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## Why Complementarity Matters for Stability— Hong Kong SAR and Singapore as Asian Financial Centers

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## IMF Working Paper

Strategy, Policy and Review Department

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#### Abstract

There is much speculation regarding a “race for dominance” among financial centers in Asia, arising from the anticipated financial opening up of China. This frame of reference is, to an extent, a predilection that results from a traditional understanding of financial centers as possessing historical, geographic, and scale economy advantages. This paper, however, suggests that there is an alternative prism through which the evolution of financial centers in Asia needs to be viewed. It underscores the importance of “complementarity” rather than “dominance” to better serve regional and global financial stability. We posit that such complementarity is vital, through network analysis of the roles of Hong Kong SAR and Singapore as the current leading financial centers in the region. This analysis suggests that a competition for dominance can result in de-stabilizing levels of interconnectivity that render the global “network” as a whole more susceptible to rapid propagation of shocks. We then examine the regulatory and policy challenges that may be encountered in furthering such complementary coexistence.

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## I. INTRODUCTION

Asian financial centers are frequently viewed through the lens of a “race for dominance” amongst a few well-established cities like Hong Kong SAR, Singapore, and Tokyo (as well as other potential contenders like Seoul and Shanghai). Indeed, there is an extensive literature that looks at the development of these financial centers from that perspective. This paper, however, suggests that there is an alternative consideration—namely, that of regional and global financial stability—that matters when looking at the evolution of these centers. Rather than asking what each financial center needs to do to make itself stronger or “dominant”, we ask if the patterns of coexistence of financial centers in Asia have a bearing on regional or global financial stability. In order to answer this question, we explore different scenarios with a global shock propagation model using well-known network analysis methods. To keep these scenarios tractable, and to minimize speculation, we take as given that Singapore and Hong Kong SAR are the two main international financial centers in Asia, and look at how their coexistence might affect regional and global financial stability. We do this because they are both indeed significantly more internationalized than their Asian peers today. The point is not to rule out the emergence or re-emergence of other financial centers. Rather, with existing and available data with the world as it is today, we document not only how these two centers complement each other—geographically, and in terms of product specialization—but also suggest that this complementarity better serves to stabilize the global financial system.

Keeping the focus on global and regional stability, both cities host a large number of global systemically important banks (G-SIBs), and need to maintain appropriate licensing, regulatory, supervisory and resolution mechanisms. We take a closer look at three banks with a large presence in Hong Kong SAR and Singapore. Their operations match in several respects the geographic and product specialization of their host centers. Supervising and regulating financial these groups in a global web of financial markets and supervisors raises particular challenges that we explore in the later sections of the paper. For instance, the two centers face the challenge of maximizing coordination with home supervisors, and ensuring domestic regulatory requirements that meet the highest international standards, without hampering global cooperation or generating regulatory arbitrage.

## II. HONG KONG SAR AND SINGAPORE IN THE CONTEXT OF OTHER FINANCIAL CENTERS

### A. Global or regional financial centers?

1. **International financial centers** are characterized by the concentration of a large number of diversified domestic and foreign financial institutions, which offer a multitude of financial services, backed by a sophisticated and robust infrastructure, and a robust legal and regulatory framework (Elliott, 2011; Jarvis and Mainelli, 2006).<sup>2</sup>

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<sup>2</sup> Elliott, 2011: “A financial center is simply a location where a substantial amount of financial business is conducted.” Jarvis, 2009 and Mainelli, 2006: “Common definitions of financial centers thus normally highlight their role as places of *intense* exchange relations which exhibit a dense clustering of a wide variety of financial businesses in one centralized location.”

“Agglomeration” or “Cluster” effects are typical features that contribute to widening the provision of services, generally at competitive prices. A large domestic market is not sufficient, however, and IFCs typically enjoy a strong degree of openness, presence of foreign entities, and connections to a wide range of international market participants. Large financial centers roughly correspond to the major bands of time zones around the world, with New York City and London being the largest, by far. Financial centers tend to compete more *within* their time zones than they do across them, most likely because inter-zone substitutability is challenging.

**2. The role of regional centers.** Financial consolidation at the global level has been accompanied by fragmentation at the regional level, and by the appearance of niche markets that cater to the specific needs of local markets. Regional financial centers are prospering because they deepen financial intermediation and offer tailor-made financial services and products, while connecting countries and regions into the global financial network. Asia does not currently have a single, global IFC, but rather relies on several regional and niche centers. Japan seems to operate primarily as a domestically-centered market (Box 1); Kuala Lumpur plays an important role in Islamic finance. Today, Hong Kong SAR and Singapore are the two centers in Asia whose roles are closer to those of international financial centers as described above. They provide the strongest financial connections between Asia and the rest of the world.

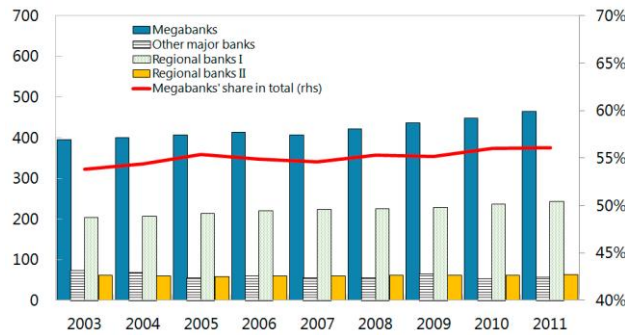
**3. The power of incumbency.** Over time, some emerging Asian financial centers could broaden their scale and scope, but are likely to encounter significant challenges in serving as alternatives to Hong Kong SAR and Singapore because the two cities have a clear “early mover advantage” which confers some “natural” advantages — similar to those of London. Once London’s “City” reached critical mass, Frankfurt and Paris, while retaining their domestic functions, faded in relative importance as international centers. Similarly, Hong Kong SAR and Singapore have now developed sufficient franchises to be considered as incumbent financial centers, at least in Asia. As existing IFCs, they can build on their accumulated agglomeration advantages. Both benefit from growing markets, deep pools of expertise, robust and stable market infrastructure, and solid legal, regulatory and supervisory frameworks. This is not to suggest that these attributes cannot be developed elsewhere. Rather, it underscores that concerted efforts will be needed across all these dimensions, along with the ability to attract strong talent, and with consistent policy support towards attaining these goals for the advantages of Hong Kong SAR and Singapore to be replicated elsewhere. As such, we focus on these two centers in examining their relationship, and their roles in fostering regional and financial stability.

### Box 1. Tokyo as an IFC

From the mid-1960s through the early 1990s, Japan dominated Asia's financial landscape. While remaining the third largest financial market by size in the world after New York and London, its relative importance in Asia has diminished. Earlier attempts in three waves by Japanese financial institutions to expand abroad have had mixed success (Lam, 2013). Tokyo is no longer perceived as a truly global financial center, but rather as a more a domestic FC with a very large market. Parts of the regulatory framework and institutional structures and operations encourage an inward-looking view. Tokyo, for instance, mostly uses Japanese law and the Japanese language for their transactions, making it difficult to attract foreign business to Japan.

The 2012 FSAP for Japan illustrates the limited internationalization of the Japanese banking sector, which continues to be dominated by domestic banks, while the share of foreign banks has retreated since 2009. Japan only has 60 foreign banks compared to 146 (out of 155) in Hong Kong SAR and 117 (out of 122) in Singapore. In 2013, Japan slipped from third place in forex markets to Singapore. Equity and bond markets remain very large, but predominately host domestic issuers.

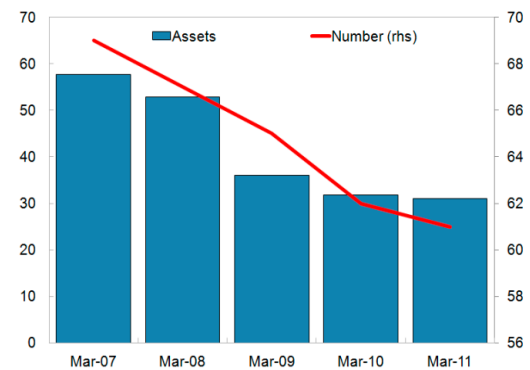
**Assets of domestic bank groups <sup>1/</sup>**  
(fiscal year data; in trillions of yen)



Source: Japanese Bankers Association; IMF Staff

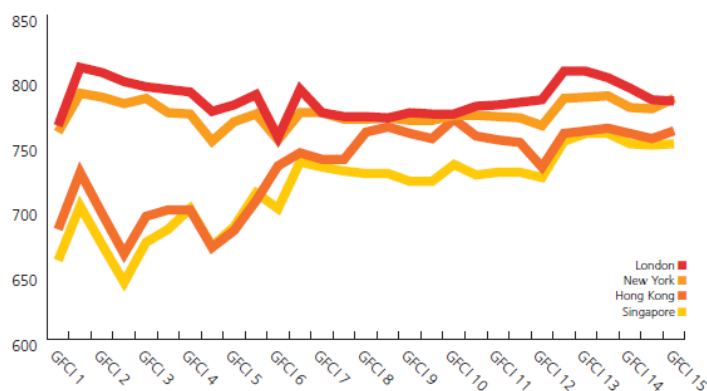
1/ Excludes Japan Post Bank and Cooperative Financial institution

**Foreign banks in Japan**  
(in trillion yen o/w stated)



Source: FSA, IMF staff

**4. Strong recognition as financial centers.** Since 2007, the Global Financial Centers Index (GFCI), a semi-annual survey of 2,700 financial service providers has consistently ranked Hong Kong SAR and Singapore just after London and New York City (NYC) in almost all financial market activities (Tables 1 and 2). These two cities rank broadly similar in terms of both financial market presence and competitiveness.

**Figure 1. Top 4 IFCs between March 2007 (GFCI 1) and March 2014 (GFCI 15)**

Source: Z/Yen Group Global Financial Centers Index

**Tables 1 & 2. Hong Kong SAR and Singapore rank high among global financial centers****Ranking in all financial center segments**

	Hong Kong SAR	Singapore
Investment management	3	4
Banking	2	4
Gov & regulatory	3	5
Insurance	4	3
Professional services	3	4

Source: Z/Yen Group Global Financial Centres Index.

**Ranking in terms of competitiveness**

	Hong Kong SAR	Singapore
Human capital	3	4
Business environment	3	4
Fin. sector development	3	4
Infrastructure	3	4
Reputational factors	3	4

Source: Z/Yen Group Global Financial Centres Index.

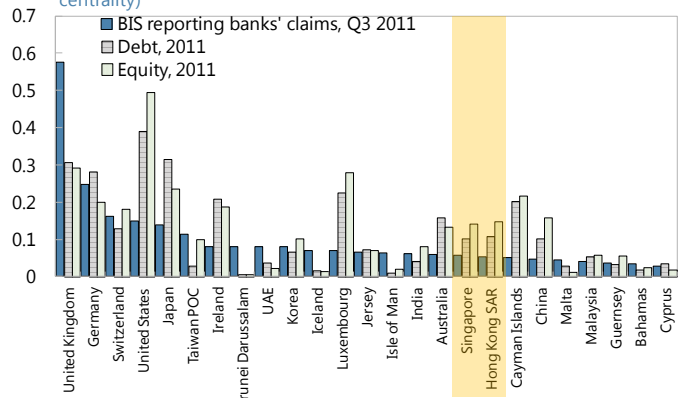
**5. Still limited but rapidly increasing interconnectedness.** Purely by size, however, Hong Kong SAR and Singapore remain mid-sized financial centers (Figure 2 and section IIC)<sup>3</sup>. In addition, importance can be measured according to interconnectedness: each country's interconnectedness is measured as the weighted average of its counterparties'

<sup>3</sup> In its mandatory financial stability amendment 2013 update, the IMF lists Hong Kong SAR the 19<sup>th</sup> and Singapore the 23<sup>rd</sup> most important financial centers.

interconnectedness, a measure akin to Google’s page rank.<sup>4</sup> The greater a country’s interconnectedness, the greater its importance in the network. Among financial centers, the two countries’ banking systems are moderately interconnected—on par with Australia. In debt and, especially, equity markets, however, their interconnectedness ranks among the top dozen of financial centers globally, after China (equity) and Switzerland (debt).<sup>5</sup>

**Figure 2. Importance of global financial centers**

(Eigenvector centrality, defined as weighted average of all counterparties’ centrality)



Sources: CPIS, BIS locational statistics, IMF staff estimates.

**6. Growing centrality.** Since the global financial crisis, both centers have gained further prominence. Deleveraging in other financial centers and rapid recoveries in Asian EMs have increased the attractiveness of Hong Kong SAR and Singapore (as discussed in section C). With this expansion, Singapore has also become substantially more interconnected in the global *banking* system and in global *debt* market exposures while Hong Kong SAR has become more interconnected in global *equity* markets (Fig. 3). Assuming these trends persist, the network can be projected forward by assuming each bilateral exposure between any country pair grows by the weighted average of both countries’ nominal GDP projections until 2018, the forecast horizon of the October 2013 World Economic Outlook, and at similar rate as in 2018 until 2023 (Fig. 3).<sup>6</sup> These forecasts suggest that Hong Kong SAR’s interconnectedness in equity markets and Singapore’s interconnectedness in debt markets is set to *grow faster* than that of financial centers such as London or New York, although its level will remain well *below*.

<sup>4</sup> Technically, interconnectedness is defined as eigenvector centrality, i.e. the weighted average of all counterparties’ centrality. Eigenvector centrality has the advantage of being based on weighted data that takes into account that exposures are of different sizes. Other standard measures, such as betweenness centrality or clustering coefficients, are typically based on a set of interconnections that only measure the existence of a link rather than its strength.

