the cities in mainland China and Hong Kong these recent changes in the distribution of financial activity can be seen as the spatial outcome of two mutually related forces. First, the changing Chinese political economy in terms of political strategy, state interference and their effects on economic and financial restructuring. And secondly, shifts in global capital accumulation and the spatial competitiveness of Chinese financial centres. Despite the importance of these issues and the increasing popularity of 'China' on the international research agenda, literature which integrates these topics is only marginally available.

While the literature on financial centres has a strong tendency to emphasise the role of banking activities, it is argued that financial centre competition is expected to be most intense in capital and securities markets (see Poon, 2003). The aim of this article is therefore to examine the multilayered process of financial centre competition from a capital-market (i.e. stock market) perspective and, building on that, to show how financial centres create comparative advantage in line with current market conditions. The focus will be on the much discussed case in the media and the business literature on the alleged intercity competition between Shanghai and Hong Kong. See for example articles in *The Banker* (Wild, 1997), *Time Magazine* (Ng, 2000) and the recent paper by Wong in the *Harvard International Review* (2007). The structure of the article is as follows. First, an analytic framework is presented to organise the theoretical reflections on financial centre competition. This may shed light on how to interpret comparative advantage and market segmentation from a financial centre perspective. The third section shortly addresses the main characteristics of Shanghai and Hong Kong and their corresponding stock markets. Section four provides the outcomes of the empirical analysis whereas section five provides concluding remarks and suggestions for further research.

2. Theoretical reflections: how to interpret financial centre competition?

From a stock market perspective, the intrinsic tensions in terms of financial centre competition relate to the attraction of more (foreign) listings with corresponding trading volume and business opportunities relative to rival centres (see Pagano et al, 2002). This notion implicitly raises questions about what factors make some financial centres and the stock markets therein more attractive than others and why? The adopted approach in addressing these questions is based on the assumption that the listing decision of firms is

likely to depend not only on the characteristics of a specific stock exchange but also on the institutional features of the country and the corresponding financial centre in which the exchange is located. Generally, there exist large differences between financial centres regarding these characteristics. As a consequence, not all financial centres are equally adaptive to changing market conditions. This results in centres improving their competitive position in those market segments and geographical areas which reflect their superior capabilities. Accordingly, much of the discussion about competition and complementarity between financial centres rests on concepts of comparative advantage and 'territorial' competition (Budd, 1995).

[Figure 1 about here]

In order to structure the discussion a multidimensional analytic framework is proposed on how the functioning of a financial centre can be interpreted (see figure 1). Generally two mutually dependent dimensions stand out. First, the financial centre represents a concentration of financial activity in space (1). More specifically, this concentration is confined to a small area within an urban agglomeration with unique characteristics and endowments (2). Although the financial production processes taking place within the centre are considered a black box, it is important for our argument to note that these processes occur in 'territories' with specific market segments which are present in the centre (3). Here a distinction is made between territories as representing different financial markets like for instance stock, commodities or derivatives markets and 'market segments' which can be considered particular industry clusters or sectors within these territories.

Second, the firms and markets located in the financial centre determine, through their associated activities, its spatial scope. From a stock market perspective for example, the location of the firms which have a public listing on a financial centre's stock exchange represent, when aggregated, the hinterland of the exchange. Furthermore, in a world with increasingly footloose capital it is essential for the financial centre to create strong international attachments in order to channel foreign capital into the local economy. This makes the exterior the worldwide spatial organisation and articulation of financial production and markets to which the centre is attached. Therefore the hinterland refers to the centre's action space (4), whereas the exterior determines the degree of openness and accessibility of

the financial centre to the outside world (5)¹. In this context the financial centre has a twin-role in its respective operation and orientation due to its functioning in the hinterland as well as the exterior.

In linking both dimensions the framework is in line with the ideas of Porteous (1999) who argues that the financial centre is the best access point for the profitable exploitation of valuable resources and information, primarily due to economies of localisation like, among others, a pool of specialised labour, intermediate services and information networks. In this process the centre performs a hinge function, where resources and information flow from the hinterland to the centre and from the centre to the exterior and *vice versa*, as shown by the double-headed arrows in figure 1 (*). In order to understand the precise meaning and the implications of this framework in relation to the comparative advantage of financial centres from a stock market perspective, the factors comprising the concentration of financial activity and the spatial scope of the financial centre are discussed in more detail.

Concentration of financial activity and institutional embeddedness

Notwithstanding the global tendency of financial deregulation, there still exist large differences between financial centres in the effects of state intermediation. Differences in financial regulation, corporate governance practices, and the general business environment are institutional factors which are the basis of maintaining national or sub-national spaces (Budd, 1995). In terms of the analytic framework, the concentration of financial activity is compliant with the institutional features of the country and the region where the concentration is located. In the specific case of stock markets, the heterogeneity of the institutional environment of financial centres across space has serious implications for the attractiveness and competitive position of its respective stock exchange. This is because the firms and investors who want to manifest themselves in such an environment have to adapt to the unique conventions of a country's financial system and institutional environment. Basically, these standards emphasise the importance of (the availability of) information in finance. From an investors' perspective, these standards refer to the possibilities to gather, monitor and evaluate potential investment projects. Obviously, the evaluation process is highly dependent upon the costs and availability of (detailed) information about the project targeted for investment. Listed firms

¹ As this paper tries to explore the intercity competition hypothesis between Shanghai and Hong Kong from the action space of each centre only, the empirical analysis of the exterior is beyond the scope of this paper (see dotted lines).

are therefore, similar to the investor, confronted with the conventions of the financial system and the stock exchange, primarily regarding the provision of information about the performance and prospects of the firm. This information is, however, subject to a varying degree of imperfections for which the investor is offered a risk and return dependent premium. In general, these imperfections take the form of information asymmetries, which denote the possible discrepancy between the investor and the borrower concerning the information about the risk profile of the investment project.

