

Ranking Asia-Pacific cities: Economic performance of multinational corporations and the regional urban hierarchy

György Csomós^{1, CDFMR}, Ben Derudder^{2, CDMR}

¹University of Debrecen, Department of Civil Engineering, Otemeto u. 2-4. H-4028 Debrecen, Hungary; phone: +3 652 415 155, fax: +3 652 418 643, e-mail: csomos@eng.unideb.hu (corresponding author); ²Ghent University, Department of Geography, Krijgslaan 281/S8, B9000 Gent, Belgium; e-mail: ben.derudder@ugent.be

How to cite:

Csomós, G. and Derudder, B., 2014: Ranking Asia-Pacific cities: Economic performance of multinational corporations and the regional urban hierarchy. In: Szymańska, D. and Środa-Murawska, S. editors, *Bulletin of Geography. Socio-economic Series*, No. 25, Toruń: Nicolaus Copernicus University Press, pp. 69–80. DOI: <http://dx.doi.org/10.12775/BGSS.2014.030>

Abstract. Over the past decade the world economy has undergone significant changes with an impact not only on national economies but also on the key cities from which that world economy is largely being controlled. In this study, we use Forbes' 'Global 2000' data on the headquarter location and size of the world's leading multinational corporations in order to examine the shifting relative position of leading Asia-Pacific cities as command and control centres in this increasingly important part of the world economy. Comparing cities' positions in 2006 and 2011, we present that Tokyo, which assumed a leading role in the region for decades, has seen a major decline in its command and control function, while Beijing now represents almost as much as command and control as the Japanese capital. Beijing's fast growth in command and control is also found for Chinese cities, albeit that Beijing clearly dominates the other Chinese cities. In addition, we present that shifting patterns of command and control also hinge on the sectors dominating the Forbes 2000 ranking.

Article details:

Received: 23 April 2014

Revised: 03 June 2014

Accepted: 10 June 2014

Key words:

World cities,
command and control,
multinational corporations,
headquarters cities,
Asia-Pacific.

© 2014 Nicolaus Copernicus University Press. All rights reserved.

Contents:

1. Introduction	70
2. Asia-Pacific cities in the global cities literature.	71
3. Command and control centres in the Asia-Pacific region	73
4. Discussion.	76
Notes	78
References	78

1. Introduction

Since the 1970s, it has become increasingly popular to analyse geographical patterns in the global economy through the metageographical lens of major cities (e.g. Friedmann, 1986; Beaverstock et al., 1999; Taylor, 2004; Sassen, 2006; Taylor et al., 2013). This mounting focus on major cities rather than ‘regions’ or ‘states’ can be more broadly framed in the vast literature dealing with the related upsurge in urbanization and economic globalization throughout this period. For instance, in her now-classic book *The Global City*, Sassen (1991: 4) retraces a specific part of the globalization/urbanization-nexus to the observation that ‘changes in the functioning of cities have had a massive impact upon both international economic activity and urban form: cities concentrate control over vast resources, while finance specialized service industries have restricted the urban social and economic order. Thus a new type of city has appeared. It is the global city. Leading examples now are New York, London, Tokyo, Frankfurt, and Paris.’

Although Sassen’s (1991) book continues to be a benchmark study in the research on globalized urbanization, this research agenda has a longer history. In spite of the fact that the exact starting point of this literature can be debated, it is clear that Peter Hall’s (1966) *The World Cities* has been milestone in the analysis of the position of cities in the global economy. In this book, Hall provided a detailed list of the factors that characterize the world’s leading cities, which at the time of writing were mainly located in the ‘Western World’. Hall thereby pointed to the degree to which a city was a major centre of political power, a seat of the most powerful national governments, a widely known international organization, a transportation centre or an integral part of global commerce. In addition, he also considered whether a given city was the site from which the global economy was articulated, for instance as reflected in the size of its production and the city being an important headquarter location for multinational corporations (although these still had to take their high flight back in 1966). Hall’s research continues to be an important milestone in this literature as it clearly posits world cities as the

scale from which the global economy is organized, and which is primarily visible through the concentration of the headquarters of the world’s leading multinational corporations. Accordingly, since the beginning of the 1970s, a number of papers have determined the global significance of a city based on the number of headquarters and the relative size of multinational companies (see Hymer, 1972; Heenan, 1977; Cohen, 1981; Friedmann, Wolff, 1982; Friedmann, 1986; Glickman, 1987; Alderson, Beckfield, 2004; Wall, Vander Knaap, 2011). Since then, the size and role of multinational corporations has grown exponentially, and the urban geography of the headquarter location of these firms is in constant flux.

However, the introduction of Sassen’s (1991) notion of a global city was extremely important. Since then, world cities have been investigated in a different manner, with advanced producer services at the forefront of attention. For example, Taylor (2004: 24–25) indicates that ‘Sassen’s purpose is nothing less than to seek to displace the focus of attention from the familiar issues of the power of large corporations. Global cities are more than “command centres”, they are the first “global service centres” in urban history. Thus, the global city approach asserts that command and control is nothing more than a decreasingly important component of those factors that determine global cities. Since Sassen’s book was first published the Asia-Pacific economy has been affected by numerous economic and financial crises, including the financial crises of 1997–1998 (Haggard, 2000) and 2007–2008 (Kawai et al., 2012). These crises along with some natural disasters, such as the Fukushima Daiichi nuclear disaster, had a negative impact on the growth of Japan, which had long been the leading economy in the region. As a result of these processes, and thanks to the massive growth of the Chinese economy, China has become the most significant regional economy, surpassing the decreasing Japan. And yet, it seems that the global city position of Tokyo (with New York and London on the top) remains stable. By contrast, from 2006 Beijing has presented the world’s greatest growth regarding the command and control functions, since it hosts the largest state-owned corporations in China. Thus, the fluctuation of command and control functions in cities shows quite clearly the current economic processes of restructuring.