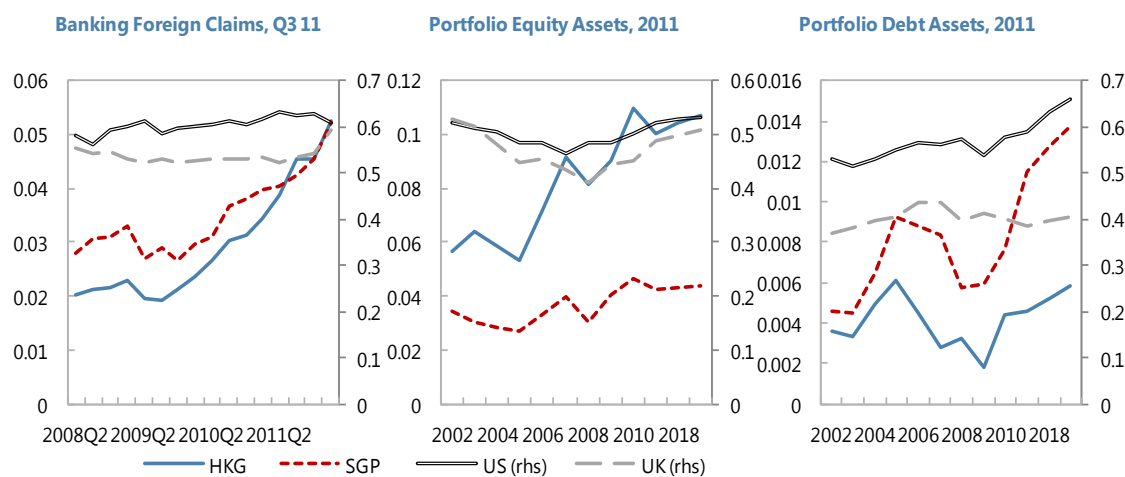
<sup>5</sup> This interconnectedness is also reflected in the recent IMF Board Paper “Mandatory Financial Stability Assessments Under the Financial Sector Assessment Program: Update”.

<sup>6</sup> Here, we do not perform similar forecasts for banking claims because of large gaps in published data in bilateral BIS statistics.



**Figure 3. Centrality in financial asset exposures**

(Eigenvector centrality, for each country/entity defined as weighted average of all counterparties' centrality  
Hong Kong SAR and Singapore, RHS)



Source: BIS locational banking statistics, CPIS, IMF staff estimates.

**7. Rising importance.** Both Singapore and Hong Kong SAR are expected to become increasingly important financial centers in the future. Both are expected to continue attracting interest from investors polled in the GFCI survey. Asian cities dominate the top ten centers mentioned in the survey, with China an important concentration of growing IFCs.

**Table 3. Singapore and Hong Kong SAR continue to be viewed as growing IFCs**

Centers likely to become more significant	Number of mentions
Casablanca	68
Busan	58
Singapore	47
Hong Kong SAR	37
Shanghai	36
Dalian	30
Seoul	22
Dubai	20
Luxembourg	18
London	15

Source: Z/Yen Group Global Financial Centres Index.

## B. The Rise of Hong Kong SAR and Singapore as IFCs

**8. From trading hubs to financial hubs.** The historical parallels and differences between Singapore and Hong Kong SAR are well-documented and can be traced back to their days as trade hubs.<sup>7</sup> Both cities enjoyed important strategic locations on major trade

<sup>7</sup> Including Ng Beoy Kui, 1998; Huat, Lim and Chen, 2004, and Pauly, 2011.

routes, between the South China Sea and the Indian Ocean for Singapore, and as a privileged location in Northeast Asia and a gateway to China for Hong Kong SAR. Both were traditionally large trade and trans-shipment centers until the 1970s. Continuing growth in trade was accompanied by rapid improvements in infrastructure and growth in banking facilities. The two financial systems have developed on complementary trajectories with limited overlap and competition.

**9. Asian Dollar Market.** The creation of the Asian Dollar Market (ADM) was central to the development of Singapore. The rapid expansion of the Eurodollar market created pressures for an Asian city to host this market to broaden the time zone coverage. Singapore started in 1968, when the ADM was first introduced, as the government provided incentives and preferential tax treatments for the development of the Asian Currency Units (ACU) to support the ADM. Hong Kong SAR initially continued to impose a moratorium on banking licenses and maintain the 15 percent withholding tax on interest income from foreign currency deposits. However, once the moratorium was lifted in 1978, Hong Kong SAR began to take a more active presence in debt markets. Both cities proceeded with a series of liberalization measures to open up their financial sector to foreign banks and other financial institutions.

**10. China.** Hong Kong SAR has benefited from access to China's vast internal market. Many policy changes to China's financial sector were initially piloted in Hong Kong SAR. This is true for the various quota regimes that govern portfolio flows to and from China as well as attempts to encourage the international use of the renminbi. In this respect, Hong Kong SAR resembles other international financial centers with a large domestic economy, such as New York.<sup>8</sup> The introduction of "H shares," which allowed companies incorporated in Mainland China to be traded on the Hong Kong Stock Exchange has helped foster financial links between the SAR and China.

**11. Growing Asian bond markets.** Hong Kong SAR and Singapore both benefit from the broader growth of Asian credit. Prior to the global financial crisis, Asian bond markets were relatively small, illiquid and not very diversified, with a primary focus on sovereign and financial issuers. Since 2008, the market has grown 2.4 times (from \$200 billion to \$480 billion), reflecting a shift in Asia from heavy surpluses (both external surplus, and internal fiscal surplus and excess savings) to a greater reliance on markets to fund growing demand, both due to consumption and investment.<sup>9</sup> <sup>10</sup> Primary issuance by Asian

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<sup>8</sup> The importance of China for Hong Kong SAR is further discussed in section II C and III B and C.

<sup>9</sup> Morgan Stanley, 2013

<sup>10</sup> Primary issues from Asian issuers is growing, and the majority of allocation of credit securities are now made to Asian investors, reflecting a re-balancing of the investor base into the region.

borrowers is growing, and the most credit securities are now allocated to Asian investors, reflecting a re-balancing of the investor base into the region.

**12. The role of government policies.** Singapore developed as an IFC with the support of active government policies. The government fostered and maintained Singapore's position in global financial market through internationally competitive tax structures, and by promoting a well regulated financial system. A robust financial center is considered central to the city's economic future. The monetary authority of Singapore (MAS), which is tasked with multiple policy roles.<sup>11</sup> By comparison, Hong Kong SAR's success as an IFC has been characterized as largely "laissez faire," with financial sector growth generally left to market forces.<sup>12</sup> For instance, when the public pension fund (Mandatory Provident Fund—MPF) was launched in 2000, its management was left to the private sector, unlike in Singapore where the Central Provident Fund (CPF) was largely managed by the Government.

**13. Government support.** Nonetheless, authorities in both jurisdictions have introduced measures to encourage the development of debt markets: through improving clearing infrastructure via the introduction of a settlement, central clearing and custodian system (e.g., the Central Moneymarket Unit—CMU in Hong Kong SAR), promoting Exchange Fund Notes in the retail market, expanding the profits tax concession scheme, and streamlining regulations on issuing and listing debt securities. Both took measures to establish a full benchmark yield curve, with a greater range of tenors, and by expanding markets from government debt to corporate debt. Singapore also joined the implementation of cross-border securities offering standards by the Association of Southeast Asian Nations (ASEAN), together with Malaysia and Thailand.<sup>13</sup> Issuers offering equity and plain debt securities in multiple jurisdictions within ASEAN will only need to comply with a single set of disclosure standards for prospectuses, bringing about greater efficiency and cost savings to issuers. Neither Hong Kong SAR nor Singapore have market entry requirements, restrictions on remittances, capital gains tax for listed equities and fixed income securities for nonresident participants in bond markets.

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<sup>11</sup> See "Singapore Financial System Stability Assessment" (FSSA). MAS has the following responsibilities: monetary policy and sustainable economic growth; foreign reserves management; maintaining financial stability, and fostering a sound financial center. In addition, MAS is in charge of micro-prudential supervision for all financial intermediaries and macro-prudential supervision, and acts as the resolution authority.

<sup>12</sup> Including Ng Beoy Kui, 1998; Huat, Lim and Chen, 2004, and Pauly, 2011.

<sup>13</sup> The ASEAN Disclosure Standards Scheme aims to facilitate fund raising activities as well as to enhance investment opportunities within ASEAN capital markets. <http://www.mas.gov.sg/news-and-publications/press-releases/2013/mas-joins-in-implementation-of-cross-border-securities-offering-standards.aspx>

### C. Competition or Complementarity?

**14. Geographic specialization.** Singapore and Hong Kong SAR seem to complement each other, since they typically provide financial services to clients in two distinct geographic regions. Hong Kong SAR is often referred to as the “gateway” to China, while Singapore is the regional financial center for Southeast Asia. Hong Kong SAR tends to concentrate on markets in China, Taiwan POC, South Korea, whereas Singapore’s clients are mainly, but not exclusively, from India and Southeast Asia.

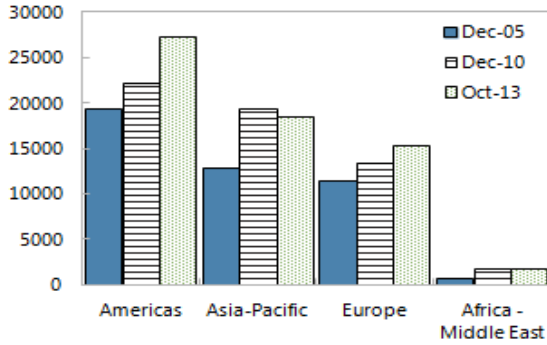
**15. Market specialization.** This geographic focus is mirrored at the product level, as the two IFCs display complementary product expertise. Aside from foreign exchange trading and fund management, there is limited competition between the two in other areas such as the derivative market and off-shore lending. In the former market, Hong Kong SAR and Singapore offer different derivative products while in the latter, there is a distinct difference in geographical distribution of their respective offshore lending (Panels 1 and 2).

**16. Important foreign exchange markets.** Both Hong Kong SAR and Singapore are important foreign exchange markets (Panel 1) despite not having major currencies of their own (unlike London, New York, and Tokyo). Their financial expertise and robust infrastructure have facilitated the trading of hard currencies necessary to support trade growth in the region. Hong Kong SAR’s currency board with the U.S. dollar since October 1983 has promoted its currency’s use as a proxy for the US dollar in futures and option hedging. On a global scale, however, foreign exchange markets in both Singapore and Hong Kong SAR remain significantly smaller than those in the United Kingdom and the United States.

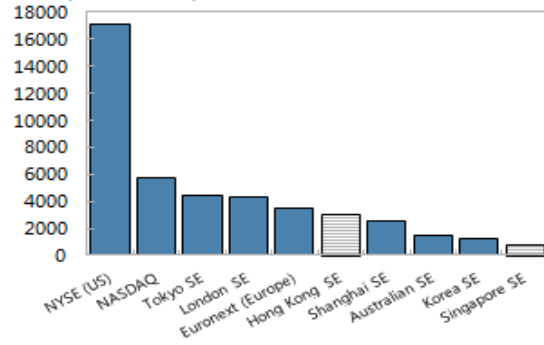
**Panel 1. Business lines**

*Asia's equity markets have grown rapidly but remain mid-sized, both by capitalization...*

**Equity Market Domestic Capitalization by Region**  
(in USD billion)

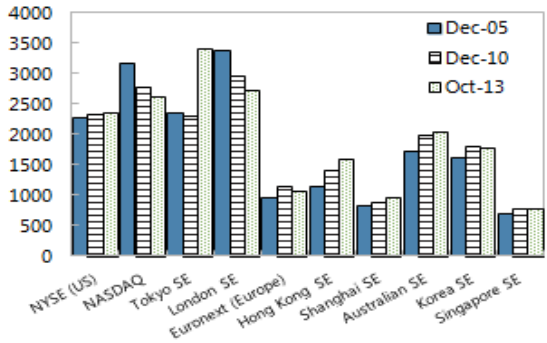


**Equity Market Domestic Capitalization**  
(in USD billion)

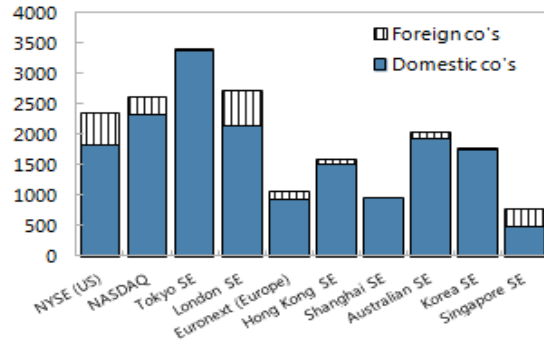


*... and by number of listed companies.*

**Number of Listed Companies**

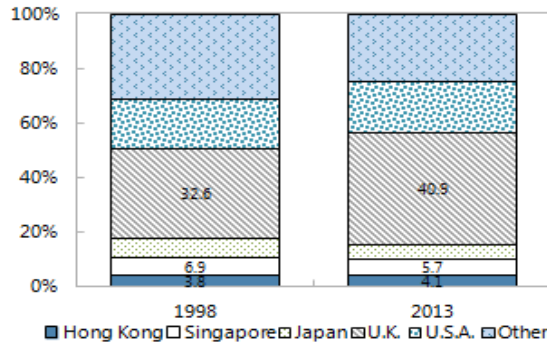


**Number of Listed Companies, Foreign and Domestic**  
(as of October 2013)



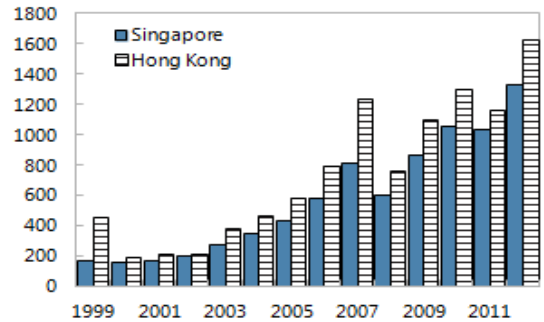
*Although Hong Kong and Singapore are important fx markets in Asia, they are mid-sized by global standards.*

**Geographical distribution of forex market turnover**  
(in percent)



*Both Singapore's and Hong Kong's asset management business has grown rapidly.*

**Aggregate Assets Under Management**  
(in USD billion)

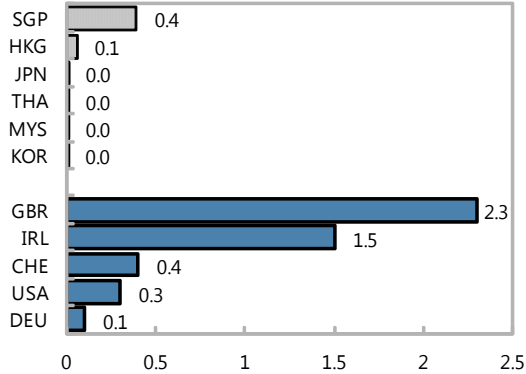


Source: BIS Triennial Bank Survey, 2013; World Federation of Exchanges, 2011; Singapore MAS; SFC.