As argued by Klagge and Martin (2005), the costs of information disclosure impose serious constraints on firms in search of a stock market listing. As these costs are predominantly scale sensitive, it is especially difficult for new and small firms to access funds through a capital market listing. Pursuing a listing on an exchange with relatively high financial reporting standards for example, forces a firm to comply with a high degree of corporate transparency. For firms with low initial reporting standards this transformation can become a very costly operation. Nevertheless, the reduction of the monitoring costs for potential shareholders becomes a major benefit. In addition to the level of financial reporting standards, there are two more important standards determined at the country level. First, as shown by the seminal paper of La Porta et al (1998), the legal environment (both legal rules and their enforcement) matters for corporate governance. Foremost subjects are standards of investor protection against the misconduct of managers of listed firms and the general level of bureaucracy. When in a country the standards of investor protection are high and the bureaucracy is relatively efficient, the cost of capital for the company concerned may decrease. Second, it seems evident that firms in search of a listing can reduce transaction costs, especially in terms of communication costs, when listed in a location which is culturally homogeneous to its location of residence. Thus the relative importance of the nation state and its institutional features as such, can already account for significant differences in terms of financial centre attractiveness. As a result of this often unique institutional embeddedness, stock exchanges differ in their underlying characteristics as well.

The two characteristics which are commonly assigned to be the most important in affecting the listing decisions of firms are market liquidity and size. A market is said to be liquid when individual transactions cause only minor price reactions. In illiquid markets even small orders may significantly affect price changes. Risk averse investors for example, prefer to trade in liquid markets because the risk of price changes caused by liquidity shocks of individual traders is lower, which can attract more trading volume. Therefore, markets which are relatively liquid can cause a lower cost of capital for the firm (Brennan and

Subrahmanyam, 1996). In this sense liquid markets are, due to scale economies, self-reinforcing and can be found in financial centres with a high number of traders and a bigger size of the market. Besides the number of potential investors, the visibility, reputation and prestige of the firm can be enhanced when a firm decides to list on a larger, more prominent stock exchange (see Bancel and Mittoo, 2001; Pagano et al, 1998). Reputation and prestige are, in this context, predominantly concerned with the signal a listed firm provides to investors and customers alike about the willingness to subject itself to the scrutiny of outside financial analysts. As a consequence, these market conditions directly influence the competitiveness of the financial centre and, due to their uniqueness and immobility, contribute to establishing comparative advantage.

The spatial scope of the financial centre

Finally, the attraction of stock market listings may depend on the characteristics of the financial centre itself. Centres which vary significantly in terms of institutional features, stock market characteristics and size often attract different sorts of client groups. The firms constituting these client groups can consecutively be categorised according to size, international orientation and market segmentation. The discussion of these subjects is intimately related to the second part of the analytic framework, namely the spatial scope of the financial centre.

As argued by Clark and O'Connor (1997), financial products often have a distinct spatial configuration of information embedded in their design. The more transparent a financial production process, the better the accessibility of the information needed to monitor the product itself and its supplier. Accordingly, as information about the product is generally accessible and ubiquitous only a few large financial centres around the globe with distinct economies of scale offer these products. In most cases the same principle holds true for stock markets. As showed by Pagano et al (2002), U.S. exchanges like NASDAQ and the New York Stock Exchange which offer relatively low trading costs, tight financial reporting standards and better shareholder protection, attract far more listings, both domestic and foreign, than European exchanges (apart from Frankfurt and to some extent London). The attracted listings involve significantly larger firms as well, especially in the case of cross listed firms. These outcomes imply that exchanges which impose strict rules in terms of information disclosure attract more (international) listings and consequently have a larger spatial scope. That the firms attracted to these internationally oriented financial centres are

also quite large is obvious: an international (cross) listing does not come cheap in terms of transaction costs. In contrast, minor capital markets with lenient rules concerning information disclosure attract relatively smaller firms which are predominantly domestically oriented.

Although large international financial centres attract relatively more listings compared to national or local ones, it does not necessarily mean that national financial centres have no possibilities for creating comparative advantage. National centres, which benefit from the advantages of scale economies to a lesser extent often (re)focus on specific financial territories like for example commodities, foreign exchange, and/or derivatives markets in order to attract specific firms or investors. In addition, specialisation is also possible in specific market segments. For instance, an important source of comparative advantage for stock exchanges can be the centre's hinterland itself because of the non-tradable, implicit forms of localised information (see Lo, 2003). In contrast to many large financial centres, the information about listed firms on exchanges with a national focus is often not easy accessible and generally interpretable (i.e. the information is unstandardised). This may result in an increase of information asymmetries due to distant decay effects. In turn, for listed firms within close proximity to the financial centre, this could lead to distinct market advantages as compared to firms which are located in financially peripheral regions (Klagge and Martin, 2005). Therefore, the market segmentation of a stock exchange may be biased to those *real* sector activities present in the immediate hinterland of the financial centre, opening the possibility of sectoral specialisation. Whenever a sectoral specialisation exists the attractiveness and comparative advantage of the financial centre increases considerably. An explanation is that competing firms which are not capable of getting listed on the same exchange (due to for example high transaction costs) cannot make use of the signalling effect to consumers and investors. In turn this results in a competitive disadvantage for the firm on industry level (Stoughton et al, 2001). Therefore, sectoral specialisation initiates imitation effects among firms in search of a listing, an effect already found by Pagano et al (2001) with reference to cross listings. For countries with spatially decentralised capital markets, like China, this issue seems especially relevant.

