

Kuah, Adrian T.H.

Working Paper

Managing competitive advantage: Clustering in the Singapore financial centre

Manchester Business School Working Paper, No. 549

Provided in Cooperation with:

Manchester Business School, The University of Manchester

Suggested Citation: Kuah, Adrian T.H. (2008) : Managing competitive advantage: Clustering in the Singapore financial centre, Manchester Business School Working Paper, No. 549, The University of Manchester, Manchester Business School, Manchester

This Version is available at:

<https://hdl.handle.net/10419/50668>

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Working Paper Series

Managing Competitive Advantage: Clustering in the Singapore Financial Centre

Adrian T.H. Kuah

Manchester Business School Working Paper No 549

Manchester Business School

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The University of Manchester
Booth Street West
Manchester M15 6PB

+44(0)161 306 1320
<http://www.mbs.ac.uk/research/workingpapers/>

ISSN 0954-7401

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Author(s) and affiliation

Dr Adrian Kuah

Lecturer in Strategic Management
Bradford University School of Management
Emm Lane
Bradford
West Yorkshire
UK
BD9 4JL
Tel: +44 (0)1274 234336
Email: a.kuah@bradford.ac.uk

Abstract

This article uncovers the role of financial clustering in creating competitive advantage for incumbents in the Singapore Financial Centre. The revelatory case of the under-researched Singapore cluster reveals (a) how clustering conditions have influenced the development of the City as a financial centre, (b) how the conditions can be defined for a cluster in a small and open economy, and (c) whether there could be a generalisation of the concept to a global services cluster. The Porterian Diamond is found to be an effective tool to tease out the characteristics that result in many tangible and intangible benefits that industry players find important. The article concludes with the strategic and managerial implications to suggest the three golden rules that a location can help firms optimise on these benefits in attaining international competitiveness.

Keywords

Financial Services, International Competitiveness, Diamond, Clusters, Singapore

How to quote or cite this document

Kuah, Adrian T.H. (2008). Managing Competitive Advantage: Clustering in the Singapore Financial Centre *Manchester Business School Working Paper, Number 549*, available: <http://www.mbs.ac.uk/research/workingpapers/>

This paper was made possible by the support of a generous research grant and support from the Universities of Huddersfield and Bradford. The author would like to thank Elvira Uyarra, Kate Barker, Davide Consoli at the Manchester Institute of Innovation Research for their valuable feedback, as well as, the industry players and officials from the MAS and EDB for their time and perception of the financial industry development in Singapore.. None of the above, however, should be held responsible for any errors or omissions in this paper.

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Abstract

This article uncovers the role of financial clustering in creating competitive advantage for incumbents in the Singapore Financial Centre. The revelatory case of the under-researched Singapore cluster reveals (a) how clustering conditions have influenced the development of the City as a financial centre, (b) how the conditions can be defined for a cluster in a small and open economy, and (c) whether there could be a generalisation of the concept to a global services cluster. The Porterian Diamond is found to be an effective tool to tease out the characteristics that result in many tangible and intangible benefits that industry players find important. The article concludes with the strategic and managerial implications to suggest the three golden rules that a location can help firms optimise on these benefits in attaining international competitiveness.

Introduction

The Porterian Diamond¹ has received much prominence for almost two decades since its inception by Michael Porter as he places importance on clustering as a truly global phenomenon, in which the operation of a particular cluster promotes the international competitiveness of its industry, region and nation. Whilst there have been a number of criticisms, as well as accolades, the Diamond can be a useful framework to tease out the character of the cluster, as it successfully combines economic thoughts, location theory and the political economy into a single model. In spite of numerous debates, the generalisation of the Porterian concept to the services industry and to a small economy is still under-researched.

This case study concentrates on Singapore's financial cluster to examine its sources of competitive advantage and the parameters to improve competitiveness of a financial industry cluster. The case reveals how clustering influences the development of the City of Singapore as a pre-eminent financial centre and contributes to three gaps in the cluster research by demonstrating: (a) whether financial centres should be treated as clusters, (b) how the Porterian conditions can be defined in a service cluster, and (c) whether the concept could be applied in a small open economy. The case study also contributes to the theory by examining whether there could be a theoretical and analytical generalisation of the concept to a cluster within an Asian economy.

Finally, the paper concludes with some strategic and managerial implications that will help practitioners optimise the benefits from clustering.