The primary purpose of this paper is to gauge and map these changes for the Asia-Pacific region. More specifically, we assess the shifting command and control position of Asia-Pacific's cities in the period 2006–2011. To this end, we use data on the size, performance and headquarter location of major multinational corporations (MNCs), one of the most popular empirical approaches in this literature (e.g. Short et al., 1996; Godfrey, Zhou, 1999; Alderson, Beckfield, 2004; Taylor, Csomós, 2012). The underlying assumption of this approach is, of course, that the overall size and performance of major MNCs headquartered in a city reflect the level of resources that are being managed from it. As a corollary, a comparative analysis in space and time of the level of resources controlled from cities can inform us on how these are faring in the global city system.

The remainder of this paper is organized as follows. We begin with a brief discussion of the different empirical approaches used in this literature, and the position of Asia-Pacific cities in key writings on global cities. We then introduce our dataset, explain how the data are transformed to devise a measure of cities' command and control position, and explore some of the major changes that have occurred in the period 2006–2011. We specifically examine how the command and control function of Tokyo and Beijing changed over time, and explore the processes behind this. We conclude with a discussion and an overview of some possible avenues for further research.

2. Asia-Pacific cities in the global cities literature

The first studies identifying the strategic position of cities in the global economy paid little attention to the Asia-Pacific region. For instance, in *The World Cities Hall* (1966) was firmly concerned with Europe, as it only focused on Tokyo alongside New York and the European metropolises of London, Paris, Randstad, Rhine-Ruhr, and Moscow. However, the rising involvement and power of Asia-Pacific in the global economy ultimately led to the consideration of other cities in the region. In a highly cited paper entitled *The World City Hypothesis*, for instance, Friedmann (1986) included both Sydney

and Singapore as secondary cities in addition to Tokyo. Meanwhile, in the first edition of *The Global City*, Sassen (1991: 174) anticipated the rising role of Chinese cities in general and Hong Kong in particular by pointing out that Hong Kong has long been 'a key intersection of different worlds, forever a strategic exchange node for firms from China to the rest of the world and from the rest of the world to China, as well as among all the overseas Chinese communities.'

However, it was not until the late 1990s, when systematic, large-scale empirical analyses of cities' position in the global urban system became more popular, that the (increasingly) important position of Asia-Pacific cities became firmly acknowledged. Drawing on an analysis of the location strategies of globalized business services firms – key agents in the production of cities' capability for global control – Beaverstock et al. (1999) identified Tokyo, Hong Kong and Singapore as being part of a select group of 10 'Alpha' global cities. About a decade later, drawing on similar data, Derudder et al. (2010) identified 5 Asia-Pacific cities as part of the top 10, with Shanghai and Sydney joining Tokyo, Hong Kong and Singapore. In addition, other Asia-Pacific cities now also feature quite high in recent rankings, notably Beijing, Kuala Lumpur, Seoul, Mumbai, Jakarta, Taipei, Melbourne, New Delhi and Bangkok.

Other longitudinal analyses of the global urban system drawing on different data sources equally point to a shift towards Asia-Pacific: Smith and Timberlake (2001), Taylor et al., 2007, and Mahutga et al. (2010), for instance, illustrate this through an examination of changing connectivity patterns in air passenger networks; Alderson et al. (2010) based an assessment of the shifting position of cities in the corporate networks of Fortune 500 companies; and Derudder et al. (2011) based on an analysis of the impact of the global financial crisis on cities in their role as international banking centres. Such empirical assessments have been accompanied by qualitative appraisals of the prospect of global city formation in this region, such as in Toh and Ng (2002), Yulong and Hamnett (2002), Ng and Hills (2003), Sim et al. (2003), Olds and Yeung (2004), Tonts and Taylor, 2010, and Lai (2012) (1).

Against this backdrop, this paper provides an update of how Asia-Pacific cities have fared as command and control centres in the wake of the

series of financial and economic crises that started unfolding in late 2006. As indicated in the introduction, we hereby draw on what is perhaps the most straightforward proxy indicator of command and control: the level of resources ‘controlled’ from a city as evidenced by the size and performance of MNCs headquartered in that city. Our analysis is based on data contained in the well-known ‘Forbes Global 2000’ rankings. These yearly rankings list the world’s 2000 largest companies, and thereby give information on four parameters of the firms involved: revenue, assets, profit and market value. Such an analysis has been presented in the thoughtful work of Lee et al. (2012), in which the authors also identify command and control centres on the basis of the headquarters locations of MNCs as indicated in the Fortune Global 500 Ranking. Here we refine their approach by constructing a subtler index that considers the dynamic financial performance of corporations.

Table 1 summarizes some key information of the aggregated size and performance of corporations included in the Forbes 2000 list for 2006 and 2011, including a preliminary geographical differentiation for the Asia-Pacific region. The table shows

that, in general, the revenue, assets, profits and market values of the world’s 2000 leading companies have increased between 2006 and 2011. However, it is difficult to interpret this overall trend as it may have different causes, ranging from an improved firm performance to increased corporate concentration due to mergers and acquisitions. However, the data are interpretable in a comparative context. And from this perspective, it is clear that the relative importance of firms headquartered in Asia-Pacific has risen much faster than elsewhere in the world (see also Taylor, Csomós, 2012; Csomós, Derudder, 2013). For instance, while the assets and market values of the world’s leading 2000 companies have on average risen by 56.1% and 19.2% respectively, for firms headquartered in Asia-Pacific these figures are 104.9% and 64.8% respectively. However, this huge growth in Asia-Pacific hides major differences: for the Forbes 2000 firms headquartered in Japan for instance, there has on average been a more modest growth in assets (+32.4%) in the face of a decline in market value (-17.9%), while the aggregated values for firms headquartered in China have seen growth of 567.5% in assets and 280.5% in market value respectively.