3. Shanghai and Hong Kong as financial centres

As discussed in the previous section, financial centre competitiveness refers to the competitive power of centres to attract more listings relative to rival centres. Therefore, the

question of how Shanghai and Hong Kong have been able to adjust to changing market conditions for their competitiveness appears imperative. To answer this question, it is important to know that the current level of financial system development of both centres is rather different. Whereas Shanghai is still heavily reliant on an underdeveloped and inefficient credit based-system (Allen et al, 2005) with only a subordinate role for capital markets (Green, 2004), Hong Kong has been associated with well developed financial markets and a strong dependence on equity markets for the acquisition of external funds (McGuinness, 1999). This dissimilarity can be traced back to the discussion by Martin (1994) about the evolution of financial systems. In the light of financial centre development, the ambition of China (and therefore Shanghai) for achieving the next level of financial development, should be focused on the enhancement of international competitiveness and integration through deliberate changes and an increasing flexibility in the institutional and organisational structure of the centre's financial system. As a result more, larger and maybe even foreign firms in search of a stock market listing can be attracted. As China's capital market structure is decentralised and accommodates two domestic stock markets, the role of Shenzhen alongside Shanghai as regional market is included in the remainder of the article when necessary.

Mainland China: persistent government control

Although the governmental authorities are well aware of the need for spurring reforms, the current state of the institutional environment and the conventions of China's financial system, stock markets including, are not yet optimal for entering the next stage of financial system development. Understanding these problems with regard to the competitiveness of mainland China's stock markets, involves an unravelling of the discrepancies within the triangular relationship between the unique ownership structure of stocks, regulatory conditions and corporate government mechanisms (see Green, 2004 for an overview).

Since the opening of the Shanghai and Shenzhen stock exchanges (SSE and SZSE in respective order), the partial privatisation process of China's state owned enterprises (SOEs) commenced with the issuance of two types of shares: 'A-shares' initially designed for domestic investors and 'B-shares' denominated in foreign currency for foreign investors. Whereas all listed firms have issued A-shares, only a small part of those companies issued B-shares. Besides, listed companies have a multiple ownership structure, dichotomised into non-negotiable and negotiable shares (i.e. non-tradable and tradable shares). These non-negotiable shares can be divided into various subcategories of which sponsor shares is the largest. As the

government owns most of the sponsor shares, listed stock in mainland China can be characterised by a persistent degree of state control. Table 1 shows a general overview of the equity structure for year-end 2006.

[Table 1 about here]

Regarding market size it can be seen that the SSE is somewhat larger compared to the SZSE both in terms of number of listed companies in panel A (59% versus 41%) and total market capitalisation in panel C (80% versus 20%). Of foremost interest is however, the division of market capitalisation over negotiable and non-negotiable shares in panel C. Due to the large proportion of non-tradable shares of mainland Chinese companies (see panel B), the measurement of market-size in terms of total market capitalisation is deceiving. Just consider; when 72% of the total market capitalisation is represented by non-tradable shares, there remains a small float (28%) of the total stocks issued for tradable market capitalisation. The true activity of the SSE and the SZSE is therefore represented by 18% and 10% respectively of total market capitalisation. Instead, meaningful market comparisons can be made by using turnover figures, which give an indication of the throughput or liquidity of an exchange.

As shown in table 1, the characteristics of both mainland China stock markets in terms of equity structure are unique. But what about the specific market conditions regarding the institutional environment? According to recent empirical work by Allen et al (2005), mainland China's legal system and institutions, including investor protection, corporate governance practices and financial reporting standards are significantly less developed than in most of the 49 countries used in the sample of La Porta et al (1998). Besides, and probably more important, the enforcement of the imposed rules and regulations is highly inadequate. Two reasons stand out. First, while stock trading occurs in Shanghai and Shenzhen, the listing authorisation, monitoring and registration is done by the China Securities Regulatory Commission (CSRC) located in Beijing. This decentralised configuration and the crucial role of Beijing as information provider is non-effective and induces persistent information asymmetries (see Zhao, 2003). Second, as a result of the low cost of audit failure and the low reliance on capital market funding, managers of listed Chinese companies face weak incentives for corporate transparency through sufficient information disclosure (see Ferguson and McGuinness, 2004). Inherent results of this non-transparent nature in combination with the unique equity structure have been, *inter alia*, extensive price manipulations, fake transactions and the issuance of false information (Green, 2004). Therefore it can be hard and costly,

especially for foreign investors who are not familiar with the local practices, to make deliberate investment decisions. Based on these outcomes it is not surprising that the SSE and SZSE attract domestic listings only.

Although the above observations underline the immature development state of the stock markets, China's recent accession to the WTO set off new waves of regulatory reform. Among these, three are most apparent. First, the announcement of the Qualified Foreign Institutional Investor (QFII) Provisional Measures, permits selected foreign institutional investors to participate directly in a wider spectrum of investments, including A-shares, on the SSE and SZSE (see Yeo, 2003). It is anticipated that the QFIIs are demanding higher levels of information disclosure and audit quality as a prerequisite for their investment. Those firms which are actively seeking QFII investment are therefore forced to increase their transparency. Besides, as Ferguson and McGuinness (2004) argue, other companies are expected to 'imitate' these proactive disclosure practices otherwise they may lose competitiveness. Second, China's accounting system is moving towards international financial reporting standards (IFRS). However, the effect of this development is doubtful, as the current lack of independent, professional auditors may undermine the enforcement of these rules (see Allen et al, 2005). Third, in 2005 the authorities decided to encourage listed companies to convert their non-tradable shares into tradable ones to facilitate further privatisation. In general terms, the main rationale behind these transformations has been to improve market liquidity and firm performance by introducing modern international practices.

Hong Kong: an international competitive environment

While Shanghai is struggling to reform by creating a better formalisation and circulation of information between the different actors in the market, Hong Kong has been able to create an internationally competitive institutional environment for quite some time already. Originally, the development of international competitiveness benefited significantly from the English origin of the legal system, which incorporates high measures of investor protection and financial reporting standards (see La Porta et al, 1998). Currently, the influx of mainland China affiliated shares provide a considerable contribution to the development of the Hong Kong Stock Exchange (HKEX), both in the ordinary market named the Mainboard and the Growth Enterprise Market (GEM) for emerging high potential firms.