Whilst there are many studies on clusters and industrial districts in manufacturing and high-tech industries², the significance of clustering in financial services has been largely ignored. The industry is sometimes perceived as a trade-intermediation activity rather than a national industry³. The literature on major financial centres suggests that there are ten ‘alpha’ cities (including Singapore) with leading financial centres, but most did not consider these agglomerations as having the characteristics or benefits of clustering. The commentators⁴ typically associate major cities with observed agglomeration(s) of producer services, such as accountancy, financial services and legal services. However, these literature point out⁵ that further analysis should move away from urban economics literature and from economic development literature as the former could not explain the formation of financial centres using the factor endowment approach, while the latter did not explore the links with money and capital markets.

The Singapore Financial Centre (the “SFC”) forms an ‘exemplary’ case of clustering, as the phenomenon is quite noticeable. As there seems to be a shortage of research using this model on global services or financial services clustering, this case study would be ‘revelatory’⁶. Moreover, there are disputes²⁰ on whether the Diamond model is really applicable to a small economy, while the clustering phenomenon in Singapore is generally under-researched. This case study would thus provide a model for competitive advantage to other international services clusters in a smaller and open economy. Methodologically⁷, the case study is an examination of a unit of analysis – the clustering phenomenon - using multiple sources of data to present a mutually consistent evidence of the unit or to preserve anomalous views.

The next section continues with a critical review of the Diamond theory and how clustering, with its inimitable character and reported benefits could create in competitive advantage for incumbents. Finally, it explores the characteristics of major financial centres in the global economy that raises the question whether financial agglomerations in major cities display clustering characteristics.

Clustering and the Diamond

Diamonds and Critiques

Almost two decades ago, Porter¹ posed a fundamental and challenging question – why do some nations succeed whilst others fail in international competition? He argued that location plays an important role in helping global firms achieve an advantage to their global strategies. A global strategy employed by multinationals with multi-country operations is a means to reap economies of scale; to efficiently assemble resources (e.g. raw material, capital, labour and technology), and to assimilate market needs more internationally. However, not all industries require a global strategy, especially for firms who are only multi-domestic or uni-domestic in nature. They seek only specific country strategy with fewer linkages with their other operations⁸. In such cases, the industry structure would favour a highly-dispersed configuration in which each country can contain the entire value chain of suppliers to buyers.

Competitive advantage can arise from a value creating proposition of the firm or the nation, possibly by managing its strategy for competition, or by managing its value creating activities⁹. Competitive advantage can also be derived from rare, unique and heterogeneous resources¹⁰ that firms can translate into capabilities that are valued by the firm and its customer. Resources, other than those originating from the firm, can be derived from the local environment (for example, it¹¹ has been argued that tacit and industry-specific knowledge are resources for incumbents in clusters). Porter¹² emphasises that it is the quality of the environment – its factor conditions, its demand conditions, the presence of related and supporting industries, and the firms' structure and rivalry – that help incumbents and regions achieve a high and rising level of productivity in a particular field. They form the determinants of clustering often referred to as the Diamond. Two other external drivers, the roles of government and chance, may influence clustering, but by themselves are not seen as determinants. This paper concentrates on the four main determinants (See Figure 1) for national competitive advantage.

INSERT FIGURE 1 ABOUT HERE

The Porterian concept concentrated mainly on large open economies and tradable industries, with an emphasis on *'building on emerging concentrations of companies and encouraging development of those fields with the strongest linkages to or spillovers within each cluster'*¹³. Clustering is an impetus for firms to compete more effectively in the global context, and one major advantage to incumbents is its influence on productivity and productivity growth. The theory combined economic thoughts, location theory and the political economy into a single model¹³, making it beneficial as a framework for analysis. Strategy scholars are now beginning to understand how clustering influences firm performance through firms' interactions and agglomeration economies¹⁴.

However, the Diamond model has received a fair share of criticisms. Many¹⁵ criticise Porter's research design as he used induction to select specific cases of industries and countries, then deduction to create his model, which is neither positivist nor scientific. The self-regulated American-style capitalist market model ignores vast differences between this and industrial capitalism in Germany and Japan. Porter suggesting that US firms must meet the 'absolute productivity standards' of these countries also misled the reader of Adam Smith's absolute advantage. The model is not explicit about the relationship between comparative advantage in trade and the concept of competitive advantage in the Diamond¹⁶. Other critics¹⁷ point out that cross-border clusters, illustrated in some of his cases, do not espouse national advantage within the national boundaries. When firms draw a component of the Diamond from another country, then the concept of the national Diamond will be stripped of its context. The study of only successful clusters in ten countries also suffers from validity threats due to the lack of a control group. They also note there is a marked absence of work¹⁸ that critically evaluates the theoretical and policy claims of the cluster concept through empirical research. All these result in retaliation against his 'home-based advantage' concept that is not applicable to a country with peripheral economy or small economy.