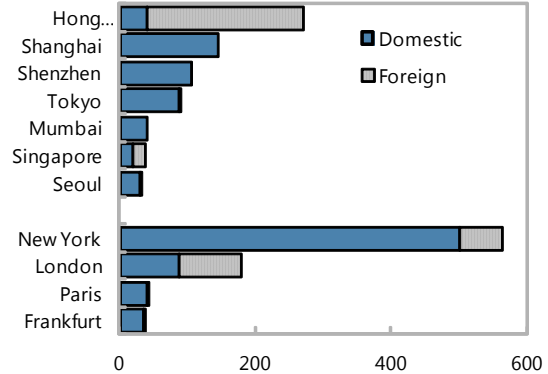
### Panel 2. Geographic distribution of issuers

**Hong Kong SAR and Singapore are important equity and bond markets in the region but mid-sized global players. Hong Kong SAR has larger international equity issuance, Singapore larger bond issuance.**

**International Bond Issuance in Major IFCs (2003 – 12)**  
(in USD trillions)

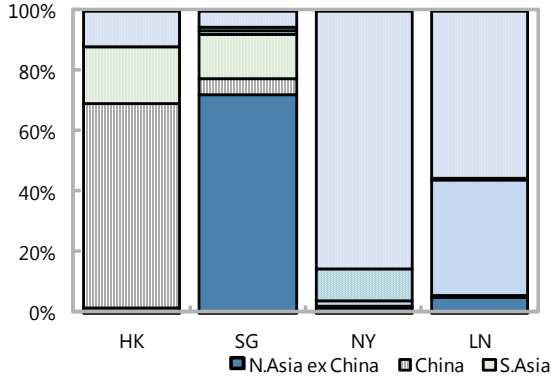


**IPOs in Asian Financial Centers**  
(USD, billions)

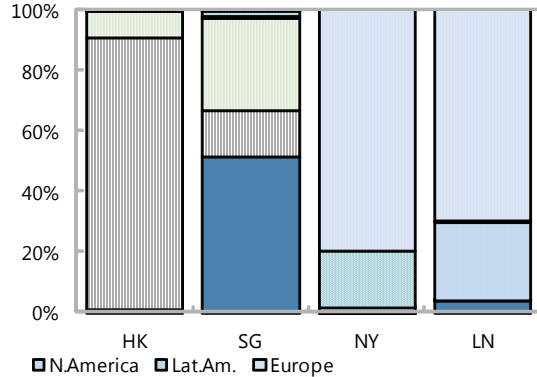


**Hong Kong SAR's international bond issuance is mainly and increasingly by Mainland Chinese issuers. Despite recent diversification, Singapore's international bond issuance remains mainly by Korean and Hong Kong SAR**

**International bond issuance (2003-2007)**  
(percent of total international issuance)

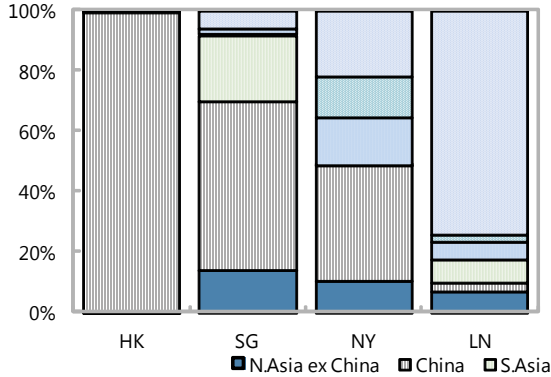


**International bond issuance (2008-2012)**  
(percent of total international issuance)

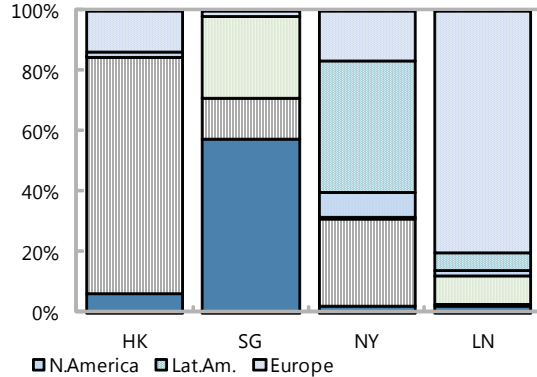


**International IPO issuance in Hong Kong SAR is also mainly by Mainland Chinese issuers but has recently become more diversified. Issuance in Singapore is by now also mainly by non-Chinese North Asian issuers (including a few large deals by issuers from Hong Kong SAR).**

**International IPO issuance (2003-2007)**  
(percent of total international issuance)



**International IPO issuance (2008-2012)**  
(percent of total international issuance)



Sources: World Federation of Exchanges, 2011; Hong Kong FSA; Dealogic; and authors' estimates.

**17. Renminbi.** The development of the Renminbi business has mostly profited Hong Kong SAR, which has become the premier offshore hub for renminbi trading, settlement, financing and wealth management. According to the Hong Kong Monetary Authority (HKMA), for Hong Kong SAR in 2013, Renminbi trade settlement amounted to RMB3,841 billion in 2013, while the stock of outstanding renminbi bonds was RMB310 billion at end-2013<sup>14</sup>. The total issue size of the renminbi sovereign bond market has risen substantially since the first issue in 2009, reaching RMB8 billion in 2010 and RMB23 billion in 2013. Renminbi lending by banks in Hong Kong SAR also expanded, with outstanding renminbi loans amounting to RMB116 billion at end-2013. The range of renminbi financial instruments and products has expanded to include renminbi shares, currency futures and exchange-traded funds accessing the A-share market. All these activities are supported by a sustained pool of liquidity, with renminbi customer deposits and outstanding certificates of deposit issued by banks totaling RMB1,053 billion at end-2013.

**18. Competition for Renminbi business.** Hong Kong SAR is currently the main hub for conducting Renminbi operations. Singapore, alongside London aims to increase its market share<sup>15</sup>, especially as the Renminbi market continues to grow.<sup>16</sup> The development of Renminbi business in Singapore was given a boost when the People's Bank of China appointed ICBC Singapore as Singapore's Renminbi clearing bank in February 2013. This has catalysed growth of Renminbi activities in Singapore<sup>17</sup>, particularly in trade financing<sup>18</sup>. In December 2013, the Singapore Exchange (SGX) and the Hong Kong SAR Exchanges and

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<sup>14</sup> HKMA, International Financial Center section, 2013 Annual Report: [http://www.hkma.gov.hk/media/eng/publication-and-research/annual-report/2013/13\\_International\\_Financial\\_Centre.pdf](http://www.hkma.gov.hk/media/eng/publication-and-research/annual-report/2013/13_International_Financial_Centre.pdf)

<sup>15</sup> In 2013, the governor of the Bank of England indicated that London could “play an important role in the financial opening of China” and that it was “open for business” (Mark Carney, speech, 25 October 2013).

<sup>16</sup> In January 2012, the UK and the HKMA announced the establishment of a private sector-led Hong Kong-London Forum to promote closer collaboration between the two cities to support the wider international use of renminbi, which has made notable progress in enhancing market liquidity, payment and settlement arrangements and products and services. Singapore and UK have agreed in February 2014 to establish a private sector-led RMB forum to boost the development of the offshore Renminbi market and to focus on increasing co-operation between the Singapore and UK markets. See also <http://www.mas.gov.sg/Singapore-Financial-Centre/Overview/Regional-Gateway-for-RMB.aspx> and <http://www.mas.gov.sg/News-and-Publications/Speeches-and-Monetary-Policy-Statements/2014/SINGAPORES-PERSPECTIVES-ON-RMB-INTERNATIONALISATION.aspx>

<sup>17</sup> Based on SWIFT press release on 28 April 2014, Singapore overtook London as the top RMB offshore clearing centre after Hong Kong. See: [http://www.swift.com/assets/swift\\_com/documents/products\\_services/RMB\\_tracker\\_April2014\\_final\\_SDC.PDF](http://www.swift.com/assets/swift_com/documents/products_services/RMB_tracker_April2014_final_SDC.PDF)

<sup>18</sup> Based on SWIFT press release on 3 December 2013, Singapore was ranked first, outside of China and Hong Kong, in the use of RMB for trade finance as at October 2013. See: [http://www.swift.com/assets/swift\\_com/documents/products\\_services/RMB\\_tracker\\_November2013.pdf](http://www.swift.com/assets/swift_com/documents/products_services/RMB_tracker_November2013.pdf)

Clearing (HKEx) signed a memorandum of understanding (MOU) to leverage each other's strengths and capture more of Asia's growth. This collaboration will cover the areas of new technology, regulation, and joint product development.<sup>19</sup> The yuan-denominated products covered could be bonds, commodity, equity or currency-based.

**19. Bond markets.** Hong Kong SAR and Singapore are both mid-sized international bond markets smaller than London, Luxembourg, the US, and Ireland, despite a fivefold expansion in bond issuance in Hong Kong SAR and tenfold expansion in Singapore since 1995. Issuance is predominantly in local currencies market (67 percent in Hong Kong SAR; 77 percent in Singapore). In Hong Kong SAR, private sector debt dominates (64 percent), while in Singapore government and private debt each account for about half of issuance (47 percent and 53 percent respectively).<sup>20</sup> Singapore is one of the most international bond markets in Asia – with over a quarter of total annual issuance from foreign entities. Foreign entity issuers consist mainly of supranational agencies, corporations, and financial institutions. Since 2005, Singapore has been a part of several main benchmark bond indices.<sup>21</sup>

**20. Equity markets.** Hong Kong SAR and Singapore stock exchanges remain smaller than global peers, but are strong in Asia, with 4.8 percent and 1.2 percent of the world aggregate equity market domestic capitalization (and 16.4 percent and 4.8 percent if compared to the equity market capitalization of Asian countries). Capitalization of the Hong Kong SAR Stock Exchange (SEHK) is almost four times that on the Singapore Exchange (SGX).

**21. Rapid growth.** The market capitalization of Singapore's securities market increased over 20-fold in 20 years (from \$34 billion in 1990 to \$770 billion in 2013). This growth was fuelled by the influx of offshore banking activities and foreign capital, by the liberalization of the Central Provident Fund (whereby savings could be used to invest in equities), and by a relaxation of listing requirements. Hong Kong SAR's stock market capitalization is much larger, with \$3 trillion as of November 2013, and ranks right behind the main US, European and Japanese stock exchanges. Half of the companies listed in Hong Kong SAR come from Mainland China, illustrating the degree to which Hong Kong SAR benefits from economic developments in China. As of October 2013, there were 1,602 listed companies in Hong Kong SAR, with a market capitalization of HK\$23.4 billion.

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<sup>19</sup> [http://www.sgx.com/wps/wcm/connect/sgx\\_en/home/highlights/news\\_releases/hkex+and+sgx+cooperate+on+mb+internationalisation+and+connectivity](http://www.sgx.com/wps/wcm/connect/sgx_en/home/highlights/news_releases/hkex+and+sgx+cooperate+on+mb+internationalisation+and+connectivity)

<sup>20</sup> In Singapore, property-related companies dominate private corporate debt issuance, followed by government-related companies (airlines, telecom, transportation, banking). Comparable data for Hong Kong is not available.

<sup>21</sup> Citigroup's World Government Bond Index (WGBI), HSBC Asian Local Bond Index and JP Morgan WGBI.



**22. Growing fund management.** The growth within the Asia-Pacific region, especially in China, has supported the fund management industries in Hong Kong SAR and Singapore. Both IFCs have played an active role in the international investment of local savings, and managing offshore money on behalf of investors based overseas. As a result, Singapore's and Hong Kong SAR's assets under management have grown rapidly (almost six-fold and four-fold, respectively) since 1999, with a large variety covering mutual funds, hedge funds, private equity and real estate investment trust funds.

**23. Asset management hubs.** Two-thirds of the top 50 global fund management companies have established a presence in Hong Kong SAR and Singapore. Hong Kong SAR hosts the largest number of fund managers and the largest pool of hedge fund assets (\$87 billion against \$63 billion in Singapore), including assets that are invested in Asia. Hong Kong SAR is also the premier offshore RMB business center. Assets under management are predominantly invested overseas and broadly equally divided between stocks and bonds. Asian-Pacific markets were a major destination of investment, accounting for 70 percent of assets for Singapore and 80 percent of assets for Hong Kong SAR.

**24. Openness.** The fund management industry is very international in both cities. Singapore mainly serves as a conduit for funds that come from abroad and are re-invested abroad. 80 percent of the assets managed by the 600 fund management firms in Singapore originate outside, in particular in Asia, and 86 percent of the assets are then invested elsewhere.<sup>22</sup> Because Singaporean banks have limited exposures, financial stability risks linked to the potential failure of an asset manager would mostly carry reputational risks for the financial center. The favorable tax and legal framework underpins the attractiveness of Singapore. In both Hong Kong SAR and Singapore, excellent market infrastructure, financial expertise, conducive tax environment, absence of exchange restrictions, and establishment of a robust Code on Unit Trusts and Mutual Funds also attract foreign fund managers.