[Table 2 about here]

As shown in panel A of table 2 the equity structure of the HKEX includes besides domestic and foreign listings, two dimensions of mainland China controlled shares: H-shares and red-chips. The difference between the two is best explained by their locational incorporation. H-shares are listings of mainland China incorporated SOEs, but subscribed for and traded at the HKEX. Conversely, red-chips represent shares of China controlled companies incorporated outside the mainland. Similarly to H-shares, red-chips are characterised by mainland majority control, which may stem directly from the state, provincial or municipal authorities (see McGuinness, 1999). These H-shares and red-chip markets have been initiated because of the infrastructural inferiority of the mainland stock exchanges and the need to acquire foreign capital. Currently, these shares contribute significantly to the development of the HKEX. While H-shares and red-chips represent only 19.7% of the total number of listed companies, they account for approximately 47% of total market capital (see panel A and B of table 2). This large difference between the percentage of firms and their market capitalisation figures can be explained by the fact that a listing in a country with different financial reporting practices is costly and usually reserved for firms of considerable size.

In line with the Hong Kong domestic listings, H-shares and red-chips are required to be conformant with IFRS regarding the disclosure of information. Nevertheless, China affiliated corporations listed on the HKEX do not guarantee the enhancement of corporate transparency. As illustrated by Ma (2002), some of the China affiliated listings on the HKEX suffer from the same problems as SSE and SZSE listings due to the remaining ambiguous and controlling role of state authorities. While examples exist for both red-chips and H-shares in this respect, the problems have been more apparent for H-shares. Consequently, red-chips tend to be more successful and have been widely adopted by foreign (institutional) investors in their portfolios. Even so, it can be expected that the introduction of the QFII scheme will enhance the disclosure of information in both the H-share and red-chip market. In addition, the ‘imitation’ argument proposed by Ferguson and McGuinness (2004) seems applicable for HKEX listed mainland affiliated companies as well.

4. Competition or complementarity?

Based on the features of the institutional environment it can be concluded that the Hong Kong and mainland China stock exchanges are structurally different. The question remains

however, whether or not this distinctiveness is accompanied by a corresponding variation in the attraction and accommodation of listed firms. Contrary to the HKEX, the SSE and SZSE do not have any foreign listings. Therefore to identify possible competitive interaction, the analysis focuses on a market in which all centres are active: public listings of mainland China based companies. The research methodology for identifying explicit differences between each centre is concentrated around two different approaches which, when combined, cover the spatial scope discussion as proposed in the analytical framework. First, the geographical distribution of publicly listed mainland Chinese companies is analysed. This will throw light on the geographical area of dominance of each centres' stock markets. The basic approach has been to locate the headquarters of all listed companies based on their ZIP-codes. For A-, B-, and H-shares the ZIP-codes of the companies' headquarter locations reveal the regional distribution of the data. For the red-chips the situation is a bit more complex. Although red-chips are controlled from the mainland, their headquarters are located in Hong Kong. By unravelling the ownership structure and the underlying network of cross-shareholdings through web-based research, the controlling shareholder of the company has been located. It is the geographical ZIP-code location of this shareholder which provides a proxy for the home region of the particular company. Second, a sectoral analysis of publicly listed mainland Chinese companies is conducted. The outcomes make it possible to distinguish between each financial centre based on their sectoral dependence. The underlying financial and sectoral data are from Thompson DataStream.

Geographical distribution of publicly listed companies

Figure 2 shows the proportional regional distribution of the mainland China based publicly listed companies, which involve A- and B-share listings on the SSE and the SZSE in addition to H-share and the red-chip listings on the Mainboard and GEM of the HKEX.

[Figure 2 about here]

For the SSE and the SZSE it is clear that the geographical scope of each exchange consists of the whole of China and that both exchanges have an absolute and relative dominance in their home province. For the largest stock exchange in absolute number of listings, the SSE, the dependence on the companies in the adjacent regions in the Yangzi river delta (covering Shanghai, Jiangsu and Zhejiang) has been around 32% of the total number of listed

companies, whereas for the SZSE the Guangdong and Hunan provinces account for approximately 26% of total companies listed. From a competitive hinterland perspective this indicates the presence of a regional home bias which may be the result of geographical proximity. Though the most notable outcome of figure 2 is the uneven geographical distribution of HKEX listed stock which is heavily biased towards Beijing dominance. The Beijing municipality which hosts most of the headquarters of the (multinational) SOEs has only 70 listings on the SSE representing 8.3% of the total listings, while 82 Beijing based companies or institutions are controlling the listings on the HKEX covering 36% of the total. Moreover, most of these listings, 48 to be precise, are red-chip controlling stakeholders located in Beijing province. As shown, both the SSE and the HKEX provide the opportunity for mainland companies to tap into the pool of global capital. However the hinterland of the HKEX is heavily biased towards the Beijing area, whereas the hinterland of Shanghai and Shenzhen covers the whole of China. This makes the hinterlands of Shanghai and Hong Kong quite distinctive, a point also made by Yeung (2001).

As argued in the previous sections, the size of the market is of decisive importance for minimising transaction costs given the specific institutional embeddedness. Therefore the degree of explicit interaction in terms of competitiveness or complementarity of financial centres is best understood when the discussion about the size or volume of the market activity of each centre is included. As market capitalisation figures are misleading in the mainland China case, figure 3 shows how total turnover value (henceforth, TTV) of each exchange is regionally distributed in 2006. Two important implications can be derived from the figure.

[Figure 3 about here]

First, although the number of HKEX listings is relatively small, the pie charts in the proportional circles show that they account for a relatively large share of the TTV of those regions which are active on the HKEX. Therefore these charts indicate that based on the relatively small number of listed firms the market activity or liquidity of the HKEX China dimension is notably larger when compared to the SSE and the SZSE. This argument is also underlined when observing the TTV of each exchange in particular. While the HKEX accounts for only 229 listings (compared to the 843 and 590 of the SSE and SZSE respectively), it represents over 30% of the total turnover of all mainland China based listed companies on the three exchanges.