Economic geographers then argued that the Diamond fails to note the rigorous theory of social capital and networking. However, this could be due to the diverse interpretation¹⁹ of clusters emerging from different perspectives in sociology, economics and industrial organisation, which led to the vague characterisation of the

‘cluster’ concept over the last twenty years. As advanced by Gordon and McCann²⁰, three distinct foci of clusters must not be confused interchangeably: (i) the classic model of pure agglomeration from classical economic tradition; (ii) the industrial complex from the neo-classical economic tradition; and (iii) networks from a sociological perspective. Pure agglomerations have no spatial focus as they are about internal returns to scale, agglomeration externalities and include Porter’s concept of local clientele, factor endowment and rivalry²⁰.

As much as there are criticisms, most critics have obscured the fact that different theoretical approaches retain their coherency, explanatory structure and different audiences²¹. More importantly, Porter’s Diamond model forces the range of theoretical perspectives to converge on the ‘cluster’ brand in order to provide a multi-perspective approach and contribute to the evolving knowledge in the field. The model will provide a good starting point to identify the multi-perspective conditions and their parameters to improve competitiveness of an industry cluster, and understand its sources of competitive advantage.

Dynamics of Clustering – Externalities, Linkages and Benefits

A city’s competitiveness is argued to be a combination of functional specialisation and urban agglomeration benefits¹⁶. There is a tendency to specialise in its economic output, as the economy becomes more advanced and prosperous. Related works on clustering have looked at singular economy or cluster²² or provided extensive statistics²³. However, its benefits remain quite consistent.

The first benefit was highlighted through Marshall’s observation²⁴ of industrial districts, which exhibited three main features: external economies in the ready availability of skilled labour; the growth of supporting and ancillary trade; and the specialisation of firms in different stages and branches of production. Marshall argued that once localisation and specialisation processes had got under way, it became cumulative and socialised in that locality. The external economies enjoyed when firms of the same industry agglomerate together are termed localisation

externalities. Although Marshall had described the phenomenon, he did not provide any explanation on how and why it started in certain places and not in others.

In the urban economics literature we see similar arguments develop, for example, economies and cost reductions as several firms locate near to one another; customers thus being able to reduce their search costs through compact comparison 'shopping'; and customers being drawn to an area because of its reputation. Jacobs argues for urbanisation externalities arising from the agglomeration of firms in different industries in a particular region²⁵. One explanation for the growth of great cities such as Manchester or London would be that customers are able to obtain almost everything from one trip to the city centre.

Crucially, it is not just the physical co-existence of business – it is the knowledge spillovers - formal and informal, tangible and intangible that drive the competitiveness of the cluster. Rocha and Sternberg²⁶ differentiate clusters from industrial agglomerations by the very existence of these rich, interpersonal and interfirm linkages or networks, while Markusen²⁷ depict the nature of such inter-firm relationships through cluster typologies. Romer and Baptista et al. brought into focus the notion of the key role of externalities or spillovers that is inherent in Porter's approach. By combining the earlier works by Marshall and Arrow, Romer concluded that MAR externalities (Marshall-Arrow-Romer) have positive influences on firms' growth as knowledge accumulated by one firm would help the technology evolve in other firms²⁸.

Industries that are regionally specialised would also benefit from the within-cluster transmission of knowledge¹⁴ and therefore should grow faster on the whole by being together. Knowledge spillovers arise from everyday contact, networking through geographical proximity, as well as from formal arrangements such as joint-ventures. In practice, spillovers resulting from contact with other firms or institutions have a wider range of effects such as altering the financing, marketing, managerial and organisational practices of the beneficiaries. The relationship between the firm and the cluster is bi-directional, thus not only does the activity of individual firms define and shape the behaviour of the cluster but those firms also benefit from being within the cluster.

Companies in vibrant clusters can tap into an existing pool of specialised and experienced capital resources, thereby lowering their search costs and time wasted on the learning curve²⁹. On the other hand, vibrant clusters like Silicon Valley are able to attract specialists to the cluster, who felt that they actually work for the cluster (via job hopping and cross sharing of resources) rather than for one firm alone³⁰. Clustering makes it easier to benchmark against other players in the same industry, measuring and comparing performances, because local rivals share general circumstances. Companies within clusters have intimate knowledge of their suppliers' costs and therefore managers are able to compare costs and employees' performance with other local firms - this is also a result of close working relationships with each other. Proximity improves communications and relationships with the suppliers as well. It could induce instantaneous support from the supplier to the firm like debugging and installation at short notice. Saxenian noted that joint developments with the suppliers were common during the start-up phase of Silicon Valley. Porter also observed that a well-developed cluster provides an efficient means of obtaining important input linkages such as a deep and specialised supplier base located within the proximity³¹.