**25. Sophisticated market infrastructures.** Both jurisdictions have a well developed payment, clearing and settlement infrastructure. Singapore has two central counterparties (CCP), one that clears equity and debt securities (CDP) and one that clears OTC and exchange traded derivatives (SGX-DC), and is one of the largest Asian trading centers for OTC derivatives and the eighth largest clearer in exchange traded equity index futures. SGX-DC has established a link with the Chicago Mercantile Exchange (CME). The Central Moneymarkets Unit (CMU) is the debt and securities settlement system in Hong Kong SAR, while interbank payments denominated in Hong Kong dollars is the Real Time Gross Settlement (RTGS). Singapore's equivalent to the RTGS is the MAS Electronic Payment System (MEPS+). OTC Clear is the CCP established by HKEx to clear and settle OTC derivatives transactions.

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<sup>22</sup> Asian-Pacific markets were the major destination of investment, accounting for 70 percent of assets for Singapore and 80 percent of assets for Hong Kong.

**26. Insurance sectors.** The insurance sector (primarily life insurance) is the second largest component of financial sector assets after banks in Singapore, with 6 percent of assets (48 percent of GDP versus 12.5 percent in Hong Kong SAR). Hong Kong SAR and Singapore are among the most open insurance centers in the world. Hong Kong SAR hosts 155 insurers, 73 of which are foreign, while Singapore hosts more than 250 insurance players, of which over 90 percent are foreign. The insurance industries in Hong Kong SAR and Singapore display different characteristics: For direct premiums, Hong Kong SAR derives most of it from direct life, while Singapore derives about 50 percent from non-life direct business. In terms of reinsurance premiums, offshore business accounts for a greater proportion of total gross written premium, reflecting Singapore's role as a regional reinsurance hub. In 2012, Singapore registered US\$3.2 billion of reinsurance premiums, compared to Hong Kong's US\$1.32 billion<sup>23</sup>. Nevertheless, the two markets remain smaller compared to those of Japan, China and South Korea, whose domestic markets are sizeable.

### III. UNTANGLING DRIVERS OF GROWTH

**27. Untangling drivers of growth.** This section looks at the underlying factors behind the growth of Hong Kong SAR and Singapore *since* the global financial crisis. Hong Kong SAR, for example, has traditionally enjoyed the large and growing volume of IPOs and bond issuances from China. But is the post-crisis growth largely due to its geographical advantage as the “gateway to China”, or does it also reflect gains in Hong Kong SAR's own competitiveness (such as the quality of relevant institutions and infrastructure)? More generally, to what extent have Hong Kong SAR and Singapore benefited from the favorable mix of foreign issuers concentrated in the fast-recovering Asian emerging economies and how much to their inherent competitiveness as an IFC? How do the experiences of Hong Kong SAR and Singapore differ from each other and from their western competitors (New York and London)?

**28. Constant market share method.** We use the constant market share method to examine these questions.<sup>24</sup> In its original trade context, the basic intuition underlying this approach is that a country's export growth can be attributed to the following two distinct factors: one due to changes in the composition of the country's export destinations and products (*structural effect*), and the other due to changes in the country's share of world exports under the assumption that the composition of destinations and products is held fixed (*competitiveness effect*). We use the same approach to analyze growth in the volume of foreign IPOs and bond issuances within an IFC. In this setting, the structural effect captures

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<sup>23</sup> MAS and HK OCI statistics

<sup>24</sup> The full methodology is presented in appendix II.

the change in foreign issuer mix of the IFC, while the competitiveness effect measures the change in the share of world IPOs (or bonds) issued in the IFC.<sup>25</sup>

**29. Different drivers.** The constant share market analysis indicates similar drivers for both Hong Kong SAR and Singapore: *competitiveness* gains were the main driver of post-crisis growth *in IPO issuance*, while the *structural effect* was more important for *international bond issuances*.

Table 4. Decomposition of International IPO Growth in Major IFCs					Table 5. Decomposition of International Bond Issuance Growth in Major IFCs				
In percent	Rel. growth rate	Structural	Competitiveness	First-time issuance	In percent	Rel. growth rate	Structural	Competitiveness	First-time issuance
	$g - g^*$	$\sum (\theta - \theta^*) g^*$	$\sum \theta (g - g^*)$	$\sum (x/x_{-1} - x^*/x^*_{-1})$		$g - g^*$	$\sum (\theta - \theta^*) g^*$	$\sum \theta (g - g^*)$	$\sum (x/x_{-1} - x^*/x^*_{-1})$
From 1998 - 2002 to 2003 - 2007					From 1998 - 2002 to 2003 - 2007				
Hong Kong	424	232	192	0	Hong Kong	-76	7	-112	30
Singapore	1,595	93	718	784	Singapore	44	-22	13	53
New York	-113	-23	-89	-1	New York	306	94	183	30
London	203	-26	146	83	London	38	20	14	4
From 2003 - 2007 to 2008 - 2012					From 2003 - 2007 to 2008 - 2012				
Hong Kong	10	-8	3	15	Hong Kong	261	234	27	1
Singapore	38	-12	49	0	Singapore	134	65	68	1
New York	0	12	-13	1	New York	91	8	80	3
London	-39	-19	-23	3	London	12	9	3	0

Sources: Dealogic; staff calculations.

**30. IPOs.** Since 1998, the volume of international IPOs in the two Asian IFCs increased significantly. The gain in competitiveness contributed substantially in both IFCs, but Hong Kong SAR's growth benefited more from the change in the shares of foreign issuers (232 percent) than Singapore (93 percent). IPOs from China rose by more than six-fold in Hong Kong SAR, accounting for almost the entire share of international IPOs in Hong Kong SAR during 2003-2007. Singapore benefited primarily from a gain in competitiveness (718 percent) and a large amount of issuances from first-time issuers (784 percent), coming mostly from emerging Asian countries. *Post-crisis*, Hong Kong SAR and Singapore continued to grow, albeit at a much slower pace. Hong Kong SAR experienced a sharp decline in Chinese IPOs, which dropped by 26 percent. Large first-time issuances on the other hand contributed about 15 percent to Hong Kong SAR's growth, more than offsetting the negative structural shock. The bulk of these first-time IPOs came from North American and Western European countries, which, together with the competitiveness effect of 3 percent, provide an indication that Hong Kong SAR's growth stems from the city's own competitiveness rather than just a "gateway-to-China effect." Similarly, in Singapore, the mix of foreign issuers concentrated among emerging Asian countries actually had a negative

<sup>25</sup> Seade, Wei, and Wu (2010) also used a similar method to analyze the sources of IFCs' growth in different financial service markets.

contribution of 12 percent to Singapore's growth relative to the world, while the contribution from improvement in competitiveness more than offset this effect.<sup>26</sup>

**31. Bonds (Pre-crisis).** The results from international bond markets offer a markedly different overall picture. From 1998-2002 to 2003-2007, international bond issuances in Singapore more than doubled, or by 44 percent relative to world growth, of which the competitiveness effect contributed about 13 percent and the structural effect -22 percent. The overall growth, however, was mainly driven by issuances from first-time issuers mostly from emerging Asian countries, suggesting that the locational advantage could have played a relatively larger role than the gain in competitiveness. Meanwhile, Hong Kong SAR experienced an 8 percent decline of issuances, or -76 percent relative to world growth, largely driven by a loss of competitiveness (-112 percent). The negative impact was mitigated by the first-time issuances from a few Asian issuers and from the United Kingdom, suggesting that Hong Kong SAR also mainly benefited from growing funding needs of the region.

**32. The structural effect** played a more important role during the *post-crisis* period. In Singapore, issuances increased by 134 percent, of which about 65 percent can be attributed to the change in the composition of issuers towards Asian countries, notably China, and about 68 percent to Singapore's own gain in competitiveness. Hong Kong SAR's growth (261 percent), on the other hand, was predominantly driven by the structural effect and in particular by the fast growth in China-originated issuances that represented about 90 percent of total international issuances post-crisis.<sup>27</sup>

#### IV. THE COEXISTENCE OF HONG KONG SAR AND SINGAPORE AS IFCs

##### A. Network Analysis Study

**33. Micro efficiency versus financial stability.** As argued thus far, Hong Kong SAR and Singapore have complemented each other in Asia by specializing on different markets and clienteles. In principle, the existing specialization can have implications in two dimensions: efficiency (limited competition, and/or inability to fully exploit possible scale economies in the provision of financial services causing possible "micro" inefficiency) and stability (destabilizing competition leading to increased transmission of financial shocks).

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<sup>26</sup> Whereas the gain in competitiveness played a key role for Hong Kong SAR and Singapore in the post-crisis period, New York and London both lost competitiveness. New York benefited from a large increase in IPOs from emerging market economies in its region, including Brazil and Mexico.

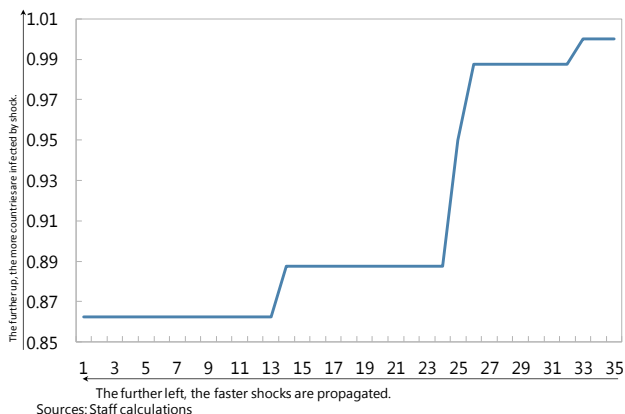
<sup>27</sup> While the "gateway-to-China" effect was the central driver behind Hong Kong's SAR's growth, and to a lesser extent for Singapore, the relative growth in New York during the post-crisis period mainly reflected a sustained increase in competitiveness. London, on the other hand, benefited relatively more from the structural effect in part due to a large increase of issuances from some of the European countries considered as safe-havens, such as Switzerland and Sweden.

This section walks the reader through the implication of the existing business model of the two centers for financial stability, leaving aside for now the question of efficiency.

### 34. Shock propagation exercise.

The probabilistic shock propagation model (used recently in the 2012 UK Spillover Report) is founded on a network of bilateral exposures between country pairs, and is a useful tool for this exercise.<sup>28</sup> The model is a thought experiment of multiple rounds of deleveraging. Investors that face losses in one market may need to deleverage in others. As funding in those other markets also dries up, investors in those also decide to deleverage, including from third markets etc.

**Figure 4. Shock Propagation Curve**  
(Share of countries affected in each step)



**35. Mechanics of shock propagation model.** An initial shock can hit any particular country in the network at random. The likelihood of a particular country being hit by an initial shock depends on a country's interconnectedness: the more interconnected a country, the more likely it is to be a source of shocks. Once the first, "source" country is hit by an initial shock, it responds by "cutting exposures, i.e. eliminating links to partner countries in the network". Once struck by the initial random shock, the source country's financial system is assumed to be more likely to cut larger exposures than smaller exposures. This deleveraging transmits the shock to its partner countries which now face a similar decision, triggering another round of deleveraging and contagion. Once a link has been severed, it cannot be re-established and cannot be severed again. Each of these rounds of deleveraging is called a "step" in our experiment and we allow as many steps as are needed for all countries in the network to be affected. We repeat this probabilistic exercise 1000 times. Strictly speaking, our "steps" have no time dimension as several "steps" could in principle collapse into one if financial systems are able to react instantaneously. In practice, however, deleveraging may well take time so a few "steps" may afford policy makers time to respond.<sup>29</sup>

**36. Interpreting shock propagation results.** In our exercise, we assume that a link is severed. In principle, a link could of course be reduced rather than severed. Defining the

<sup>28</sup> In contrast to the work of the 2012 UK Spillover Report, however, we use a stylized, hypothetical network rather than an actual network of bilateral data.

<sup>29</sup> In our model, the shock generates a change in the network by cutting individual links. In practice, the network may change more broadly in response to the shock.

degree of reduction, however, introduces an additional layer of assumptions. To keep our conceptual exercise simple and clear, we avoid assumptions that are not strictly necessary for our thought experiment. This does imply, however, that our results can only be interpreted in terms of *speed of contagion* rather than *size of the impact*. For example, the Text Figure shows the number of steps on the horizontal axis and, on the vertical axis, the share of countries affected in each of these steps.<sup>30</sup> The line is a “shock propagation curve”. The further to the right or the lower the shock propagation curve, the longer it takes for contagion to reach a particular proportion of countries or the fewer the countries affected in each step—i.e. the slower shock propagation.<sup>31</sup>

**37. Data and scenarios.** To illustrate the role of the two financial centers in Asia clearly, a stylized hypothetical network is constructed with only three regions: Asia (including Hong Kong SAR, Singapore, China, and eight other Asian countries), a global financial center that links Asia to the rest of the world (the UK or the US), and the rest of the world.<sup>32</sup> Three scenarios are considered (for a graphical illustration, see Appendix I):

1. Hong Kong SAR and Singapore continue their specialized, and complementary, business models: Hong Kong SAR intermediates all exposures to China whereas Singapore intermediates those to the rest of Asia; this scenario is a highly stylized representation of the current geographical complementarity between the two cities.
2. Hong Kong SAR and Singapore begin competing for the same business in Asia: both countries intermediate the rest of the world’s financial exposures to Asia;
3. One of the two (here, purely for illustrative purposes, Hong Kong SAR) supplants the other, as the sole financial center in Asia.

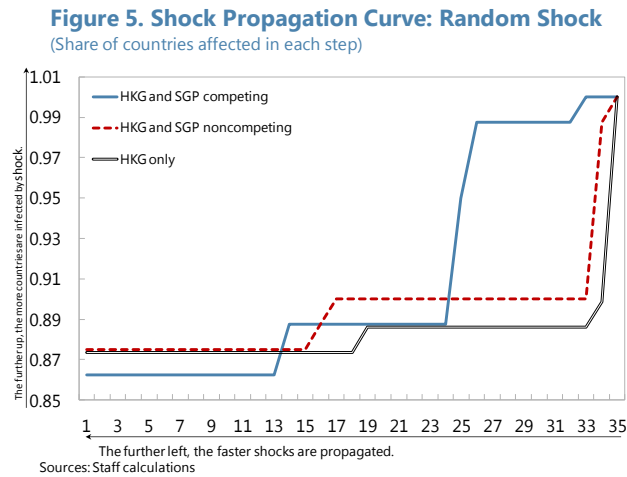
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<sup>30</sup> Since our hypothetical network is unweighted, all links that exist are assumed to be of equal size. In this figure, we do not weight the share of countries by the number of their total links.