Second, when observing the relative size of the circles, Beijing proves to be the dominant region over Shanghai and Guangdong in terms of TTV. This is not only due to the fact that most of the public mainland Chinese listings are controlled from the Beijing region, but also because of the relatively large regional proportion of HKEX listings. So, while Shanghai and Guangdong both have a strong home bias in terms of TTV, the Beijing region shows explicit Hong Kong dependence. For instance, Beijing controlled listings account for around 73% of the HKEX China dimension's TTV, while Shanghai and Guangdong controlled listings account for an approximate share of 13% and 7% respectively. Unsurprisingly, this is caused by the presence of China's largest state-controlled corporations on the HKEX, which are originally based in the Beijing area. These SOEs have listings whether on the H-share market like China Construction Bank, Bank of China, PetroChina, China Telecom and China Life Insurance or as a red-chip like China Mobile and CNOOC. Furthermore despite the home bias of large Shanghai based companies like BaoSteel and China UniCom, Hong Kong turns out to be an attractive location for listing: just compare the regional distribution of TTV between the two exchanges. The 20 Shanghai based listings on the HKEX represent over 22% of the TTV of the Shanghai region, while the SSE makes up only 77% with 147 listings. Interestingly, there are large Beijing based SOEs which have a listing on the SSE although some of them have a cross listing on the HKEX as well. Largest among these in terms of market activity are China Minsheng Bank, Sinopec, Industrial and Commercial Bank of China and Yangtze Power, of which SinoPec and Industrial and Commercial Bank of China both have an H-share listing.

Sectoral specialisation of Shanghai and Hong Kong

The outcomes of the analysis of the geographical distribution of publicly listed companies show that Shanghai and Hong Kong have relatively distinct hinterlands. The problem of why these differences exist is yet unsolved. Therefore the discussion is extended by including the option of sectoral dependence of each stock market as to clarify the relation of each centre and its corresponding hinterland. Are both stock markets dependent on the same sectors and therefore competitors for attracting equity listings, or do they have a sectoral specialisation which makes both markets relative complements? Answering this question starts with formulating the importance of sectoral dependence of each stock market. A suitable method to illustrate this is to perform a correspondence analysis to the dataset of the publicly listed mainland Chinese companies. Correspondence analysis is a technique for displaying the

associations among a set of variables and to allow for a visual examination of any pattern or structure in the data (Greenacre, 1993). Here the stock exchanges of Shanghai, Shenzhen and Hong Kong are associated with the economic activity of the mainland China publicly listed companies. In order to distinguish between sectors the global standard for trading and investment decisions is used: the Industry Classification Benchmark (ICB). ICB is a comprehensive structure for sector and industry analysis, whereby the nature of a company's business is determined by its major source of revenue. Figure 4 shows the outcome of the correspondence analysis.

[Figure 4 about here]

Besides that the origin (0.0) resembles the average profile of the three stock exchanges combined, two more aspects of this figure are important for a correct interpretation of the results. First, sectors which have similar distributions over the stock exchanges are represented as points in space which are relatively close, whereas sectors which have dissimilar distributions are relatively distant. For the exchanges the same rationale applies. By taking into account that the axes are displayed in logs, figure 4 shows that the SSE and the SZSE are relatively close to the origin (and each other) indicating corresponding sectoral profiles. In contrast, the HKEX is strongly divergent from the SSE and the SZSE indicating a different sectoral composition. Secondly, the distance between a specific sector and an exchange is given by the discrepancy between the observed sectoral presence and the hypothetical (random) market presence on an exchange. As the position of a sector in the figure is determined by its presence in terms of number of listings on each stock exchange, a sector which has a higher than expected presence on a specific exchange will be represented closer to that exchange in the figure. Insurance (# 25) and Telecommunications (# 22) for example show a high overrepresentation on the HKEX, while Retail (# 19) and Food Producers (# 14) are strongly represented on the SSE. Therefore this discrepancy, which is actually a measure of bias, can be used to evaluate sectoral dependence of a stock exchange.

Although the outcomes of the correspondence analysis suggest that there is specialisation among the three stock markets in specific sectors, the technique does not allow for formal testing. In order to test the hypothesis whether a specific sector has indeed a significant overrepresentation (i.e. specialisation) on one of the three stock markets, a measure of bias is composed based on Henri Theil's (1967) mutual information index. This measure, named Sectoral Market Presence (SMP_{ij}), is tested with a corresponding likelihood-ratio chi-squared

test (see Agresti, 1990) and can be used to distinguish significant sectoral overrepresentation on each stock market. In this context the degree of sectoral dependence with respect to sector i on stock market j is measured as the logarithm of the difference between the observed sectoral market presence s_{ij} and the hypothetical (random) market presence expected from the product of the separate shares of each sector s_i and each stock market s_j :

$$SMP_{ij} = \log \frac{s_{ij}}{s_i \times s_j}$$

The higher the sectoral overrepresentation, the larger the SMP_{ij} -value. The significant outcomes of this test are in table 3.

[Table 3 about here]

As already suggested by the outcome of the correspondence analysis, there is indeed overrepresentation of specific sectors on each stock exchange. Based on the large SMP_{ij} -values for the sectoral specialisations of the HKEX it can be concluded that Hong Kong is in general more specialised than the SSE or the SZSE. Chemicals is a sector with a special role, whereas it is overrepresented on both the SSE and SZSE. This is caused by the heavy mass of the sector and the fact that the sector is hardly represented on the HKEX. The most prominent finding is however that each exchange has a characteristic focus when clustering the significant sectors. In terms of sectoral specialisation of market segments, Hong Kong represents a relative dominance of knowledge and information intensive industries, whereas Shanghai is directed towards retail and heavy industry. In addition, the SZSE has a strong focus on consumer goods. The sectoral specialisations of the SSE, SZSE and the HKEX are no coincidence. For the SSE and SZSE these specialisations correspond to the real sector activities of the (nearby) regions where both exchanges are located. As firms within close proximity of the exchanges may favour from cost advantages, they are more likely to be overrepresented. The real sector representation argument is valid for the firms with listings on the HKEX as well, though the ‘be where your peers are’ or imitation effect may be of supplementary importance. Information intensive industry clusters are highly represented on the HKEX. To provide an indication, Financials (excluding Real Estate), Telecommunications, and Technology represent approximately 40% of total market capitalisation of the HKEX. In conclusion, these numbers considering the sectoral

specialisation of each exchange provide a strong indication that Shanghai and Hong Kong are complementary financial centres when measured from a stock market perspective.