In addition to the externalities associated with the cluster, the dynamism of a cluster will be influenced by a number of regional attributes. These attributes influence the attractiveness of a location. A country can be competitive in many attributes that are generally important to businesses, such as competitive tax rates and good transport infrastructure but might not develop a viable cluster³². From these, one could argue that two drivers in particular determine the level of benefits of a location. The first driver is whether the relevant industry exploits the existing conditions of the cluster, and exerting leverage from these to obtain competitive advantage. The second driver is associated with the level of cluster participation and the derived externalities from being in the cluster.

Financial Agglomeration as Clusters

Although strategists³³ looked at sources for competitive advantage through the global industry structures by regional groupings, urban geographers provided a convincing argument of financial centres in the global economy. Cities like London,

New York, Hong Kong and Singapore are often recognised as leading cities with prominent financial centres in the world economy³⁴. London emerged as one of the top four ‘alpha’ cities in terms of global financial articulations; Singapore is one of three recognised ‘alpha’ cities in the Asia Pacific and one of ten for producer services in accounting, banking, advertising and law. These cities, termed as World Cities, are used by global capital in the organisation and articulation of production and markets into a global system of control. They are control centres of the new international division of labour in the global system of urbanised spaces that is representative of the new industrial organisation in the age of globalisation.

One outcome of globalisation is the role of certain places on the world map as centres of economic power. Another outcome is the spatial restructuring, as a consequence of the hypermobility of capital, affecting major cities with migration and foreign direct investment moving both in and out. Spatial and class polarisation may result from differences in skills and income between the migrants and indigenous people. The arising contention is that it may hard to find Marshallian industrial districts with equitable income distribution and internal labour mobility within large cities, making the study of ‘cluster’ a more appropriate starting point for such cities.

The shift of finance to highly developed countries as exporters and buyers of capital in the world began in the 1980s. Investment banks and securities houses overtake transnational banks by transforming ‘unmarketable’ financial instruments into securities, and marketing them to large multinational corporations³⁵. The phenomenon is intensified by the rapid deregulation of key financial markets in the highly developed countries in the 1980s where major cities become important financial centres. Specialised services benefit from, and must locate close to, other specialists who produce key inputs, or whose proximity makes possible joint production of certain service offerings. This suggests why financial services firms agglomerate and how multinational corporations in major cities act as key inputs for major financial transactions. Reed collates the views of a number of scholars and presents several conditions of an international financial centre, which also lend support to the need for banks, other financial institutions and large multinationals to agglomerate⁸. The location preference of producer service leads to particular global characteristics, such as: (a) the dominance of multinational headquarters and their

corporate functions; (b) international division of labour; (c) the presence of international financial centres; and (d) the presence of clusters of service producers in cities like Singapore. The arguments lead to why financial agglomeration should be treated as clusters, when looking at the conditions that attract large multinational and financial institutions to these cities. The literature also suggests that events (e.g. deregulation) and historical development (e.g. historical focus in international commerce) may result in the formation of financial centres.

The following sections will illustrate how the environment plays an important role in assisting incumbents in the SFC to attain competitive advantage in terms of resource availability and value creation. The case study examines evidence of cluster participation and externalities from being in the cluster and why (and how) firms should exploit the existing attributes of the location, and exert leverage from these to obtain competitive advantage.

Endowment and Creation of Factor Conditions

The location of the main island of Singapore, some 24 miles by 14 miles, at the tip of the Malay Peninsular established the island as an important trading port as early as the 7th century. It was in the 14th century that a number of Chinese immigrants from different provinces in China formed plantations on the island and created communities throughout the island. Singapore fell into obscurity in the 16th and early 17th centuries after the Portuguese wrested control of the region from the Malaccan and Malay rulers³⁶.

Singapore was rediscovered in 1819 by Sir Stamford Raffles, an officer from the British East India Company, who made Singapore a strategic British outpost controlled directly from London. Population reached 81,000 in 1860, including some 7,000 Europeans. In the early 19th century, stock brokers were beginning to meet at the Arcade of Clifford Pier (the heart of the modern financial centre) to buy and sell shares in British rubber and tin companies for British investors³⁷. From the mid 19th centuries, foreign banks from Britain, Holland, France, and the United States established their offices in Singapore³⁸. Singapore handled about two-thirds of the Malayan foreign trade³⁹, due to its strategic location as a Crown Colony. The first local banks appeared at the beginning of the 20th century to support the local trade and

businessmen. However, the lack of experience and possibly the lack of process and architectural knowledge during this early stage forced some of these early banks to cease operations⁴⁰.