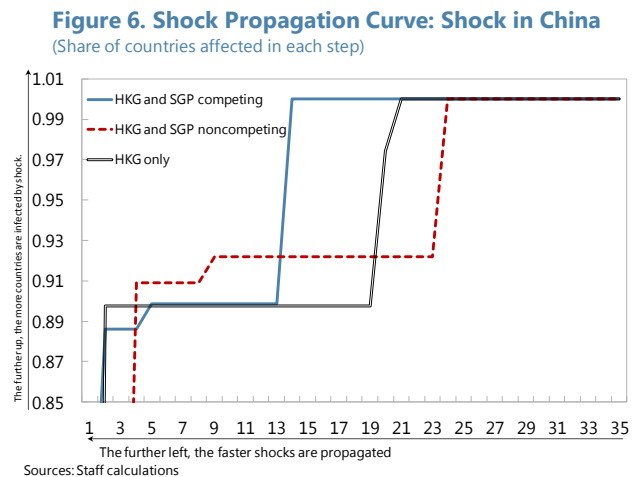
<sup>31</sup> The shock propagation curves are highly nonlinear because the network contains two distinct regions. For example, when a shock leaves Asia, reaches the global financial center, and jumps to the rest of the world it suddenly causes an impact in a large number of countries.

<sup>32</sup> The actual network of BIS or CPIS exposures—e.g. as discussed in the recent IMF Board Paper on “Mandatory Financial Stability Assessments under the FSAP: Update”—is, of course, much richer with an abundance of exposures between countries. However, many of these exposures are small and would be a distraction to the focus of our exercise on the role of Hong Kong SAR and Singapore. Therefore, here we concentrate on a hypothetical network that abstracts from any links between the two countries and countries outside the region. In a stylized form, this represent the geographical differentiation discussed above.

**38. Random shocks.** The text figure shows the propagation of a random shock anywhere in the network for each of the three scenarios. If both Hong Kong SAR and Singapore were to remain specialized financial centers in Asia (the dotted red curve) or even if one of them shrank (the black curve), global shocks would propagate more slowly than if both of them were competing in the same markets and for the same clienteles (the blue curve). The rationale is as follows. Because of their widely dispersed exposures, financial centers act as shock propagators. Two financial centers competing for the same business would each establish exposures to the same set of partner countries. As a result, these partner countries would now have a higher probability of receiving a global shock from either Hong Kong SAR or Singapore than they had when they were only linked to only one of the two.



**39. Shocks originating in China.** The next experiment assumes that the initial shock originates in China specifically rather than randomly anywhere in the network. In this exercise, the shock propagation curves for Hong Kong SAR and Singapore as specialized complementary centers (dotted red) and only one of the two (black) separate. A shock in China travels faster through a network in which there is only one Asian financial center (black curve) than if there are two specialized financial centers (dotted red curve). The reason is that a single Asian financial center would provide a direct channel from China—the source of shock—to the rest of Asia. In contrast, Singapore as a second financial center could buffer a shock from China that is immediately transmitted to Hong Kong SAR and hence slow the contagion to the rest of Asia. For the same reasons as in the case of random shocks, either scenario slows contagion more than two competing financial centers (blue curve).



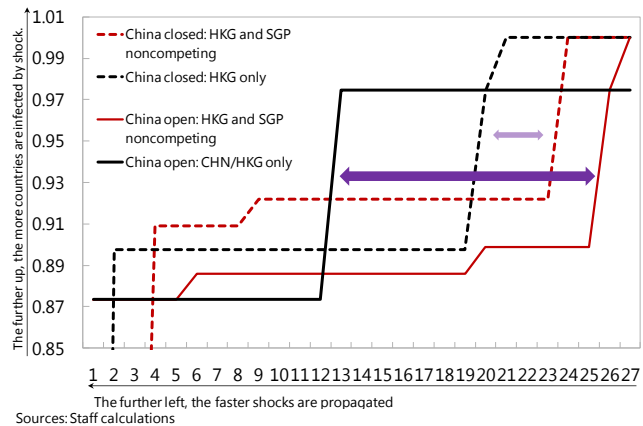
**40. Capital account liberalization in China.** The final experiment considers a scenario of capital account liberalization in China. The assumption is that Hong Kong SAR “blends” in to become the only financial center for China. Of course, alternatively Shanghai might become the only financial center for China with Hong Kong SAR’s financial market

role withering once capital controls are removed. For our scenario, the only important element is that the source of the shock—China—is now home to a financial center in its own right. In the text figure, for reference, two shock propagation curves from the previous experiment are shown in dotted lines: dotted red for a scenario of Hong Kong SAR and Singapore as specialized financial centers and dotted black for a scenario in which only one of them survives as the Asian financial center. The distance between these curves (indicated by a faint purple arrow) illustrates that degree to which the presence of the second, specialized, and complementary financial center stabilizes the financial network by slowing contagion from shocks in China. Next, consider a merging into a Hong Kong SAR/China as China’s opens its capital account. The two continuous lines in the figure indicate the shock propagation curves for an open China. Again, the gap between the two continuous curves (dark purple arrow) indicates the degree to which the presence of Singapore slows the propagation of shocks in China. This gap is substantially wider. Hence, as China opens its capital account and integrates into the global financial network, Singapore’s presence becomes increasingly stabilizing to the financial network by providing a buffer between China as the source of shocks and the rest of Asia.<sup>33</sup>

**41.** These results suggest that the stabilizing role of additional financial centers depends on the nature of the additional financial centers. Here, financial centers have many links and hence are able to propagate shocks widely. Additional financial centers would only serve to stabilize the network if they were different from existing financial centers, in particular, if they served as additional buffers between the source of shocks and other financial centers or countries.

**42.** Put together, these experiments all suggest that the current complementarity between the two jurisdictions’ business models may be an important consideration from the standpoint of regional and global financial stability. And as China integrates into the global financial system, the importance of maintaining this complementarity increases. As mentioned earlier, there may well be other standard considerations of micro efficiency, that competition might foster. While not seeking to disregard such “micro”

**Figure 7. Shock Propagation Curve: Shock in China**  
(Share of countries affected in each step)



<sup>33</sup> This is consistent with other authors’ findings. For example, Hooley (2013) cautions that, as China integrates into the global financial network, the global financial system becomes more vulnerable to financial shocks originating in China.



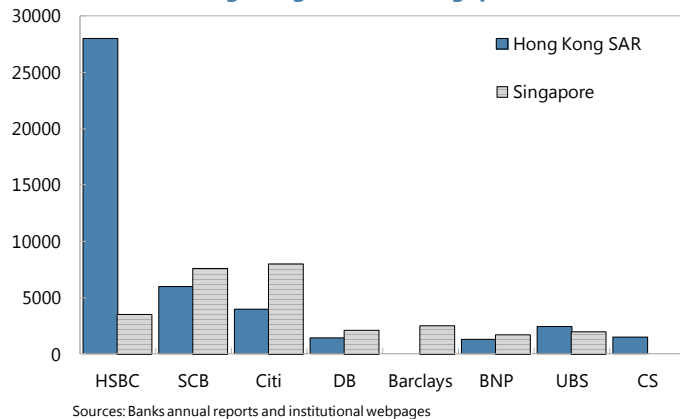
considerations, it is worth noting that there is an inherent tension in favoring outright competition in an industry that is broadly thought to have economies of scale. The main intuition we seek to convey from these shock propagation studies is that excessive competition may also engender destabilizing levels of complexity and interconnectedness in the network, and the presence of two “specialized” Asian financial centers may better balance the “micro” benefits from economies of scale with the “macro” benefits of stability.

## V. REGULATORY AND SUPERVISORY ISSUES

### A. Presence of Foreign Financial Institutions

**43. Gateway.** Foreign financial market participants typically use Hong Kong SAR and Singapore as an access point for the rest of Asia. The two cities are considered as hubs that offer robust expertise and infrastructures, diversified financial entities and services, as well as strong legal, regulatory and supervisory frameworks. A characteristic both IFCs share is the strong presence of foreign banks, including global systemically important banks (G-SIBs) many of which are incorporated as branches rather than subsidiaries. This has resulted in large cross-border exposures, especially to the US and UK, and banking system assets that are several multiples of GDP (Panel 3). This, in a manner of speaking, represents the “plumbing” of the interconnectedness of the networks we studied in the preceding section.

**Figure 8. Select G-SIBs' breakdown of staff between Hong Kong SAR and Singapore**



**44. Business models.** Foreign banks operate along several business strategies, depending on their group and regional preferences. To simplify, two business models dominate: (i) deposit-led retail and commercial banking, where banks operate on a stand-alone basis collecting local deposits first and then lending locally or regionally; and (ii) investment-led model, where banks are typically branches of large foreign banks that fund projects that are primarily financed by the parent company or by funds directly raised in capital markets. Across Asia, and Hong Kong SAR and Singapore in particular, HSBC, Standard Chartered Bank (SCB) and Citigroup have become strong local deposit-taking institutions, similar to the first model. Many European and other American G-SIBs follow the second model.

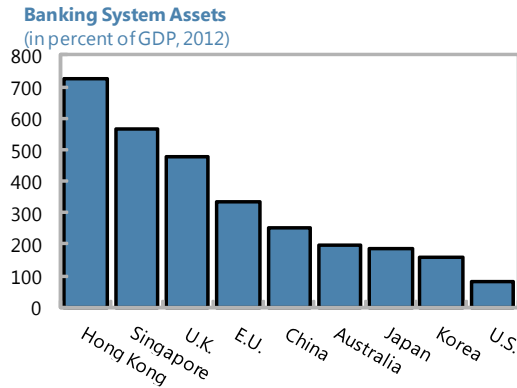
**45. Foreign G-SIBs.** Three foreign banks stand out in terms of size and importance for both Hong Kong SAR and Singapore: HSBC Group and SCB from the United Kingdom, and Citigroup from the United States. In aggregate, they hold 23 percent of bank assets in

Singapore and, together with Bank of China, they hold 53 percent in Hong Kong SAR. These three institutions are illustrative of the fact that global banks implement their global strategic choices in Asia, out of geographic convenience and to leverage business specialization, by using primarily, but not exclusively, Singapore as a platform for non-Japan-non-China Asia, and Hong Kong SAR as a hub for China and Northeast Asia. Similarly, fixed income and asset management are often executed out of Singapore, while equities and investment banking tend to be done in Hong Kong SAR. HSBC is a Hong Kong SAR subsidiary with a branch in Singapore, in line with the Group's stated model and preference for subsidiaries. SCB is a subsidiary in Hong Kong SAR, and incorporated a subsidiary in Singapore in October 2013 to house its retail banking operations, but the bank continues to have other operations under its branch. Citibank has both a subsidiary and a branch in Singapore. Individual banks' incorporation status has implications in terms of the extent of supervisory powers available to home and host authorities. Whilst capital regulations may not apply to branches (requirements for "branch capital" are relatively rare), many other prudential risk management requirements often apply to both branches and subsidiaries. In both Hong Kong SAR and Singapore, standards such as the liquidity requirements are applied across the board to all Authorized Institutions (AIs), subsidiaries and branches alike. Home/host supervisory responsibilities and cooperative arrangements often reflect proportionality considerations.

**46. Connections to Mainland China.** In Hong Kong SAR, Chinese banks market shares of total banking assets grew from 19 percent in 2009 to close to 29 percent in 2013. Many Chinese banks use their Hong Kong SAR operations to fund in US and Hong Kong dollars, also to re-invest in China to finance local companies. The presence of Chinese banks in Singapore is very limited.

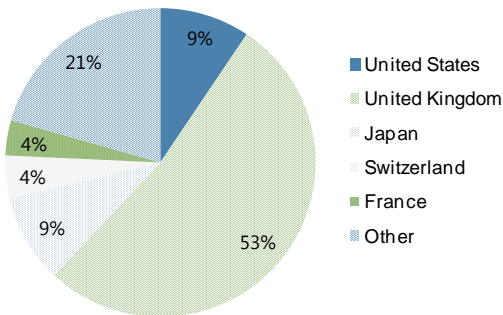
### Panel 3. Banking systems

**Hong Kong SAR and Singapore host large banking systems, several multiples of GDP in size (727 and 560 percent of GDP, respectively).**

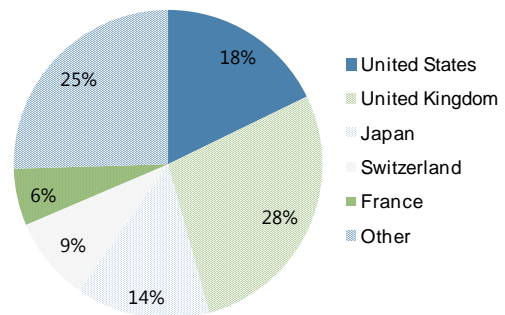


**Banking systems are very open, both to the UK and the US...**

**Claims of foreign banking sector on Hong Kong SAR**  
(in percent)

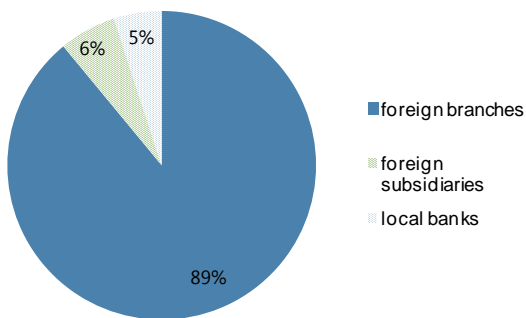


**Claims of foreign banking sector on Singapore**  
(in percent)



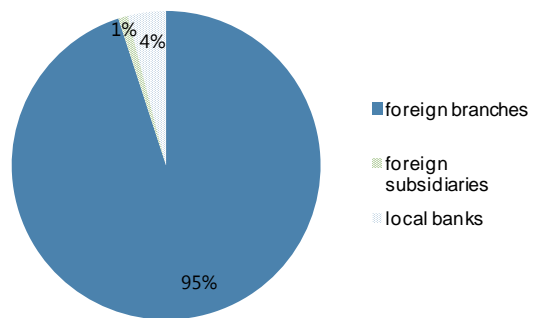
**...partly as a result of the predominance of foreign banks (especially their branches) in both financial systems.**

**Hong Kong SAR: number of licensed banks**



Note: The largest four foreign banks account for one half of the banking system assets

**Singapore: number of commercial banks**



Note: Commercial banks account for 77.8% of the financial system assets. About half of the foreign banks offer retail services and accept retail deposits.