5. Concluding remarks

‘Shanghai another Hong Kong?’ The question posed by Wong (2007) seems more relevant than ever. However, the suggestion that both cities are becoming close substitutes is, at least from a stock market perspective, rather questionable. Essentially, it appears that financial centres try to outperform their rivals in those geographical areas and market segments in which they have a comparative advantage, albeit given the features of the institutional environment. In the case of mainland China and Hong Kong institutional disparity is maintaining sub-national spaces, providing a primary source of comparative advantage. As with all financial centres, the prolongation of comparative advantage appears to be depending on the asymmetry of information and transaction costs.

On the basis of the empirical outcomes this study reveals two important findings. First, small and locally oriented companies are predominantly listed on the SSE and SZSE, while the large internationally oriented mainland based companies, foremostly headquartered in Beijing, are attracted to the HKEX. Substantial differences in listing requirements and disclosure standards prove to be imposing dissimilar advantages for each centre. As small mainland China based firms are confronted with costly operations to meet the listing requirements and disclosure standards of the HKEX, the SSE and SZSE prove to be adequate alternatives for fund raising. On the contrary, for large firms the benefits of increased international credibility may outweigh the cost of increasing corporate transparency. Second, the stock markets of mainland China and Hong Kong all have strong sectoral dependencies. Although the SSE and SZSE are relatively less specialised than the HKEX, distinct industry cluster can be identified. Whereas the SSE is featuring significant overrepresentations of traditional industries like mining, utilities and construction, the HKEX is largely dependent on information and knowledge sensitive industries as for instance financials, telecommunications and computer soft-and hardware. For the SSE and the SZSE these dependencies may be the result of each centre’s regional real sector characteristics. For the HKEX this argument may be true as well, however imitation effects may be an additional factor.

In conclusion, the question whether Shanghai is threatening Hong Kong appears to be premature. In contrast, the empirical outcomes indicate that both centres reveal a considerable

amount of complementarity (though it is risky to generalise these outcomes as stock markets are only part of the complete market structure of a financial centre). This conclusion which is not in line with the expectations of many others opens up a series of further debates. Most apparent among these is the question whether the outcomes represent temporary complementarities or not. This explicitly emphasises the need for a longitudinal approach. Perhaps, based on such an approach it is possible to shed some light on the uncertain future development paths of both centres.

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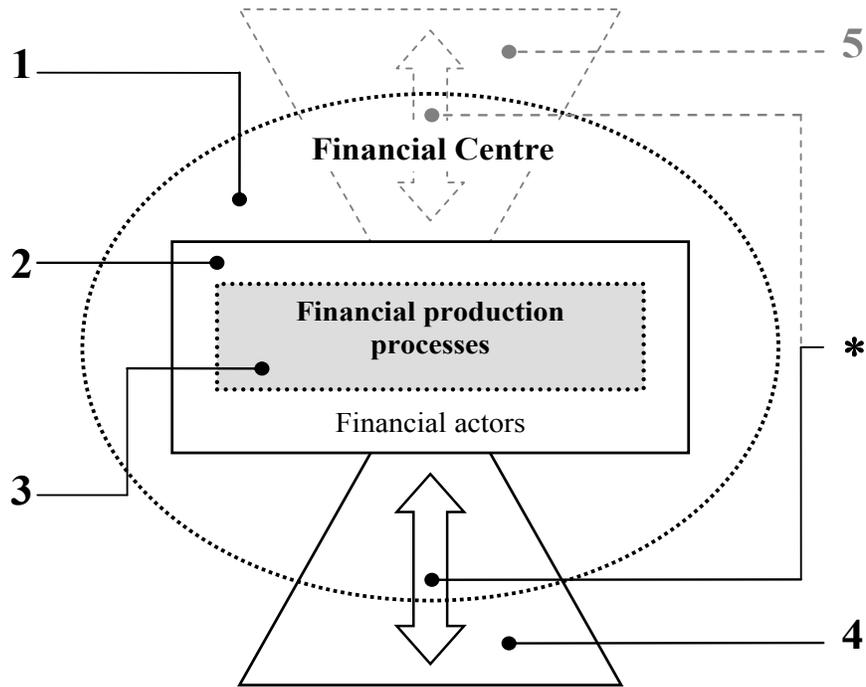
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Figure 1. The financial centre, an analytic framework.



Concentration of financial activity:

- 1 The financial centre as an entity in space.
- 2 Organizational and institutional structure.
- 3 Functional layers (territories/market segments).

Spatial scope of the financial centre:

- 4 The hinterland.
- 5 The exterior and international linkages.

* Two-way flow of resources, information and knowledge.

Table 1. Equity structure of companies listed in mainland China 2006 (source: CSRC, 2007).

	Absolute numbers		%	
Panel A: number of listed companies				
<i>Shanghai Stock Exchange (SSE)</i>	886		58.79	
A-shares	832		55.21	
B-shares	54		3.58	
<i>Shenzhen Stock Exchange (SZSE)</i>	621		41.21	
A-shares	566		37.56	
B-shares	55		3.65	
Total	1507	1507	100.00	100.00
Panel B: number of shares (in billion of shares)				
<i>Non-negotiable shares</i>	925.98		72.40	
Sponsor shares	522.13		40.82	
Private placement of legal person shares	11.59		0.91	
Others	392.26		30.67	
<i>Negotiable shares</i>	352.98		27.60	
A-shares	330.08		25.81	
B-shares	22.90		1.79	
Total	1,278.96	1,278.96	100.00	100.00
Panel C: market capitalisation (in US\$ billion)				
<i>Non-negotiable market capitalisation</i>	825.34		72.05	
Shanghai Stock Exchange	707.19		61.74	
Shenzhen Stock Exchange	118.15		10.31	
<i>Negotiable market capitalisation</i>	320.22		27.95	
Shanghai Stock Exchange	210.40		18.37	
Shenzhen Stock Exchange	109.81		9.58	
Total	1145.55	1145.55	100.00	100.00

Table 2. Equity structure of HKEX listed companies 2006 (source: HKEX, 2007).