Table 1. Forbes 2000 indicators for Asia-Pacific in 2006 and 2011

	Number of HQs		Revenues (billion USD)		Assets (billion USD)		Profits (billion USD)		Market values (billion USD)	
	2006	2011	2006	2011	2006	2011	2006	2011	2006	2011
Australia	36	41	286	489	1,425	3,181	34	55	538	957
China	64	166	393	2,044	1,695	11,314	67	249	1,008	3,835
India	33	57	162	466	503	1,681	18	50	291	817
Indonesia	7	11	16	33	76	165	3	7	33	114
Japan	320	260	3,417	4,036	11,183	14,806	122	89	3,249	2,666
Malaysia	14	19	31	80	213	493	5	11	76	217
New Zealand	1	0	3	0	5	0	1	0	7	0
Philippines	1	4	2	18	5	38	1	2	6	31
Singapore	14	20	66	148	355	769	8	18	123	243
South Korea	50	61	559	961	1,283	2,319	39	46	429	635
Taiwan	41	40	175	385	775	1,138	23	24	304	439
Thailand	13	17	45	138	185	378	6	11	62	141
Asia-Pacific	594	696	5,155	8,798	17,703	36,282	327	562	6,126	10,095
Rest of the World	1,406	1,304	18,976	23,548	70,788	101,856	1,385	1,799	24,905	26,898
WORLD	2,000	2,000	24,131	32,346	88,491	138,138	1,712	2,361	31,031	36,993

Source: Forbes ‘The Global 2000’ (2006/2011)

3. Command and control centres in the Asia-Pacific region

To examine the shifting position of individual cities in the Forbes 2000 data in greater detail, we look at the data summarized in Table 1 through the prism of metropolitan areas, thereby combining information on revenue, assets, profits and market values into a single measure. First, we define our units of analysis as metropolitan areas as demarcated by the respective national statistical offices. For instance, in our framework ‘Tokyo’ corresponds with the so-called ‘Tokyo Urban Employment Area’, which includes the cities of Chiba, Kawasaki and Yokohama. Second, rather than merely counting the number of Forbes 2000 headquarters in metropolitan areas we combine information on the key indicators of firm size and performance. According to Sassen (2006: 107), a number of varia-

bles determine which headquarters concentrate in major international financial and business centres. First, how we measure or simply count headquarters makes a difference. Frequently, the key measure is the size of the firm in terms of employment and overall revenue. The number of those employed is irrelevant from the perspective of command and control. Turnover by itself is not indicative of anything either: a commercial company may have a big turnover and a low market value, while a pharmaceutical company may be very valuable despite having a smaller turnover. Also, the assets of a bank, whose balance is negative in a given year, may exceed the assets of any producing company. Since Forbes 2000 uses four crucial financial parameters of companies — on which its ranking is based —, we combined these four parameters into a single measurement. The level of command and control $CAC_{x,y}$ of a given city x in a given year y is hereby calculated as follows:

$$CAC_{x,y} = \sum_{f=1}^n \frac{R_{f,x,y} + A_{f,x,y} + P_{f,x,y} + MW_{f,x,y}}{4}$$

Where:

$R_{f,x,y}$ = the proportion of revenues in the total dataset;

$A_{f,x,y}$ = the proportion of assets in the total dataset;

$P_{f,x,y}$ = the proportion of profit in the total dataset;

$MV_{f,x,y}$ = the proportion of market value in the total dataset;

f = firm;

n = total number of firms headquartered in city x in year y .

The methodology (also used by Csomós, 2013) that we use here has two important advantages: On the one hand, the number of companies that Forbes took into account is stable (2000) and thus the calculations can be compared. On the other hand, since CAC is an index without a unit of measurement, inflation can be disregarded. These in turn allow us to compare reliable data from 2006 and 2011 (or any other year). The Forbes Global 2000 classifies corporations into 80 industry categories on the basis of their activity profiles. In the analysis, we have reclassified the corporations operating in these industries into the basic sectors (Consumer Discretionary, Consumer Sta-

ples, Energy, Financials, Health Care, Industrials, Information Technology, Materials, Telecommunication Services, and Utilities) of the Global Industry Classification Standard (GICS) developed and used by MSCI (http://www.msci.com/products/indexes/sector/gics/gics_structure.html) and Standard & Poor's.

Table 2 present the 20 most important cities in Asia-Pacific in terms of their level of CAC in both 2006 and 2011. Table 3 ranks the 20 cities that have gained and lost most CAC in absolute terms in this period. Readers are referred to the tables for an overview of the various changes; here we provide a brief overview of the key shifts.

Table 2. Top 20 cities by CAC in 2006 and 2011

Rank	City	Country	CAC 2006	Rank	City	Country	CAC 2011
1	Tokyo	Japan	37.71	1	Tokyo	Japan	23.15
2	Seoul	South Korea	8.43	2	Beijing	China	18.68
3	Beijing	China	6.45	3	Hong Kong	Hong Kong/China	8.11
4	Osaka	Japan	5.90	4	Seoul	South Korea	7.16
5	Hong Kong	Hong Kong/China	5.66	5	Melbourne	Australia	3.88
6	Melbourne	Australia	4.06	6	Sydney	Australia	3.57
7	Sydney	Australia	3.55	7	Mumbai	India	3.28
8	Taipei City	Taiwan	3.21	8	Osaka	Japan	2.70
9	Toyota	Japan	2.71	9	Taipei City	Taiwan	2.55
10	Singapore	Singapore	1.94	10	Shanghai	China	2.49
11	Mumbai	India	1.88	11	Singapore	Singapore	2.36
12	Nagoya	Japan	1.33	12	Shenzhen	China	1.77
13	Bangkok	Thailand	1.18	13	Delhi	India	1.60
14	Delhi	India	1.15	14	Kuala Lumpur	Malaysia	1.56
15	Kuala Lumpur	Malaysia	1.15	15	Bangkok	Thailand	1.50
16	Kyoto	Japan	1.02	16	Toyota	Japan	1.24
17	Hsinchu City	Taiwan	0.92	17	Nagoya	Japan	0.78
18	Kariya	Japan	0.73	18	Kyoto	Japan	0.67
19	Shanghai	China	0.63	19	Perth	Australia	0.63
20	Fukuoka	Japan	0.54	20	Hsinchu City	Taiwan	0.62