Source: BIS Preliminary international banking statistics (consolidated foreign claims ultimate risk), second quarter 2013; Haver Analytics; HKMA; MAS; Korean Financial Statistics Information System Monthly Bulletin; European Banking Federation; Australia October 2012 FSAP; TheCityUK.

## B. The importance of Sound Financial Regulation in IFCs

**47. Regulation of these institutions** has become an increasingly important factor in financial center competition. Pre-crisis, an accommodating national regulatory environment may have played a role in the success of an IFC, as it was associated with providing a comparative advantage (as illustrated by London’s former “light touch” approach). The global financial crisis has altered this perception, and all major financial centers have intensified their regulatory and supervisory frameworks. Two concomitant trends have emerged:

- **Tolerance of policymakers for un-regulated products and markets has waned.** The financial crisis re-iterated the need to make financial systems more resilient and provided a strong impetus globally to strengthen regulatory frameworks. Financial centers not compliant with international rules are faced with peer pressure, stigmatization and reputational damage. Well-regulated financial centers with sound prudential requirements and effective mechanisms for supervisory intervention may be considered as safe havens, particularly in times of crisis.
- **Between greater convergence of regulation and national fragmentation.** The recent emergence of more harmonized regulatory standards at the global level and greater policy coordination may narrow the scope for regulatory competition. However, full consistency in the drafting and implementation of global rules has not yet been achieved. Sharp divergences in regulatory and supervisory standards—particularly between financial centers—may increase risks of regulatory arbitrage, and therefore implicitly or explicitly generate destabilizing competition, to the detriment of global stability.

**48. Opting for a strict approach.**<sup>34</sup> A robust regulatory framework is viewed as an element of competitiveness for global financial centers. Both Hong Kong SAR and Singapore have demonstrated their interest in robust regulations and a high degree of transparency in the financial sector, as an essential element in their status as IFCs. The two jurisdictions have a strong track record in their timely adoption, and strict implementation of the global regulatory agenda.

## C. Regulatory Cooperation, Priorities and Challenges

**49. Membership in key regional and global fora.** Beyond their Basel Committee on Banking Supervision (BCBS) and FSB membership, MAS and HKMA actively participate in several regional fora, to promote financial stability in Asia, and improve the collective

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<sup>34</sup> See Appendix III.

voice of the region in international standard-setting bodies.<sup>35</sup> This includes (i) the ASEAN Capital Market Forum, which focuses on projects to harmonize standards in capital market regulations in ASEAN; (ii) ASEAN +3, which coordinates initiatives between ASEAN and the three Northeast Asian nations of China, Japan, and South Korea such as financial stability, through the Chiang Mai Initiative Multilateralisation (CMIM), and bond market development, through the Asian Bond Markets Initiative (ABMI); (iii) EMEAP to support regional financial stability and development and discuss financial and monetary stability, bond market development, payment and settlement systems and banking supervision. In addition, Singapore hosts the IMF's Training Institute for Asia and the CMIM's independent surveillance unit, the ASEAN+3 Macroeconomic Research Office (AMRO). HKMA took the lead on the implications of global financial reforms for Asia as Chair of the EMEAP Monetary and Financial Stability Committee.

**50. Business model review.** The emergence of various sets of structural measures, such as initiatives proposed in the United States (Volcker rule), the United Kingdom (Independent Commission on Banking, aka as “Vickers”) and in the European Union (Liikanen proposals) may be one incentive, among other regulatory and macro-economic changes, to prompt banks to review their business model, geographic footprint and operational structure<sup>36</sup>. While it is too early to assess the full impact of these combined changes, some banks are said to consider moving assets to where funding is readily available and cheaper, and are also likely to book and net derivatives where they trade the underlying assets. Asian financial centers could benefit from attracting EU/US banks' activities, especially in asset and private wealth management, and possibly derivatives. Should more complex assets be transferred to Hong Kong SAR and Singapore, a robust regulatory framework that minimizes regulatory arbitrage and foster solid supervision would be critical.

**51. Challenges of hosting G-SIBs.** As noted earlier, foreign G-SIBs have been central to the development of the two financial centers, by connecting them to their sophisticated and large home jurisdiction, and allowing the transfer of staff, technology and know-how. This helps deepen overall sophistication and credibility, and creates a critical mass. At the

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<sup>35</sup> For initiatives led by Hong Kong SAR, see HKMA, 2012 annual report. MAS co-chaired the BCBS Core Principles Group which delivered the revised Core Principles for Effective Banking Supervision in September 2012 and currently chairs the Macprudential Supervision Group (MPG).

<sup>36</sup> European Commission January 2014 proposal for a regulation of the European Parliament and of the Council “on structural measures improving the resilience of EU credit institutions.” Section 619 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 which created a new section 13 of the US Bank Holding Company Act of 1956. Section 4 of the Financial Services (Banking Reform) Act 2013 which inserts Part 9B (sections 142A – 142Z1) into the Financial Services and Markets Act 2000.

same time, their presence may bring some externalities worth monitoring and possibly regulating. For instance, for the case of Hong Kong SAR and Singapore:

- *Size* – Even if the portion of assets (or revenues) of G-SIBs that are associated with Hong Kong SAR and Singapore may be small compared to the group's, they could still be meaningful relative to these jurisdictions' total banking assets, GDP and reserves.<sup>37</sup>
- *Interconnectedness* – G-SIBs have strong connections with each other, and with other financial sector participants. The failure of one G-SIB could amplify and propagate systemic shocks. As host to G-SIBs, Hong Kong SAR and Singapore need to be particularly guarded against such vulnerabilities in their respective self interest, in the interests of preserving complementarity, and for greater regional and global stability.
- *Complexity* for supervision and resolution – Large foreign banks are often complex in terms of business model, geographic footprint and organizational structure. Properly supervising these sophisticated cross-border groups is a challenging task that requires joint surveillance from home and both host authorities.
- *Systemic Importance* – G-SIBs have a relative systemic value that varies depending on whose perspective is considered (e.g., from home and host authorities or from the banking group). For instance, a group like HSBC would likely be considered of systemic importance for the U.K., Hong Kong SAR and Singapore. From HSBC's point of view, it's possible that operations in Singapore would be considered as less systemic for the group than operations in the U.K. or in Hong Kong SAR. Standard Chartered (SCB) would also be viewed as systemic for the two Asian jurisdictions, but may not be for its home country, since its U.K. activities are quite small. Based on the elevated contribution that Singapore and Hong Kong SAR represent to the bank's revenues, SCB is likely to label both centers as systemic.
- *Leakages*<sup>38</sup> – Domestic regulations may not always apply to foreign banks operating locally. The perimeter of application would depend on the form of incorporation of the banks (branch or subsidiary), giving greater powers to home and host authorities respectively.<sup>39</sup>

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<sup>37</sup> The HKMA and MAS participate in CMGs for G-SIBs that are sizeable in Hong Kong SAR and Singapore. HKMA participates in 9 CMGs while MAS participates in 7 CMGs.

<sup>38</sup> See Aiyar, Calomiris and Wieladek (2012) for an illustration of leakages from macroprudential policy in the United Kingdom.

<sup>39</sup> While requirements such as capital rules may not apply to branches, the latter are subject to other prudential requirements, including liquidity requirements, corporate governance requirements with respect to Management, and inspections by host authorities.

(continued...)

**52. Regulatory responses thus far**<sup>40</sup>. In addition to opting for a strict regulatory approach for domestic banks and maintaining a strong track record as already noted, the two centers have already adopted measures to mitigate the risks associated with foreign banks and hedge funds.

- *Foreign banks.*<sup>41</sup> HKMA and, especially, MAS impose strict standards, comparable with those applicable to domestic banks, in terms of (i) licensing and access to retail deposits, which may require local incorporation, and (ii) prudential requirements. For instance, in Singapore, full and wholesale branches have to observe a minimum asset maintenance ratio (AMR) of 35 and 15 percent respectively. There is also a separate set of asset maintenance requirements under the Deposit Insurance Act to cover insured deposits. Foreign branches also must comply with stringent liquidity requirements (they typically hold minimum liquidity assets equivalent to 16 percent of their qualifying liabilities), and have to maintain minimum cash balances. MAS enjoy resolution powers, and can impose corrective and remedial actions on branches. In Hong Kong SAR, the existing liquidity requirements apply, and the new LCR (for Category 1 banks) and Liquidity Maintenance Ratio (for Category 2 banks) will apply to foreign bank branches. A proposed new resolution regime would extend to branches of foreign banks and existing supervisory intervention powers for banks extend to branches already.
- *Hedge funds* are also subject to closer scrutiny. In line with the United States, where stricter registration and reporting requirements have been imposed by Dodd-Frank on hedge funds, MAS now requires asset and hedge fund managers operating in Singapore (including foreigners) to either hold a capital markets license or be registered. Similarly, both Hong Kong SAR and the United Kingdom are tightening the regulation and surveillance of hedge funds.

**53. Outlook for future regulatory responses.** Hosting G-SIBs in Hong Kong SAR and Singapore is an opportunity, but also calls for intensified supervision and cross-border cooperation. Active participation in foreign banks' colleges of supervisors and crisis management groups (CMG) is essential to identify and develop robust and actionable resolution strategies for foreign G-SIBs active in Hong Kong SAR and Singapore.

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<sup>40</sup> See appendix III

<sup>41</sup> Measures are detailed in the Singapore FSSA, box 2 on "Supervision and resolution of foreign branches."

## VI. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

**54. Centrality.** While Hong Kong SAR and Singapore still are mid-sized international financial centers, they have increased in size and interconnectedness over the past decade, and, based on our WEO projections, they are set to become even more interconnected in the future.

**55. Complementarity.** Using network analysis tools, we posit that financial system stability is enhanced if Hong Kong SAR and Singapore both exist as financial centers *and* act in a complementary fashion to one another across geographic clientele and asset markets. Indeed, this closely matches how they have developed thus far. The main intuition we seek to convey is that excessive competition may engender destabilizing levels of complexity and interconnectedness in the network, and the presence of two “specialized” Asian financial centers may better balance the “micro” benefits from economies of scale with the “macro” benefits of stability.

**56. Credibility.** Looking ahead, for these centers to continue to play their stabilizing role, they need to preserve sound financial systems. This requires effective regulation, intensive supervision, and strong fiscal and external buffers. Collaboration between the two jurisdictions, including on enhancing connectivity and infrastructure regulations impacting Asia, and in identifying common themes and solutions for financial markets would benefit both, and Asia at large.

**57. Expanding markets.** Deepening various markets, raising their liquidity and tradability, broadening the investor base are appropriate strategies of both Hong Kong SAR and Singapore. Both are stepping up outreach efforts to raise their profile among the international community, and are engaging in bilateral and multilateral initiatives to set up cooperation links on multiple platforms.

**58. Financial infrastructure.** In particular, the two jurisdictions have proven keen to build-up top notch trading, investment, clearing and processing platforms. To stay competitive an IFC must have a robust financial infrastructure to support increasingly sophisticated and cross-border activities. HKMA has proved active in fostering the development of multi-currency, multi-dimensional platforms. By becoming a robust payment and settlement hub for the region, and by cultivating strong links with other IFCs, Hong Kong SAR and Singapore aim to consolidate their role as a regional node connected to international ones.

**59. Strategic challenges.** These factors make both cities attractive locations for financial sector institutions, but each faces its own strategic challenges. Hong Kong SAR’s financial depth, intensive social and professional networks and the sheer depth of its soft-institutional structures create comparative advantages, but require Hong Kong SAR to strike a balance between servicing the financial needs of Mainland China and reaping the opportunities that they provide, while preserving and further growing its international



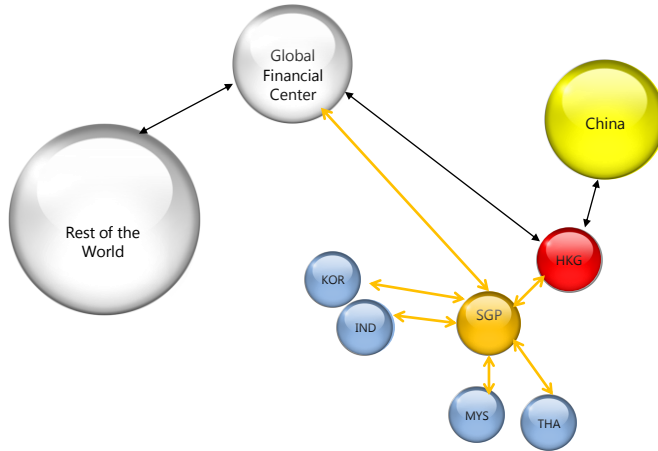
character and ability to define its policies to support its own financial services sector for a broader clientele. Singapore is characterized by a small domestic market, which is dominated by the top three domestic banks. Without a similar base as Hong Kong SAR has with Mainland China, Singapore's banks need to continue to develop long-term risk-based regional strategies. To attract foreign interest and continue to benefit from further innovation, Singapore needs to deepen debt and stock markets as well as its insurance and asset management sectors. Singapore is expected to continue to be considered as a "safe haven" in South/South East Asia. However, Singapore may also have to venture beyond, to new geographic and product growth drivers.