	Absolute numbers		%	
Panel A: number of listed companies				
<i>Mainboard & GEM</i>	942		80.31	
Domestic	934		79.63	
Foreign	8		0.68	
<i>Mainboard & GEM, China dimension</i>	231		19.69	
H-shares	141		12.02	
Red-chips	90		7.67	
Total	1,173	1,173	100.00	100.00
Panel B: market capitalisation (in US\$ billion)				
<i>Mainboard & GEM</i>	900.93		52.53	
Domestic	845.43		49.29	
Foreign	55.50		3.24	
<i>Mainboard & GEM, China dimension</i>	814.07		47.47	
H-shares	434.45		25.33	
Red-chips	379.62		22.14	
Total	1,715.00	1,715.00	100.00	100.00

Figure 2. The regional distribution of company listings 2006.

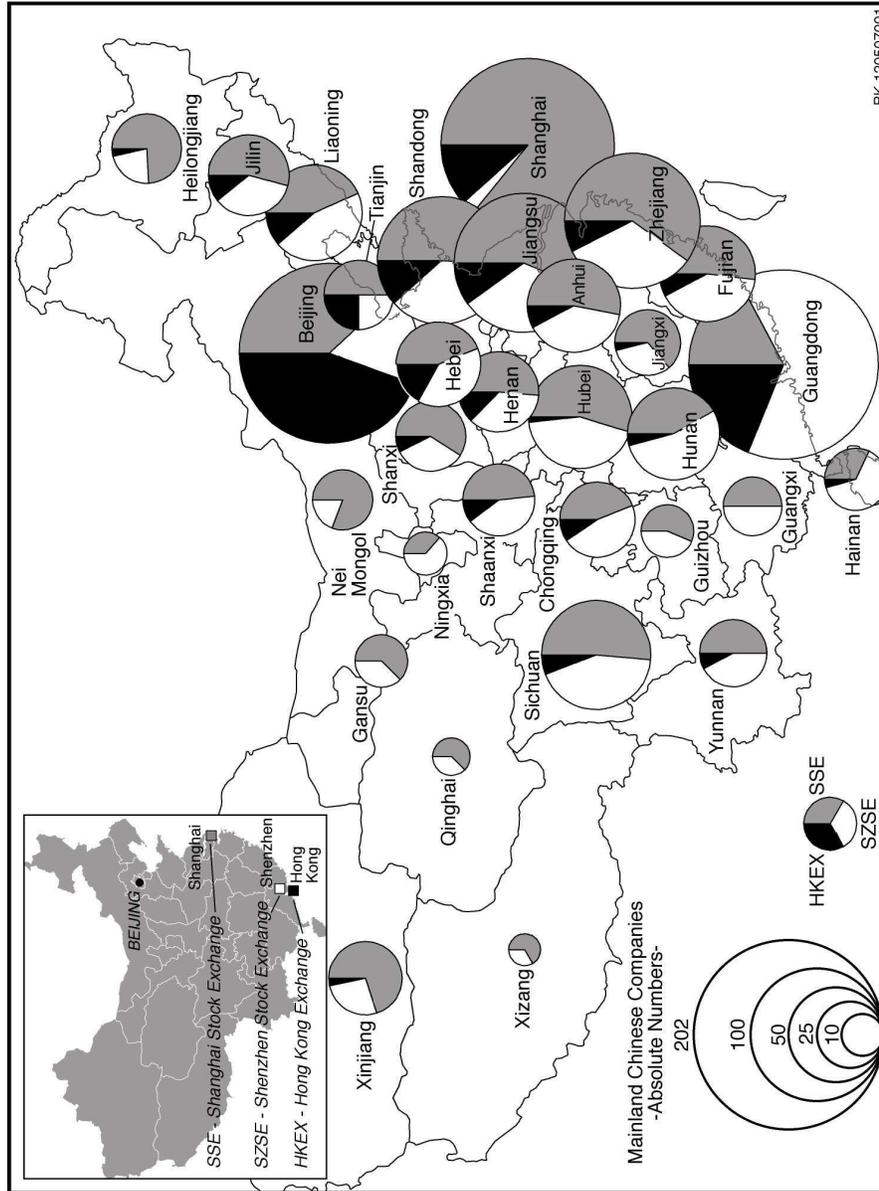


Figure 3. Regional distribution of Total Turnover Value 2006.