Source: Forbes 'The Global 2000' (2006/2011)

Table 3. 20 cities with largest positive and negative CAC change between 2006 and 2011

Rank	City	Country	Positive CAC 11-06	Rank	City	Country	Negative CAC 11-06
1	Beijing	China	12.23	1	Tokyo	Japan	-14.56
2	Hong Kong	Hong Kong/China	2.46	2	Osaka	Japan	-3.20
3	Shanghai	China	1.85	3	Toyota	Japan	-1.47
4	Mumbai	India	1.40	4	Seoul	South Korea	-1.27
5	Shenzhen	China	1.33	5	Taipei	Taiwan	-0.66
6	Delhi	India	0.45	6	Nagoya	Japan	-0.54
7	Singapore	Singapore	0.42	7	Kyoto	Japan	-0.35
8	Kuala Lumpur	Malaysia	0.41	8	Hsinchu City	Taiwan	-0.30
9	Perth	Australia	0.35	9	Kariya	Japan	-0.28
10	Guangzhou	China	0.33	10	Hiroshima	Japan	-0.27
11	Kolkata	India	0.32	11	Fukuoka	Japan	-0.22
12	Bangkok	Thailand	0.32	12	Hamamatsu	Japan	-0.19
13	Changsha	China	0.16	13	Melbourne	Australia	-0.19
14	Manila	Philippines	0.16	14	Pohang	South Korea	-0.18
15	Ulsan	South Korea	0.14	15	Nagano	Japan	-0.16
16	Jakarta	Indonesia	0.14	16	Sendai	Japan	-0.11
17	Hyderabad	India	0.13	17	Mailiao	Taiwan	-0.11
18	Taoyuan City	Taiwan	0.13	18	Wellington	New Zealand	-0.10
19	Kobe	Japan	0.13	19	Okayama	Japan	-0.10
20	Foshan	China	0.12	20	Toyama	Japan	-0.10

Source: Forbes 'The Global 2000' (2006/2011)

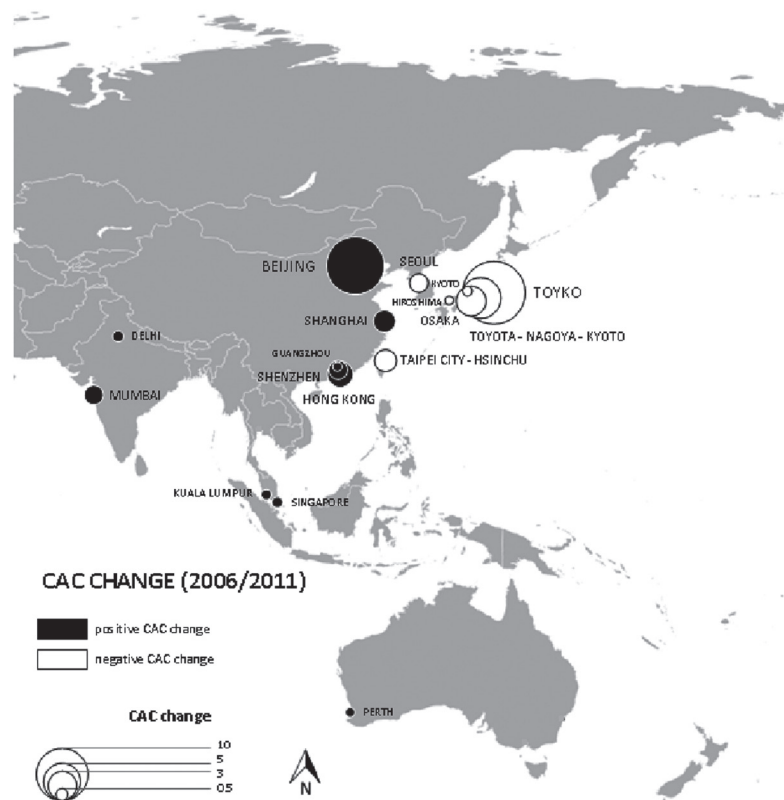


Fig. 1. Geographical location of cities with the largest positive and negative CAC change

Source: Forbes 'The Global 2000' (2006/2011)

As Table 2 shows Tokyo remains Asia-Pacific's leading CAC centre between 2006 and 2011, although it loses much of its stature (i.e. a 40% drop). It is clear that this spectacular decline is a more general feature of Japanese cities: the aggregated level of CAC of Tokyo, Osaka, Toyota, Nagoya and Kyoto has halved over this period (Fig. 1). The opposite trend can be observed for Chinese cities: Beijing's CAC rises with about 300% to a level close to that of Tokyo. Meanwhile, other Chinese cities equally fare well, with Hong Kong, Shanghai, Shenzhen, Guangzhou, Changsa and Foshan also featuring amongst the cities with the largest gains in CAC. However, although we are clearly witnessing a quasi-general rise of Chinese cities in their level of CAC, it is also clear that this growth is firmly focused on a limited set of cities, with especially Beijing, Shanghai, Hong Kong, Guangzhou and Shenzhen emerging as 'the big 5' (with particularly the first three cities dominating) (see also Zhao et al., 2004; Zhao et al., 2005).