INSERT FIGURE 2 ABOUT HERE

The prominence of its financial centre grew after Singapore's independence in 1965, as the nation began its process of industrialisation. It was in 1968 that the Government took the initiative to develop Singapore as an offshore financial centre and secured the Asian Currency market (dealt by the Asian Currency Unit or the "ACU"). Other financial markets⁴¹ further developed in the 1970s, as the young nation formally created its central bank and financial regulatory body, the Monetary Authority of Singapore (the "MAS"). The government had for a long time prior to the liberalisation, protected the banking industry and no new licences were granted (except for 1970 and 1983). With the years of protection, the recent financial liberalisation (1999-2003) has had implications for the banking industry cluster. The liberalisation spurred significant changes, including the consolidation and disposal of non-banking related assets, and the marked consolidation of the domestic banking industry.

Singapore's current success as a dominant financial centre is attributed to its founding by Sir Raffles and entrepôt trade focus, but gradually to its population growth, economic development, and specific events like its independence from Federal Malaysia and the securing of the ACU market. The SFC has a strong historical role in international commerce. This is supported by a strong foreign exchange market and the presence of other money and capital markets that served the region.

Porter drew in factors of production from classical economic theory and location theory to present the importance of factor conditions in clustering. Lower level factors (like cheap capital, basic infrastructure or low-cost human resources) are easier to replicate and rarely sources of sustainable competitive advantage. Upper level factors (like specialised scientists, or sophisticated infrastructure) can be created by a country, rather than inherited¹. Such factors are needed to compete in a particular

industry, and would result in sustainable competitive advantage for the firm if the provision is strong and not easy to replicate at a different place or firm.

Simply by having an inexpensive workforce that is highly-educated does not represent a competitive advantage in the realm of international competition. The demographic of the population in Singapore is relatively young, skilled and diverse⁴². The weakness in Singapore's population base⁴³ is being supplemented by its policy on immigration and the employment of foreign talent. If such labour policy is important to some global industries and firms, then the location is advantageous, as such attributes are not easily transferable and imitable.

In the SFC, there is a pool of specialised workforce with experiences in the industry. The labour pooling effect from the agglomeration of bank holding companies and banks in the SFC accounts for almost 42% of financial services employment (See Figure 3) and could attract foreign firms who want to capture the Asian markets. Observations of the SFC included an expatriate, who was a former CEO of Deutsche Bank Group in the Centre, pointed out that Singapore's labour force is "*process-oriented and numerical*", particularly suitable for financial services industries. Another assistant director in a foreign bank separately noted:

"Singapore has a pool of skilled labour whereby international players can actually tap into and set up offices here. Apart from Hong Kong and Japan, if you look at the rest of the region, in terms of the labour force's standard of education, Singapore went quite far ahead. In terms of all the levels of labour force in the financial services, including intermediate management, or even top management, Singapore has provided adequately at all the levels."

Higher productivity is the competitive advantage that a clustered location offers to its incumbents. Increased productivity may be a positive impact of competition that is not transferred to other geographical spaces. A high level of labour productivity is recorded for the region⁴⁴, making it an attractive proposition for foreign firms to locate in Singapore. The Singapore workforce maintains a high productivity rate in line with GDP growth (See Figure 4). Productivity growth is indicative of the positive impact of competition and agglomeration benefits found in a cluster.

Eighty-eight per cent of industry players affirmed that a stable legal and regulatory framework is another important factor condition for its financial services, and seventy eight per cent perceived that Singapore has been competitive in this area. An assistant director of the Monetary Authority of Singapore, the *de facto* central bank in Singapore, highlighted that the Government has a major role behind the policy and regulatory activities in an important area like financial services:

“There are other things that financial services players want, a certain amount of predictability, and that is very hard to replicate. What we call software is very important for financial services. Software stuff is to do with regulation. It’s about reputation.....The MAS as one institution is able to see across all the sectors – financial, insurance, banking. There is less chance of regulatory arbitrage.”

The presence of strong regulation⁴⁵ is a driving force for the cluster, albeit with some weaknesses in supervision⁴⁶. The state-anchored nature²⁷ of the cluster is apparent with the government agencies promoting coherence in the cluster, rather than leaving to the hands of private institutions. There are also examples of networks being promoted by the government agencies, as highlighted by the Managing Director of a small boutique financial advisory firm:

“It’s only recently, I would think, over the last one year, that there has been part of an entrepreneurship [sic] about promoting the local enterprises. Networking becomes [sic] very active recently in the last half year, trying to help small companies to get information and set up some bureaus, information sharing, like Network China, Network India, and so forth.”