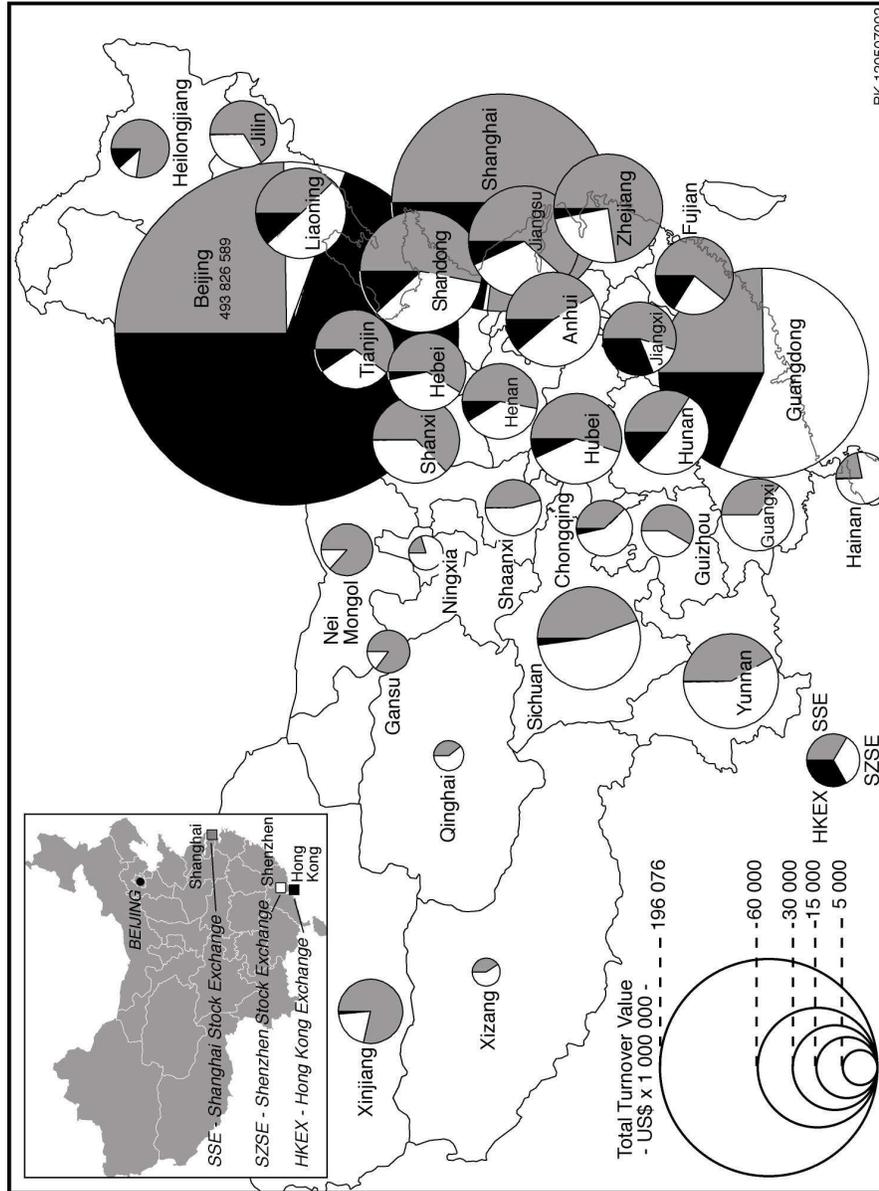
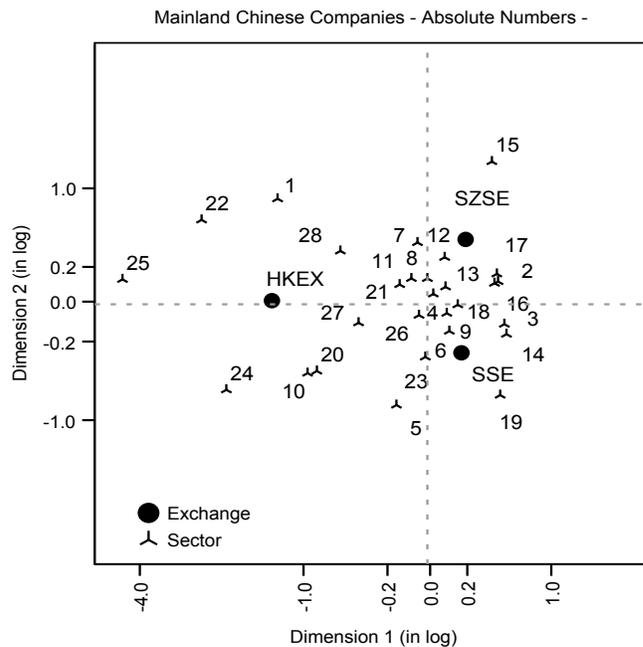


Figure 4. Stock exchanges and their association with economic sectors 2006.²



<i>Key</i>	<i>ICB Classification</i>	<i>Key</i>	<i>ICB Classification</i>
1	Oil & Gas	15	Household Goods
2	Chemicals	16	Leisure Goods
3	Forestry & Paper	17	Personal Goods
4	Industrial Metals	18	Healthcare
5	Mining	19	Retail
6	Construction & Materials	20	Media
7	General Industrials, Aerospace & Defence	21	Travel & Leisure
8	Electronic, Electrical Equipment	22	Telecommunications
9	Industrial Engineering	23	Utilities
10	Industrial Transportation	24	Banks
11	Support Services	25	Insurance
12	Automobiles & Parts	26	Financial Services
13	Beverages	27	Software & Computer Services
14	Food Producers	28	Technology Hardware & Equipment

² The axes of the graphical outcomes of the correspondence analysis have logarithmic scales which can handle zero and nonpositive values. This transformation is as follows:
$$x = \begin{cases} \log(1+|x|) & \text{if } x \geq 0 \\ -\log(1+|x|) & \text{if } x < 0 \end{cases}$$

Table 3. Specialisation of stock exchanges: sectoral dependence 2006.

Key	SSE			SZSE			HKEX		
	ICB Classification	SMP	Key	ICB Classification	SMP	Key	ICB Classification	SMP	Key
19	Retail	0.12999*	15	Household Goods	0.24052*	25	Insurance	0.86080*	
5	Mining	0.09316*	17	Personal Goods	0.07350*	22	Telecommunications	0.65668*	
14	Food Producers	0.07295*	12	Automobiles & Parts	0.07086*	24	Banks	0.58779*	
23	Utilities	0.05025*	2	Chemicals	0.06893*	1	Oil & Gas	0.45331*	
6	Construction & Materials	0.03597*				10	Industrial Transportation	0.36437*	
2	Chemicals	0.02141**				28	Techn. Hardware & Equip.	0.27380*	
						27	Software & Comp. Services	0.21734*	

*, ** Significant at the 5% and 10% level respectively.

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