Seoul also loses some of its CAC, albeit that this decline is far less dramatic than for of Japanese cities. Nonetheless, because of the quick rise of Chinese cities, Seoul declines from second to fourth position in the Asia-Pacific region. Taiwanese cities also lose out, with Taipei, Hsinchu and Mailiao featuring amongst the 20 Asia-Pacific cities showing the largest decline in CAC. Meanwhile, Indian cities generally post increases in CAC, albeit less marked than is the case for Chinese cities. And finally, Australian cities remain more or less stable, albeit that – driven by the resource bubble – Perth displays increased levels of CAC.

4. Discussion

Figure 1 suggests that, against the backdrop of the overall rising importance of cities the Asia-Pacific region, there is a major shift in command and con-

trol from Japanese cities to Chinese cities, particularly epitomized by the decline of Tokyo and the upsurge of Beijing. Although the rapid rise of Chinese cities may not be a big surprise given recent readings of a West-to-East shift in the global economy (Logan, 2002; Yulong, Hamnett, 2002; Zhao et al., 2003; Lin, 2004; Derudder et al., 2011; Li et al., 2012), it is worth emphasizing that China's growth in CAC is not merely a matter of 'catching up' with the likes of Tokyo, Osaka, Seoul and Taipei – the latter lose out, so that we are also observing sizable intra-regional dynamics in the general context of Asia-Pacific's mounting importance. This intra-regional dynamism makes the Asia-Pacific as a whole one of the most dynamic regions for this kind of analyses and related research agendas: neither in North America nor in Europe – where the longstanding dominance of New York or London is not really challenged – do we observe a degree of change and dynamism that comes anyway close to that of the Asia-Pacific region (Taylor, Csomós, 2012; Csomós, Derudder, 2013). Although it can be expected that Beijing will soon overtake Tokyo as leading command and control centre in Asia-Pacific when focusing on this particular measurement methodology, these results need to be put in perspective for a number of reasons, the two most important ones being (a) the differential growth trajectories of specific economic sectors and (b) the impact of the state on the command and control patterns of Chinese cities.

First, a closer look at the structure of the various industry sectors of the cities shows that the overall picture turns out to be much more complex. Amongst the Asia-Pacific cities examined here, Tokyo has the most 'balanced' structure across sectors – there is at least one headquarter across all 10 GICS sectors; New York, London and Paris are the three only other cities that have headquarters across all sectors. The MNCs headquartered in Beijing are associated with only eight sectors, with the Consumer Staples and the Health Care sectors missing. Table 4 shows that between 2006 and 2011 the CAC of all the sectors of Tokyo decreased, with the financial and industrial sectors, which were most affected by the economic crisis, suffering the most significant losses. On the other hand, in Beijing, it is only the Telecommunication services sector that showed a small decrease, while the other sectors exhibited

growth. In the period examined here, the financial sector showed the fastest expansion: the growth rate in 2006–2011 (+9.19%) was larger than the absolute CAC of the Financials sector in Tokyo in 2011. As a consequence, the financials sector's contribution to the combined CAC of the Chinese capital now almost stands at 50%, while in the case of Tokyo this rate is only 35%. In addition, in the case of Beijing the CAC of the second-ranking energy sector is only one-third of the financial sector's CAC, with the former sector's growth dynamics being smaller, and in the other sectors these are virtually negligible (see Table 4). In a 2011 article in the *New York Times*, Paul Krugman, suggested that today China is going through what Japan went through in the late 1980s, and the United States in the mid-2000s, since one of the main sources of its GDP growth is the overheated investment boom in the real estate sector (real estate investment has roughly doubled as a share of Chinese GDP since 2000). Such a real estate bubble may easily lead to an economic crisis that above all shows in the financial sector, as clearly exemplified by Japan's 'lost decade' or the financial crisis that started in the United States in 2007 and which forced the global economy into crisis. Such a financial crisis would cause serious damage to the Chinese banking system, and – given the dominance of finance in Beijing's command and control stature – to Beijing's position.

Second, as our measure puts a lot of emphasis on a specific kind of prowess, i.e. the command and control exercised from large MNCs, it tends to 'favour' Beijing over other Chinese cities (see Zhao et al., 2005). Given the prominent influence of the Chinese state and the associated need to go through a lot of government channels, Beijing's position is probably exaggerated. Although other studies have equally pointed to the very uneven involvement of Chinese cities in the global city system with Beijing, Shanghai and Hong Kong assuming the major positions (Gu, Tang, 2002; Zhao et al., 2003; Derudder et al., 2010; Chu, 2008; Zhao, 2010; Wang et al., 2011; Lee et al., 2012; Zhao et al., 2012), the dominance of Beijing is nowhere near the levels suggested here. Indeed, our empirical perspective probably favours Beijing given the division of labour between Beijing, Shanghai and Hong Kong in the Chinese space-economy (see Lai, 2012), whereby 'major' companies will often be headquartered in Beijing given their li-

aisons with myriad government channels (Zhao et al., 2004); thus although a focus on globalized business services firms as in Beaverstock et al. (1999) and Derudder et al. (2010) or on airline connecti-

ty as in Matsumoto (2007) and Ma and Timberlake (2012) would probably suggests similar patterns, there would likely be a more balanced distribution between Shanghai, Beijing and Hong Kong.