Self-governance of the industry, however, seems lacking. Some of the professional bodies funded through membership, such as the Management Development Institute of Singapore, the Institute for Financial Services, and the Institute of Bankers, now act predominantly as training institutions for their members. They are not seen to be playing key roles in networking and policy lobbying. Nonetheless, the legal and regulatory agencies’ efforts in creating a regulation framework and developing the cluster have been credible – a unique feature of this successful financial centre.

Singapore, being chosen by companies to be their regional financial services hub, may be a result of its bilingual focus with English and Mandarin as primary languages, as two observers highlighted. The presence of IT and media clusters⁴⁷ in Singapore supports the financial cluster in terms of the communication infrastructure. The SFC continues to be at the forefront of technology and the communication infrastructure, with the MAS maintaining two systems shared by all financial institutions in Singapore. The quality of the transportation infrastructure in Singapore is also superior. More than half of the observers testified the competitiveness of the transportation and communication infrastructure in Singapore. Superior communication infrastructure is essential for an international financial centre that is difficult to imitate within a short timeframe.

A strong and stable exchange rate favours investment and trade in financial products. The competitive exchange rate policy in Singapore⁴⁸ enhances its status as an international financial centre. Tax rates and tax incentives in Singapore are very competitive. The MAS argued that the regulator has put in place some promotions to encourage foreign financial institutions to be operational in Singapore, especially for the assets management industry and the treasury functions of MNCs. These incentives came in the form of training grants, information technology grants and regional headquarters tax incentives. However, the MAS is realistic, its perspective on taxes and incentives provided to the players is summed up as follows during an interview:

“Singapore recognises that financial services tax is highly replicable by other countries. However, it will take decades for countries like China to replicate the structure to be globally acceptable. Countries are all working in the same direction and the advantage may narrow but it will be many years before it is level.” Singapore has a very good reputation as a credible financial services centre because *“groundwork was laid on a stable, politically good eco-structure”*.

The domestic factor conditions mostly are perceived to be important by industry players and policy makers alike, and Singapore is generally quite competitive in their provision. Although the Singapore Dollar is stable, it is still not a principal currency. However, engagement in the ACU and foreign exchange market promotes the SFC in dealing with other leading currencies. The centre is also home to the

nation's central bank, and indeed the SFC has a leading foreign exchange market, notwithstanding the presence of other important financial markets. The centre has a history of good regulation and political stability. In totality, many of the superior factor conditions are not easily imitated (as a whole package) and are indeed determinants for successful clustering in Singapore.

The Need for Related and Supporting Industries

Internationally successful upstream and downstream industries usually co-exist at the same location. Related and supporting industries at the vicinity make it easier to communicate about each other's needs. Porter suggests that related and supporting industries, where they are globally competitive, play an important role in determining the competitive advantage of a location as *'Suppliers and end-users located near each other can take advantage of short lines of communication, quick and constant flow of information, and an ongoing exchange of ideas and innovation'*¹. This advantage in proximity is where distant suppliers cannot match.

In Singapore, the banking agglomeration is strong but the data also suggests significant agglomerations of other related financial industries (See Figure 3). These industries such as asset management, insurance and market activities are important as they are buyers and sellers within the cluster (See Figure 4). The Singapore banking industry is unique as banks also differentiate into related financial activities such as financial leasing and fund management. Twenty-four industry players indicated there are good business-to-business relationships within the cluster, and that they are located in the cluster to support these other firms. Twenty-five industry players in the SFC strongly agree that news spread fast in the SFC and they can react to the market and competitors better by being in the cluster.

INSERT FIGURE 3 ABOUT HERE

Related industries also allow specialist skills to be transferred or moved from one industry to another. One observer highlighted that the decline of the traditional money-changer and the growth of money market traders in Singapore led to many workers switching to the latter industry. This finding supports what the literature reports as the lowered learning curve effect³³ in cluster, but also suggests the

mechanism by which knowledge diffuses in the cluster. The complementary nature of financial services, as revealed by observers in the SFC, increases the importance of linkages and labour mobility within the financial services industries. It also helped the cluster in generating spin-off financial intermediary firms as evident from the observations.

Other clusters in Singapore, like the oil refinery and IT, has supported the financial cluster and created the energy futures derivative market⁴⁹. This may be the inimitable feature of the Singapore financial cluster where access to certain markets and industries is almost unique. The existence of competitive supporting clusters may have an influence in Singapore's productivity if they are globally competitive, if these supporting industries can create or add value to the incumbents' value chain. Higher productivity would draw more resources to the SFC, such as capital investments, as incumbents are more profitable and can afford to invest more. Indirectly, this supports Porter's argument that the presence of strong supporting clusters is important to the competitive advantage of a location.