**60. Meeting the Region's needs more effectively.** Many emerging Asian economies appear to have a low degree of financial integration, both with the world and with other countries inside Asia. A low degree of financial integration or openness tends to be mirrored by a lack of financial sector depth. This is where Hong Kong SAR and Singapore could play a role to boost financial integration. For instance, the two jurisdictions could help linking Asia and niche regional centers to global financial centers, which could improve economic growth and financial resilience in Asia. Finally, the prospective development of pan-Asian banking groups may mitigate some of the volatility associated with hosting groups from the US and Europe, and enhance further the voice of Asia in the global regulatory and policy agenda.

VII. APPENDIX

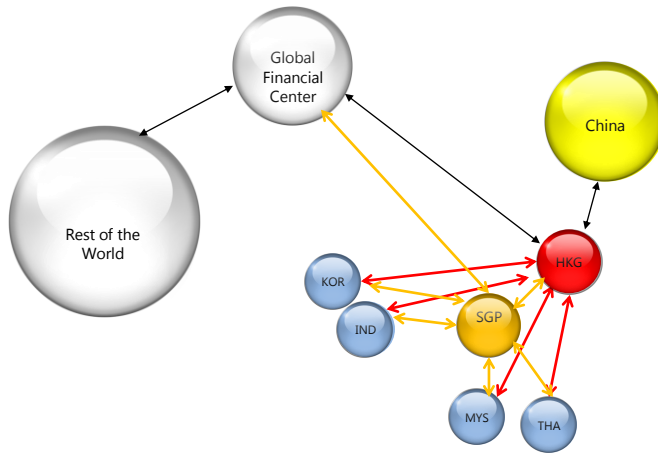
A. Connections and Shocks

1) Hong Kong SAR is the financial center for China, Singapore is the financial center for the rest of Asia



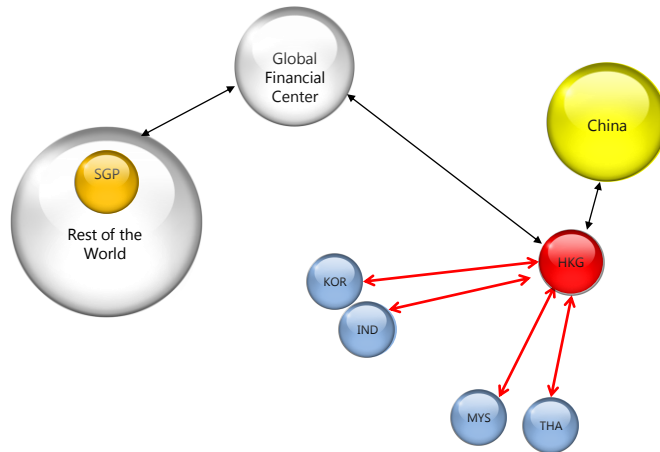
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2) Hong Kong SAR AND Singapore are competing financial centers for Asia



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### 3) Hong Kong SAR becomes the dominant financial center for China and the rest of Asia



## B. Untangling Drivers of Growth: Constant Market Share Analysis

**61.** The specification used in this paper is similar to Amador and Cabral (2008), Jimenez and Martin (2010), and Munnik, Jacob, and Sze (2012), but includes an additional term to account for the growth effect associated with “first-time issuers”, which we explain below. Specifically, the growth rate of issuance volume (IPOs or bonds) in an IFC relative to that of the world can be decomposed as follows:

$$g_t^k - g_t^* = \sum_j (\theta_{j,t-1}^k - \theta_{j,t-1}^*) g_t^* + \sum_j \theta_{j,t-1}^k (g_{j,t}^k - g_{j,t}^*) + \sum_{x_{j,t-1}^k = 0} \left( \frac{x_{j,t}^k}{x_{t-1}^k} - \frac{x_{j,t}^*}{x_{t-1}^*} \right),$$

**62.** where  $x_{j,t}^k$  denotes the volume of issuances in country  $k$  by issuers from country  $j$  during period  $t$ ;  $g_{j,t}^k$  the growth rate of  $x_{j,t}^k$ ;  $\theta_{j,t-1}^k$  the share of issuances by issuers from country  $j$  in country  $k$  relative to the sum of all foreign IPOs in country  $k$  in period  $t-1$ ,  $x_{j,t-1}^k / \sum_j (x_{j,t-1}^k)$ ; and the asterisk,  $*$ , denotes the world. Of note, the variables do not have any “product” subscript as usually found in the trade literature since we consider IPOs or bond issuances separately<sup>42</sup> and do not differentiate among IPOs or bonds beyond the issuer nationality dimension. The first term on the right-hand side of the equation captures the structural effect and the second term the competitiveness effect.

**63.** The dataset is constructed from Dealogic, a comprehensive database providing detailed deal-level information on global IPOs and bond issuances.<sup>43</sup> An international issuance (IPOs or bonds) is defined as an issuance by an issuer whose country of main business is different from the country of issuance. The dataset consists of a matrix of bilateral IPOs and bond issuances among 31 major economies<sup>44</sup> for every year from 1998 to 2012. In the case of IPOs, all IPOs taken place in these sample countries were from the same set of countries, while in the case of bonds the dataset accounts for about 85 percent of all international bonds issued in these 31 sample countries (i.e. 15 percent of international bond issuances in these countries were from countries outside the sample).

**64.** One complication that arises when applying the constant market share method to our dataset is the presence of “many zeros.” Unlike in export data, overseas bond issuances and IPOs tend to be very sporadic for most countries and the volume of these occasional issuances is also often significantly large even at the global level. This peculiar aspect of the

<sup>42</sup> We therefore do not consider the product structure effect and the mixed structure effect.

<sup>43</sup> In the case of bonds, the data comprises several different types of debt securities including asset-backed and mortgage-backed securities, and corporate and sovereign bonds, but excludes short-term and money market instruments as well as issuances by international organizations.

<sup>44</sup> The list of sample countries is as follows: (11 Asian countries) Hong Kong SAR, Singapore, China, Japan, India, Korea, Malaysia, Taiwan Province of China, Indonesia, Thailand, Philippines, (2 North American countries) United States, Canada, (12 European countries) United Kingdom, Germany, France, Italy, Spain, Netherlands, Switzerland, Sweden, Luxembourg, Ireland, Russia, Poland, (2 Latin American countries) Brazil, Mexico, (2 Middle-east countries) Saudi Arabia, United Arab Emirates, and South Africa and Australia.

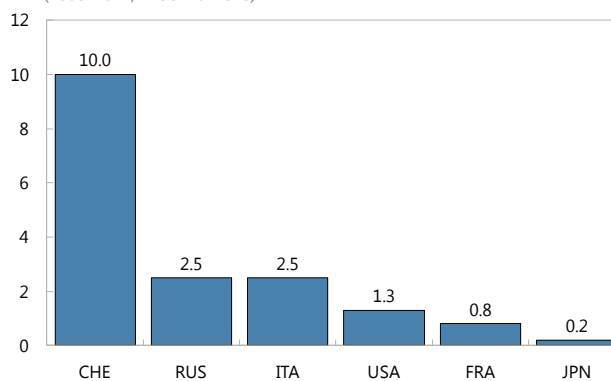
data leads to non-trivial discrepancy between the relative growth rate of issuances ( $g_t^k - g_t^*$ ) and the sum of the structural and competitiveness effect terms. This discrepancy, included as the third term on the right-hand side of the equation, measures the growth effect associated with first-time issuances in the IFC by other countries in the sample.<sup>45</sup> Its economic interpretation, however, is not as straightforward as the structural and the competitiveness effects<sup>46</sup>: An IFC's "success" in attracting a first-time issuer could be interpreted as a result of the IFC's geographical proximity with the issuer or the IFC's own competitiveness, or both. To mitigate this "many zeros" problem, or minimize the size of this ambiguous first-issuer effect, we conduct analysis using dataset aggregated into 3 5-year non-overlapping periods over 1998-2012 (1998-2002, 2003-2007, and 2008-2012).

**65.** Tables 4 and 5 present the results of the constant market share analysis for Hong Kong SAR, Singapore, New York, and London,<sup>47</sup> which show a breakdown of drivers of growth over the period of 1998-2012. In short, the constant share market analysis indicates that the gain in competitiveness was the main driver of post-crisis growth in Singapore and Hong Kong SAR for IPOs, while the structural effect was more important for international bond issuances.

## IPO

From 1998-2002 to 2003-2007, the volume of international IPOs in the two Asian IFCs jumped by 424 percent in Hong Kong SAR and 1,565 percent in Singapore, respectively, although for Singapore it was from a relatively small base of US\$ 470 million. While the gain in competitiveness contributed substantially in both IFCs, Hong Kong SAR's growth was supported

**Figure A3. Major "First-time" IPOs in Hong Kong**  
(2008-2012; in USD billions)



Sources: Staff calculations

<sup>45</sup> Strictly speaking, an issuance by a country in an IFC in period  $t$  is labeled as "first time" if there was no issuance by the country in the IFC in period  $t-1$ , although it could be possible that there was an issuance in period  $t-2$ .

<sup>46</sup> Typically, the physical distance between an issuer and an IFC tends to be strongly positively correlated with the volume of issuance (i.e. the closer the IFC from the issuer, the larger the issuance in the IFC). Given this tendency, a first-issuer issuance from a neighboring country is more likely to reflect an IFC's its coincidental proximity than its own competitiveness, whereas one from a country far from the IFC is more likely an indication of the IFC's competitiveness.

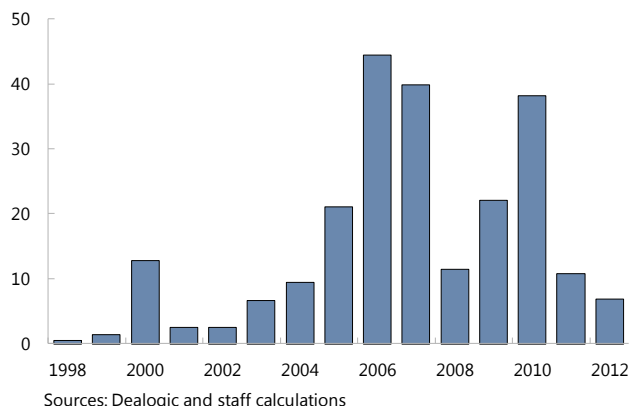
<sup>47</sup> Dealogic provides issuance data by exchanges, which allows us to identify the specific location of issuance within a country. In most cases, however, including the U.S. and the U.K., almost the entire international issuances take place in the main financial center of a country.

relatively more by the change in the shares of foreign issuers (232 percent) than Singapore's (93 percent). In particular, IPOs from China rose by more than six-fold in Hong Kong SAR from about US\$ 20 billion in 1998-2002 to US\$ 122 billion over 2003-2007, accounting for almost the entire international IPOs in Hong Kong SAR during 2003-2007. Singapore, on the other hand, benefited relatively more from the gain in competitiveness (718 percent) and a large amount of issuances from first-time issuers in Singapore (784 percent), although the mix of issuers concentrated among emerging Asian countries also contributed significantly (93 percent).

**66.** Hong Kong SAR and Singapore continued to grow over the post-crisis period of 2008-2012, albeit at a much slower pace. Compared to the pre-crisis period, however, Hong Kong SAR this time took a direct hit from a sharp decline in Chinese IPOs, which dropped to US\$ 89 billion or by 26 percent from 2003-2007. Large first-time issuances on the other hand contributed about 15 percent to Hong Kong SAR's growth, more than offsetting the negative structural shock. The bulk of these first-time IPOs came from North American and Western European countries, comprising a number of high-profile IPOs such as *Glencore* (Switzerland, US\$ 10 billion), *Prada* (Italy, US\$ 2.5 billion), and *Samsonite* (United States, US\$ 1.3 billion) in 2011. These non-Asian IPOs, together with the competitiveness effect of 3 percent, provide an indication that Hong Kong SAR's growth in the post-crisis period could be a result of Hong Kong SAR's own competitiveness rather than just the "China effect." Similarly, in Singapore: the mix of foreign issuers concentrated among emerging Asian countries actually had a negative contribution of 12 percent to Singapore's growth relative to the world, while the contribution from improvement in competitiveness more than offset this effect, leading to a net growth of 38 percent.

**67.** Gains in competitiveness played a key role for Hong Kong SAR and Singapore in the post-crisis period, while New York and London lost competitiveness from the pre-crisis period. New York, however, benefited from a large increase in IPOs from its emerging market neighbors including Brazil (US\$ 7.5 billion) and Mexico (US\$ 4 billion), as reflected in the positive structural growth effect (12 percent).

**Figure A2. IPOs in Hong Kong by Chinese Issuers**  
(In US\$ billions)



## Bonds

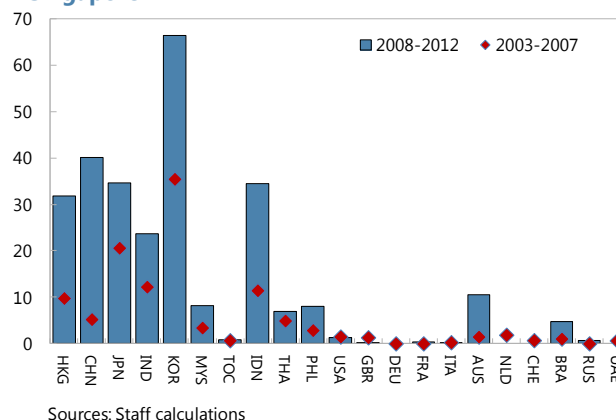
**68.** In contrast to IPOs, the results from international bond markets offer a markedly different overall picture. From 1998-2002 to 2003-2007, international bond issuances in Singapore more than doubled from about US\$ 55 billion to US\$ 115 billion, or by 44 percent relative to world growth, of which the competitiveness effect contributed about 13 percent and the structural effect -22 percent. The overall growth, however, was mainly driven by issuances from first-time issuers (55 percent), most of

which consisted of emerging Asian countries such as China (US\$ 5 billion), India (US\$ 12 billion), Thailand (US\$ 5 billion), and Malaysia (US\$ 3 billion), suggesting that the locational advantage could have played a relatively larger role than the gain in competitiveness. Meanwhile, Hong Kong SAR experienced an 8 percent decline of issuances from US\$ 12 billion to US\$ 11 billion, or -76 percent relative to world growth, largely driven by the loss of competitiveness (-112 percent). The negative impact was somewhat mitigated by the first-time issuances from a few Asian issuers such as Malaysia (US\$ 1.8 billion) and Thailand (US\$ 0.3 billion), but also from the United Kingdom (US\$ 1.4 billion), suggesting that Hong Kong SAR also mainly benefited from growing funding needs of the region.