Table 4. Changes of Tokyo's and Beijing's combined CAC in different GISC sectors, 2006–2011

GICS Sectors	CAC, Tokyo 2006	CAC, Tokyo 2011	Change of CAC, Tokyo	CAC, Beijing 2006	CAC, Beijing 2011	Change of CAC, Beijing
Consumer Discretionary	4.24	2.25	- 1.98	0.00	0.05	+ 0.05
Consumer Staples	2.10	1.36	- 0.73	0.00	0.00	+ 0.00
Energy	1.03	0.91	- 0.12	2.97	4.41	+ 1.44
Financials	12.88	8.07	- 4.81	2.14	11.33	+ 9.19
Health Care	0.79	0.70	- 0.09	0.00	0.00	+ 0.00
Industrials	8.25	4.80	- 3.44	0.19	1.19	+ 1.00
Information Technology	2.61	1.77	- 0.84	0.00	0.17	+ 0.17
Materials	2.95	1.27	- 1.68	0.37	0.82	+ 0.45
Telecommunications Services	1.87	1.43	- 0.45	0.54	0.36	- 0.19
Utilities	1.00	0.58	- 0.42	0.23	0.37	+ 0.14

Source: Forbes 'The Global 2000' (2006/2011)

The implications of Lai's (2012) thoughtful work on the possible impact of the diverse functions of Chinese cities on our results leads us to a concluding overview of some avenues for further research. First, it is clear that the remit of our analysis needs to be extended through qualitative research (e.g. Lai, 2012) and/or other types of quantitative research (e.g. Li et al., 2012). For instance, Alvstam et al. (2009: 206) observe that Chinese companies have recently started to become more active in the global economy in terms of buying foreign competitors and/or potential technology partners, and this process contributes to our observation of the regional and global strengthening of the CAC position of Chinese cities to the detriment of Japanese cities (2). In addition, according to The Wall Street Journal (2011) this growing involvement of Chinese MNCs in FDI processes has been accelerating in parallel with the financial/economic crises in the European Union, as this has made European companies more likely targets for potential acquisition moves. The recent rise in market value and assets of Chinese firms, then, is related to their increased involvement in FDI, and incorporating and making sense of these evolutions is an obvious extension of the results presented here.

Second, it is clear that when the globalization-/urbanization-nexus is narrowed down to the spe-

cific area of 'command and control' we may lose sight of myriad other processes. Wu and Ma (2006: 192), for instance, have argued that when the attention is shifted towards the 'frontier of globalization' where many cities in developing countries or newly industrializing economies are competing for global city status, indicators such as MNC headquarters become less important. Rather, what matters is the essence and scale of cities' transformation rather than their status per se, and much more work needs to be done in this regard.

Third, it is also possible to extend and refine our specific approach, for instance by incorporating a number of interacting dynamics. For instance, a preliminary analysis of our dataset suggests that the rise of Beijing and Perth is above all confined to their role in specific sectors, i.e. financials and mining respectively. The changes in global CAC described here, then, do not only reflect the shifting position of both cities, but also the rising financialization of the economy and the asset bubble in China on the one hand and the mining boom on the other hand. Adding a sectorial element to this kind of analysis would thus lend more analytical weight to the results.

And fourth and finally, it might be suggested that the general divide between Japan/Taiwan on the one hand and China/India on the other hand

casts some doubt over the viability of the global cities approach: if changes can be reasonably described by the level of CAC exercised from countries, then the added value of a city-centred approach can be questioned (see also Alderson et al., 2010). In this light, the concrete actions of states in the formation of global cities are an obvious area for further research (see Therborn, 2011) (3).

Notes

- (1) More recently, there have been analyses of the global urban geographies produced by other and sometimes very different actors, including non-governmental organizations (Toly et al., 2012), scientific collaborations (Matthiessen et al., 2006), media corporations (Hoyler, Watson, 2013), and architecture firms (Knox, Taylor, 2006).
- (2) The most spectacular examples are the acquisition of IBM's personal computer business (ThinkPad) line in 2005 by Lenovo Group and the takeover of Volvo Cars in 2010 by Zhejiang Geely Holding Group.
- (3) That said, adopting the metageographical lens of cities may make sense, as patterns are obviously very uneven within countries. China is a case in point here: in line with the findings of Derudder et al. (2010), it is clear that although all Chinese cities are gaining in global prominence, the rise of a limited set of key cities stands out. Beijing dominates other Chinese cities in terms of globalized CAC, followed by Shanghai, Hong Kong, Guangzhou and Shenzhen: in 2011, these 5 cities contained 87.55% of China's CAC in the global economy, which implies a very skewed distribution towards a very limited set of cities.

References

- Alderson, A.S. and Beckfield, J., 2004: Power and Position in the World City System. In: *American Journal of Sociology*, 109, 4, pp. 811–851.
- Alderson, A.S., Beckfield, J. and Sprague-Jones, J., 2010: Intercity relations and globalisation: The evolution of the global urban hierarchy, 1981–2007. In: *Urban Studies*, 47, 9, pp. 1899–1923.
- Alvstam, C.G., Ström, P. and Yoshino N., 2009: On the economic interdependence between China and Japan: Challenges and possibilities. In: *Asia Pacific Viewpoint*, 50, 2, pp. 198–214.
- Beaverstock, J.V., Taylor, P.J. and Smith, R.G., 1999: A Roster of World Cities. In: *Cities*, 16, 6, 445–458.
- Chu, Y.-W., 2008: Deconstructing the global city: Unravelling the linkages that underlie Hong Kong's world city status. In: *Urban Studies*, 45, 8, pp. 1625–1646.
- Cohen, R.B., 1981: The new international division of labour, multinational corporations and urban hierarchy. In: Dear, M. and Scott, A. editors, *Urbanization and Urban Planning in Capitalist Societies*, London-New York: Methuen, pp. 287–316.
- Csomós, G., 2013: The command and control centers of the United States (2006/2012): an analysis of industry sectors influencing the position of cities. In: *Geoforum*, 50, pp. 241–251.
- Csomós, G. and Derudder, B., 2013: European Cities as Command and Control Centres, 2006–11. In: *European Urban and Regional Studies*, doi: <http://dx.doi.org/10.1177/0969776412453149> (in press).
- Derudder, B., Taylor, P.J., Ni, P., De Vos, A., Hoyler, M., Hanssens, H., Bassens, D., Huang, J., Witlox, F., Shen, W. and Yang, X., 2010: Pathways of Change: Shifting Connectivities in the World City Network, 2000–08. In: *Urban Studies*, 47, 9, pp. 1861–1877.
- Derudder, B., Hoyler, M. and Taylor P.J., 2011: Good-bye Reykjavik: International banking centres and the global financial crisis. In: *Area*, 43, 2, pp. 173–182.
- Derudder, B., Taylor, P. J., Hoyler, M., Ni, P., Liu, X., Zhao, M., Shen, W. and Witlox, A., 2013: Measurement and Interpretation of Connectivity of Chinese Cities in World City Network, 2010. In: *Chinese Geographical Science*, 23, 3, pp. 261–273.
- Forbes, 2006: Special Report: The Forbes 2000 http://www.forbes.com/lists/2006/18/06f2000_The-Forbes-2000_Rank.html
- Forbes, 2011: The World's Biggest Public Companies 2011. http://www.forbes.com/lists/2012/18/global2000_2011.html
- Fortune, 2011: Fortune Global 500, <http://fortune.com/global500>
- Friedmann, J. and Wolff, G., 1982: World city formation: an agenda for research and action (urbanization