Although some industry players find that it is easy to contact suppliers in the Singapore cluster and that the domestic supplier base is valuable to their business, some also express no strong opinions on the importance of specialised suppliers. The availability of supporting industries for the financial cluster is not perceived to be highly important as a condition, indicative of the perception that supporting industries in the SFC are less important relative to other clustering conditions.

Quantum and Sophistication of Demand

The global success of an industry is more likely if the home segment is already sophisticated and demanding according to Porter¹. The sophistication of demand could lead to fierce competition among domestic producers, and the need to supply the best products. Singapore's financial services industry has historically been outward-looking as the country is strong in entrepôt activities. Evidence shows that current export of financial services exceeds the import, contributing strongly to Singapore's GDP and trade balances⁵⁰. As a small country, Singapore enjoys close working ties with its neighbours like Indonesia, Malaysia and Brunei Darussalam. Singapore is also part of the Association of Southeast Asian Nations (the "ASEAN")

free trade area (the “AFTA”), with the wider ASEAN region having a combined GDP of US\$737 billion and a total trade of US\$ 720 billion⁵¹. Both the AFTA and specific investment agreement with individual countries are key pillars of Singapore’s economic integration with its neighbours and further bases for building regional competitiveness. The US Singapore Free-Trade-Agreement (the “FTA”) , signed on 15 January 2003, was another landmark event in Singapore that points to the importance of Singapore’s financial services and would propel growth and development in regional and international financial services provision.

INSERT FIGURE 4 ABOUT HERE

As an example, Singapore-initiated investment strategy in the growth triangle in Riau, Batam, and Johor between 1989 to 1994 has gained capital flow from Indonesia, Malaysia and more distant regions in the US and Europe⁵². As a result, Singapore has acted as an important financial conduit for investment houses and Western banks to tap into the growth triangle. Singapore has a large and rising trade balance in financial services: S\$ 1.6 billion in 2002, S\$ 2.3 billion in 2003, S\$ 3.0 billion in 2004, and S\$ 4.8 billion in 2005⁵³. Notwithstanding internal demand within the cluster, the rising trade balance contributions of financial services and Singapore’s rising GDP growth (See Figure 4) are indicative of the growth in demand for financial services in the SFC.

The thrust of Porter’s original argument¹ is on strong home-based demand conditions such the growth in domestic demand and the sophistication of its domestic customers. Evidence suggests that the growth in demand in Singapore is further supported by the region (albeit with rising domestic performance), while the sophistication of domestic demand is currently evolving. Industry players try to differentiate and segment to cater to the market as a result of its recent liberalisation where more foreign players can compete. It is only partially true that domestic demand is the sole determinant of clustering, although it may be the cause of it initially. In the case of Singapore, the existence of strong regional demand conditions is quite important for the success of its financial cluster.

Strategy, Structure and Rivalry Within

In Singapore, all the local and foreign banks belonged to either the 23 full banks, 37 wholesale banks or 47 offshore banks, depending on their license granted. Before 1999, there are ten domestic banks in the financial cluster. The likes of the Development Bank of Singapore (the “DBS”) and Keppel Bank specialise in industrial loans and transactions, while the Post Office Savings Bank (the “POSB”) takes most of the retail and personal savings customers. Some other local banks, like the United Overseas Bank (the “UOB”) and the Overseas Chinese Banking Corporation (the “OCBC”), are diversified in focus from that of real estates investments to sustaining personal savings market share. In preparation of the financial liberalisation, the MAS encouraged domestic banks to consolidate their assets (including the disposal of non-banking assets such as real estates) and merge to attain greater scale economies. The liberalisation resulted in three major local banking groups (the DBS, the UOB and the OCBC) in the domestic banking industry as direct competition to the expected Qualifying Full Banks (the “QFBs”)⁵⁴.

Singapore already had a high ratio of banks-per-thousand-population prior to 1999, evident of higher competition for the domestic market if all foreign banks were allowed to compete. Indirectly, this also indicates the regional focus of the financial centre to serving outside the small domestic market. Figure 5 reveals that there are a high percentage of loans made to other financial institutions which suggests a strong buyer-seller relationship between financial institutions.

INSERT FIGURE 5 ABOUT HERE

Figure 6 suggests that the Singapore is now home to some of the largest foreign and local banks in the world after the liberalisation years. The global importance of Singaporean banks is reflected in terms of the relative size and dominance of the three current domestic banks after consolidation. Foreign banks that pose the greatest threat to the local banks would be the well-established full banks that were recently given QFB licences.