**69.** The structural effect played a much more important role during the post-crisis period. In Singapore, issuances increased (134 percent) by more than double from US\$ 115 billion in 2003-2007 to US\$ 273 billion in 2008-2012. Of the 134 percent growth, about 65 percent can be attributed to the change in the composition of issuers toward Asian countries in the region, notably from China, and about 68 percent to Singapore's own gain in competitiveness. Hong Kong SAR's growth (261 percent), on the other hand, was predominantly driven by the structural effect (234 percent) and in particular by the fast growth in China-originated issuances that climbed from about US\$ 8 billion in 2003-2007 to US\$ 37 billion in 2008-2012, consisting about 90 percent of total international issuances during 2008-2012.

**70.** While the "China" effect was the central driver behind Hong Kong SAR's growth, and to a lesser extent for Singapore, the relative growth in New York (91 percent) during the post-crisis period mainly reflected a sustained increase in competitiveness (80 percent). London, on the other hand, benefited relatively more from the structural effect in part due to a large increase of issuances from some of the European countries considered as having relatively strong fundamentals, such as Switzerland and Sweden.

**Figure A4. International Bond Issuances in Singapore**



### C. Some Regulatory Background for Hong Kong SAR and Singapore<sup>48</sup>

**72. Implementation of Basel III.** Hong Kong SAR and Singapore are two of the 11 jurisdictions that have published a final set of Basel III regulations, effective since January 1, 2013. The regulatory changes of Basel III are expected to be to the advantage of many banks with Asian home countries, including Hong Kong SAR and Singapore. High levels of local savings and conservative bank regulation and management over the last decade in Asia mean that many Asian banks find themselves in a strong position compared to foreign banks operating in the region, as they typically enjoy superior capital and liquidity positions. Once Basel III is implemented globally, Asian banks may generally find themselves less financially constrained than their Western peers. In addition, the region is less affected by the proposals on banking structure (e.g. Volcker, Vickers and Liikanen proposals) since its banks follow simpler business models primarily geared towards retail and commercial banking.

**73. Supervision.** The structure of supervision of the financial sector differs between the two jurisdictions. While Singapore's MAS centralizes all the supervisory powers over the banking, insurance and securities industries, Hong Kong SAR has opted for entrusting supervision to several entities, each dedicated to one specific financial sub-sector. The OCI in Hong Kong SAR is a government department which supports the Insurance Authority (IA) to regulate and supervise the insurance industry of Hong Kong SAR, but plans are under way to set up a financially and operationally independent entity (the Insurance Authority) in 2015. The need to enhance the legal framework and establish an independent authority was stressed by the FSSA.

**Table A2. How is financial sector supervision structured in Hong Kong SAR and Singapore?**

	Hong Kong SAR		Singapore	
<b>Banking sector</b>	Hong Kong Monetary Authority (HKMA)	1993	Monetary Authority of Singapore (MAS)	1971
Micro-pru				
Macro-pru	HKMA		MAS	
<b>Securities &amp; Futures</b>	Securities & Futures Commission (SFC)	1989	MAS	1984
	Office of the Commissioner of Insurance (OCI)		MAS	1977
<b>Insurance</b>				
<b>Retirement scheme</b>	Mandatory Provident Fund Schemes Authority (MPFA)	1998	Central Provident Fund (CPF)	1955

Source: HKMA; MAS

**74. High standards.** The Hong Kong SAR and Singapore FSSAs detail the quality of supervisory and regulatory frameworks, and point to areas for further improvement. Both

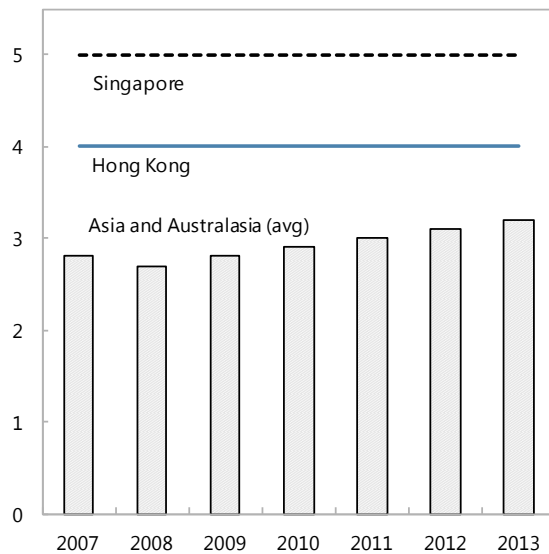
<sup>48</sup> For a detailed assessment, refer to the 2013 Singapore FSSA and 2014 Hong Kong SAR FSSA.



FSSAs concluded that overall compliance with all supervisory standards was very elevated, compared with other major financial centers. In particular, bank prudential requirements are higher and were implemented sooner than those established by Basel III in Singapore. Similarly, the two jurisdictions perform well in terms of strict regulatory framework, timely implementation, robust micro-prudential and macro-prudential frameworks.

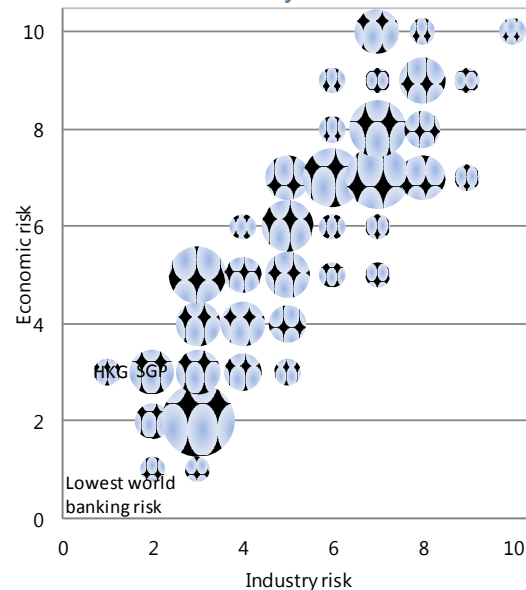
**75. Compare well.** Both jurisdictions' financial regulatory systems compare well with other Asia-Pacific, with Singapore scoring a "5," the highest ranking in the 2012 Economist Intelligence Unit (EIU) report and Hong Kong SAR a "4." Standard and Poor's (S&P) gives top ranking to Hong Kong SAR and Singapore in its BICRA<sup>49</sup> rating of their financial systems. Both countries belong to "group 2" alongside top-rated countries. Hong Kong SAR and Singapore both score '3' on "economic risk" and respectively "1" and "2" on "industry risk". S&P consider that regulations are more conservative than international standards, regulatory coverage and reach are extensive, and the regulator is effective. Both HKMA and MAS have shown a "strong" regulatory track record of early action and prevention of any significant adverse issues, and neither experienced serious financial distress nor the need for authorities to inject capital to support banks in the recent past.

**Figure A5. Financial regulatory systems**  
(5 = Highest quality)



Source: EIU 2012

**Figure A6. Banking Industry Country Risk Assessment, Economic Risk & Industry Risk**



Source: Standard and Poor's 2013.

<sup>49</sup> A BICRA analysis for a country covers the entire financial system of a country while considering the relationship of the banking industry to the financial system as a whole. A BICRA is scored on a scale from 1 to 10, ranging from the lowest-risk banking systems (group 1) to the highest-risk (group 10). The BICRA comprises two main areas of analysis—"economic risk" and "industry risk".

**Robust regulatory frameworks.** Singapore applies stringent capital standards and follows a faster implementation schedule starting in January 2013, two years ahead of Basel's 2015 timeline.<sup>50</sup> Higher capital standards apply to all locally incorporated banks, taking into account their substantial retail presence and the systemic importance of these banks to Singapore, in the same vein as those proposed by the FSB for G-SIBs. Hong Kong SAR applies a conservative approach to numerator of capital ratios. Regulatory reserves (RR), created to offset the drop in general provisions linked to the adoption of IFRS, represent an additional buffer of capital, but the RR is moved out of Tier 1 and counted (subject to certain limitations) only as Tier 2 capital since 2005. On liquidity, Singapore imposes a minimum liquidity assets (MLA) requirement, as foreign bank branches are required to maintain a minimum amount of assets in safe and liquid assets denominated in Singapore dollar and domiciled in Singapore, in proportion to their liabilities held in Singapore. In Hong Kong SAR, all authorized institutions (including foreign bank branches) are subject to a 25% minimum liquidity ratio requiring them to maintain a minimum amount of liquefiable assets to cover their one-month qualifying liabilities. Regulators in Hong Kong SAR also generally require subsidiarization of foreign banks with significant retail banking activities for more effective supervision of their risk governance and culture. Deposit Protection Schemes (DPS) in the two jurisdictions are appropriately funded to meet claims that are protected by the DPS.

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<sup>50</sup> While Hong Kong SAR follows the Basel's implementation timetable of phasing in from January 2013, the capital levels maintained by banks in Hong Kong SAR in general have already satisfied and/or exceeded the Basel III minimum standards (e.g. CET1 > 4.5%, Tier 1 > 6%, Total capital > 8%).

**Table A3. How do Hong Kong SAR and Singapore compare with the Basel III framework?**

	Basel III / FSB requirement	Hong Kong SAR	Singapore
<b>Capital</b>			
• Minimum standards			
○ CET1	4.5%	4.5%	6.5%
○ Tier 1	6%	6%	8%
○ Total Capital (TC)	8%	8%	10%
• Conservation Buffer	2.5%	2.5%	2.5%
• Countercyclical Buffer (CCB)	0% to 2.5%	No upper limit yet	Up to 2.5% (higher at MAS discretion)
SIFIs capital surcharge	1%-2.5%	No 1/)	Yes, under Pillar 1 for domestic SIFIs
<b>Liquidity requirements</b>			
• LCR	>100%	>100%	>100%
• NSFR	>100%	>100%	>100%
Leverage ratio	>3%	3% is tested; Wait for Basel III calibration	>3% Wait for Basel III calibration
<b>Implementation schedule</b>			
• Minimum capital	2015	2013 (TC) to 01/2015	2013 (Basel); 2015 (MAS requirements)
• LCR	01/2015	01/2015	Follows Basel III
• NSFR	01/2018	01/2018	Follows Basel III
• Leverage ratio	01/2018	01/2018	Follows Basel III
Scope of application	“Internationally active banks”	All internationally active banks and/or banks significant to the Hong Kong SAR banking system.	Follow Basel III All reporting banks (standalone & group level)

Source: BCBS, HKMA, MAS, IMF staff.

1/ The HKMA is planning to introduce a higher loss absorbency (SIFI capital surcharge) in line with the Basel Committee methodology and its timeline and is consulting the industry at present on this. Currently, virtually all banks in Hong Kong SAR have a Pillar 2 add-on as part of their minimum capital requirements.

**76. Domestic SIBs.** No global SIBs headquarters are located in Hong Kong SAR and Singapore, but both jurisdictions have the ability to intensify supervision of domestically important SIBs. Only three Japanese and two Chinese banks have been designated as globally systemic banks (G-SIBs) by the FSB. However, Singapore, Hong Kong SAR and Australia will all have the ability to rely on Pillar 2 to impose higher capital requirements, even if the latter will not be disclosed. Hong Kong SAR is consulting the industry to include higher loss absorbency requirements under the G-SIB and D-SIB frameworks, with a view to have these under Pillar 1.

### ***Macprudential***

**77. Strong macroprudential track record<sup>51</sup>.** Both jurisdictions have been very active in that area. Since 2009, MAS introduced macroprudential measures to cool the real estate market, including lower LTV limits, buyer’s and seller’s stamp duties, caps on debt service

<sup>51</sup> Macro-prudential measures are detailed in the Hong Kong SAR and Singapore FSSAs.

to income ratio and caps on loan tenures. Similarly, in recent years, HKMA strengthened counter-cyclical measures to temper excess credit growth, particularly in real estate (stemming mostly from very low interest rates). HKMA has imposed strict maximum loan-to-value (LTV) ratios based on the value of the properties (with even lower thresholds for foreigners whose income is not Hong Kong SAR based) and it has adopted caps on debt servicing ratios (DSR). HKMA imposes a "regulatory reserve" requirement in addition to the IAS 39 collective impairment allowance (CIA).

### ***Resolution mechanisms***

**78. Resolution powers.** MAS (and in some instances, the designated “minister-in-charge”<sup>52</sup>) and HKMA are both tasked with resolution powers. For now, MAS enjoys a more complete resolution toolkit than HKMA. However, the Financial Services and Treasury Bureau of the Hong Kong SAR Government (in conjunction with the HKMA, SFC and OCI) have proposed a resolution regime for the financial sector in January 2014, which will cover banks, securities and future companies, insurers and financial market infrastructure (i.e. it is broader than a “bank resolution regime”), and which will be in line with the Financial Stability Board principles.<sup>53</sup>

**79. No structural measures.** Asia’s crisis experience was deemed less harrowing, and its banking culture was perceived to be conservative. Neither Singapore nor Hong Kong SAR have expressed interest in adopting structural measures such as those contemplated by the Volcker rule, Vickers proposals and Liikanen report, at least for now.

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<sup>52</sup> The decision to exercise certain resolution tools is entrusted to a designated Minister (Minister-in-Charge) of MAS, who is accountable to the Parliament.

<sup>53</sup> HKMA, 2014.

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