- process). In: *International Journal of Urban & Regional Research*, 6, 3, pp. 309–344.
- Friedmann, J.**, 1986: The World City Hypothesis. In: *Development and Change*, 17, 1, pp. 69–83.
- Glickman, N.J.**, 1987: Cities and the international division of labour. In: Smith, M.P. and Feagin, J.R. editors, *The Capitalist City*, Oxford: Blackwell, pp. 66–86.
- Godfrey, B.J. and Zhou, Y.**, 1999: Ranking World Cities: Multinational Corporations and the Global Urban Hierarchy. In: *Urban Geography*, 20, 3, pp. 268–281.
- Gu, F.R. and Tang, Z.**, 2002: Shanghai: Reconnecting to the Global Economy. In: Sassen, S. editor, *Global Networks: Linked Cities*, New York: Routledge, pp. 273–308.
- Haggard, S.**, 2000: The Political Economy of the Asian Financial Crisis, Washington: Peterson Institute for International Economics.
- Hall, P.**, 1966: The World Cities, London: Heinemann.
- Heenan, D.A.**, 1977: Global cities of tomorrow. In: *Harvard Business Review*, 55 (May/June), pp. 79–92.
- Hoyler, M. and Watson, A.**, 2013: Global Media Cities in Transnational Media Networks. In: *Tijdschrift voor economische en sociale geografie*, 104, 1, pp. 90–108.
- Hymer, S.**, 1972: The multinational corporation and the law of uneven development. In: Bhagwati, J. editor, *Economics and World Order from the 1970s to the 1990s*, New York: Collier-MacMillan, pp. 113–140.
- Kawai, M., Lamberte, M.B. and Park, Y.C.** editors, 2012: The Global Financial Crisis and Asia: Implications and Challenges, Oxford: Oxford University Press.
- Knox, P.L. and Taylor P.J.**, 2006: Toward a Geography of the Globalization of Architecture Office Networks. In: *Journal of Architectural Education*, 58, 3, pp. 23–32.
- Krugman, P.**, 2011: Will China Break? In: *The New York Times* (The Opinion Pages). http://www.nytimes.com/2011/12/19/opinion/krugman-will-china-break.html?_r=1
- Lai, K.**, 2012. Differentiated Markets: Shanghai, Beijing and Hong Kong in China's Financial Centre Network. In: *Urban Studies*, 49, 6, pp. 1275–1296
- Lee, E.K.S., Zhao, S.X. and Xie, Y.**, 2012: Command and Control Cities in Global Space-economy before and after 2008 Geo-economic Transition. In: *Chinese Geographical Science*, 22, 3, pp. 334–342
- Li, L., Dunford, M. and Yeung, G.**, 2012: International trade and industry dynamics: Geographical and structural dimension of Chinese and Sino-EU merchandise trade. In: *Applied Geography*, 32, 1, pp. 130–142.
- Lin, G.S.C.**, 2004: The Chinese globalizing cities: National centres of globalization and urban transformation. In: *Progress in Planning*, 61, 3, pp. 143–157.
- Logan, J.R.**, 2002: Three challenges for the Chinese city: Globalization, migration and market reform. In: J.R. Logan, ed. *The new Chinese city: Globalization and market reform*, Oxford: Blackwell Publisher.
- Ma, X. and Timberlake, M.**, 2012: World City Typologies and National City System Deterritorialisation: USA, China and Japan. In: *Urban Studies*, 50, 2, pp. 255–275.
- Mahutga, M.C., Ma, X., Smith, D. and Timberlake, M.**, 2010: Economic Globalization and the Structure of the World-City System: The Case of Airline Passenger Data. In: *Urban Studies*, 47, 9, pp. 1925–1947.
- Matsumoto, H.**, 2007: International air network structures and air traffic density of world cities. In: *Transportation Research Part E: Logistics and Transportation Review*, 43 (3), pp. 269–282.
- Matthiessen, C.W., Schwarz, A.W. and Find, S.**, 2006: World cities of knowledge: research strength, networks and nodality. In: *Journal of Knowledge Management*, 10, 5, pp. 14–25.
- Miller, J.W.**, 2011: Chinese Companies Embark on Shopping Spree in Europe. The Wall Street Journal, June 6. 2011. <http://online.wsj.com/article/SB10001424052748704355304576214683640225122.html>
- Ng, M.K. and Hills, P.**, 2003: World cities or great cities? A comparative study of five Asian metropolises. In: *Cities*, 20, 3, pp. 151–165.
- Olds, K. and Yeung, H.W.-C.**, 2004: Pathways to global city formation: A view from the developmental city-state of Singapore. In: *Review of International Political Economy*, 11, 3, pp. 489–521.
- Pereira, R.A.O. and Derudder, B.**, 2010: Determinants of dynamics in the world city network, 2000–2004. In: *Urban Studies*, 47, 9, pp. 1949–1967.
- Sassen, S.**, 1991: The Global City: New York, London, Tokyo, Princeton: Princeton University Press.
- Sassen, S.**, 2006: Cities in a World Economy. 3rd ed, Thousand Oaks: Pine Forge Press.
- Shin, K.-H. and Timberlake, M.**, 2000: World cities in Asia: Cliques, centrality and connectedness. In: *Urban Studies*, 37, 12, pp. 2257–2285.
- Short, J.R., Kim, Y., Kuus, M. and Wells, H.**, 1996: The dirty little secret of world city research: Data problems in comparative analysis. In: *International Journal of Regional and Urban Research*, 20, 4, pp. 697–717.
- Sim, L.L., Ong, S.E., Agarwal, A., Parsa, A. and Keivani, R.**, 2003: Singapore's competitiveness as a global city: de-

- velopment strategy institutions and business environment. In: *Cities*, 20, 2, pp. 115–127.
- Smith, D.A. and Timberlake, M.**, 2001: World city networks and hierarchies, 1977–1997: An empirical analysis of global air travel links. In: *American Behavioral Scientist*, 44, 10, pp. 1656–1678.
- Taylor, P.J.**, 2004: *World City Network: A Global Urban Analysis*, New York-London: Routledge.
- Taylor, P.J., Derudder, B. and Witlox, F.**, 2007: Comparing airline passenger destinations with global service connectivities: A worldwide empirical study of 214 cities. In: *Urban Geography*, 28, 3, pp. 232–248.
- Taylor, P.J., Ni, P., Derudder, B., Hoyler, M., Huang, J., Lu, F., Pain, K., Witlox, F., Yang, X., Bassens, D. and Shen, W.**, 2009: The way we were: command-and-control centres in the global space-economy on the eve of the 2008 geo-economic transition. In: *Environment and Planning A*, 41, 1, pp. 7–12.
- Taylor, P. J., Ni, P., Derudder, B., Hoyler, M., Huang, J., Pain, K., Witlox, F., Yang, X., Bassens, D. and Shen, W.**, 2011: Command and Control Centres in the World Economy. In: Taylor, P. J., Ni, P., Derudder, B., Hoyler, M., Huang, J. and Witlox, F. editors, *Global Urban Analysis: A Survey of Cities in Globalization*, London: Earthscan, pp. 22–39.
- Taylor, P.J. and Csomós, G.**, 2012: Cities as command and control centres: Analysis and Interpretation. In: *Cities*, 29, 6, pp. 408–411.
- Taylor, P.J., Derudder, B., Hoyler, M. and Ni, P.**, 2013: New regional geographies of the world as practised by leading advanced producer service firms in 2010. In: *Transactions of the Institute of British Geographers*, 38, 3, pp. 497–511.
- Therborn, G.**, 2011: End of a paradigm: The current crisis and the idea of stateless cities. In: *Environment and Planning A*, 43, 2, pp. 272–285
- Toh, M.H. and Ng, W.C.**, 2002: Efficiency of investments in Asian economies: has Singapore over-invested? In: *Journal of Asian Economics*, 13, 1, pp. 52–71.
- Toly, N.J., Bouteligier, S., Gibson, B. and Smith, S.**, 2012: New Maps, New Questions: Global Cities Beyond the Advanced Producer and Financial Services Sector. In: *Globalizations*, 9, 2, pp. 289–306.
- Tonts, M. and Taylor, M.**, 2010: Corporate location, concentration and performance: Large company headquarters in the Australian urban system. In: *Urban Studies*, 47, 12, pp. 2641–2664.
- Wall, R.S. and van der Knaap, G.A.**, 2011: Sectoral Differentiation and Network Structure Within Contemporary Worldwide Corporate Networks. In: *Economic Geography*, 87, 3, pp. 267–308
- Wang, D.T., Zhao, S.X.B., Gu, F.F. and Chen, W.Y.**, 2011: Power or market? Location determinants of multinational headquarters in China. In: *Environment and Planning A*, 43, 10, pp. 2364–2383.
- Wu, F. and Ma, L.J.C.**, 2006: Transforming China's globalizing cities. In: *Habitat International*, 30, 2, pp. 191–198.
- Yulong, S. and Hamnett, C.**, 2002: The potential and prospect for global cities in China: in the context of the world system. In: *Geoforum*, 33, 1, pp. 121–135.
- Zhao, S.X.B., Chan, R.C.K. and Sit, K.T.O.**, 2003: Globalization and the dominance of large cities in contemporary China. In: *Cities*, 20, 4, pp. 265–278.
- Zhao, S.X.B., Zhang, L. and Wang, D.T.**, 2004: Determining factors of the development of a national financial center: the case of China. In: *Geoforum*, 35, 5, pp. 577–592.
- Zhao, S.X.B., Cai, J. and Zhang, L.**, 2005: Asymmetric information as a key determinant for locational choice of MNC headquarters and the development of financial centers: A case for China. In: *China Economic Review*, 16, 3, pp. 308–331.
- Zhao, S.X.B.**, 2010: The Centennial Competition of Global Financial Centers: Key Determinants and the Rise of China's Financial Centers, Working Paper 2010-04 for RSA Annual Conference, Pécs, Hungary. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1.69.7744&rep=rep1&type=pdf>
- Zhao, S.X.B., Chan, Y. and Ramón-Berjano, C.B.**, 2012: Industrial Structural Changes in Hong Kong, China under One Country, Two Systems Framework. In: *Chinese Geographical Science*, 22, 3, pp. 302–318.