INSERT FIGURE 6 ABOUT HERE

The large number of banks in Singapore versus its small population base indicates that much of its business lies outside the country. There are also a significant number of foreign banks and bank representative office in the SFC. Foreign banks, who are ACU participants, operate on a separate system supplementing the domestic commercial banking. Evidence suggests that Singaporean banks, after consolidation, are comparable in assets to some of the largest global banks. With the granting of more QFBs to operate fully in Singapore, the local industry is expecting more competition. This should be good for the advancement of the domestic industry and the nation. With stronger and larger Singaporean banks capable of holding their own against international rivals and dealing with more international transactions, the SFC is poised to be a pre-eminent financial centre.

Industry players pointed out that size matters in competition, especially so for banking institutions in the cluster. The whole banking industry is now much more competitive, as observers from a local bank and a foreign bank separately point out:

“Consolidation will continue, resulting in fewer banks but bigger in size to compete both at home and globally. Small players will be weeded out in the process of consolidation in the next 10 years.” -Vice President, Treasury, Local Bank

“In just three years, there are now just three local banks, size matters. Now we have ABN and HSBC competing with the local banks. When foreign banks such as HSBC came in ...they brought along bank insurance, probably because they ally with the insurance companies. They brought new products and make available [sic] to the customers. The local banks have to integrate the insurance products in order to compete on the same basis.” - Assistant Director, Private Banking, Foreign Bank

Other than large banks that generate greater economies for the cluster, smaller domestic institutions are found to play a vital role in supporting the cluster. Smaller institution may more effectively compete in particular segments, as evident from the case observations. The managing director of a spin-off financial advisory firm, who used to work in a QFB bank, noted that networking in the financial services industries has become quite active in recent years, with smaller companies trying to set up ‘information bureaux’ such as Network China and Network India. An investment manager of a local asset management company, a spin-off firm, pointed out “*there is*

now a lot of synergy between the smaller players” in the last few years. Its managing director added that the globalisation of technology levelled the playing field and enabled smaller institutions to compete. This suggests a level of embeddedness within the Singapore cluster with the creation of networking institutions.

Critical mass stems from the agglomeration of similar industries and the presence of complementary and related financial service industries. Related and supporting industries may continue to sprout up and will cause the cluster to be more competitive internationally as a result. An expatriate CEO of a financial advisory firm in Singapore independently raises the issue of achieving a critical mass in financial services, which he feels is very important for the Singapore cluster to be successful. He revealed that when he used to work for a foreign bank, where he used to be CEO, a location must provide cost efficiencies, managerial efficiencies, or managed risk portfolio for the global bank. *“I’m happy to pay a higher per individual cost or per unit cost of a particular processing if I have all my processing together I get certain economies of scale that on a total basis I have an optimised solution.”* He cites examples of Bermuda in insurance and Switzerland in private banking where there are instances of critical mass.

The recent financial liberalisation may continue to see more changes to the banking industry assets with greater foreign stakes invested into the local banks⁵⁵ and the expansion by local banks into the regions. There is a perceived need for the industry players to re-invent themselves in terms of the product offerings. Observations indicate growing competitive rivalry in the Singapore financial cluster, which may create competitive advantage to the successful incumbents.

The SFC had resembled a State Anchored²⁷ cluster where economies of agglomeration were previously generated by the large state-owned enterprises like the MAS, DBS and POSB. Further urbanisation and industrialisation of the region has resulted in wealth creation and promoted the SFC. The Centre has been dominated by one or several large government institutions attracting other supporting institutions. Its orientation, as an offshore centre since the 1970s, had been external in attracting more foreign institutions to set up in Singapore. On the other hand, a strong component of a Hub and Spoke cluster²⁷ is evident with the current large local banks,

large QFBs and investment banks acting as central hubs in creating auxiliary firms and industries (evident from a number of spin-off firms interviewed). Localisation economies exist, in the form of labour pooling and specialist industries. The Centre is the seat of domestic financial institutions that hold international transactions. Labour mobility is occurring within the cluster amongst the financial institutions. There are also substantial trade within the cluster amongst related financial institutions who are effective borrowers and lenders. The domestic banks' orientation is now rather external with rising linkages outside the successful SFC.

Discussion and Recommendation

This case study raises the bar on what constitutes clustering by using Porter's Diamond as the main analytical framework, while considering Reed's conditions of an international financial centre⁸ and Markusen's cluster typologies²⁷. The SFC is selected based on (a) a relatively large share of world exports in financial services; (b) the industry share of national exports and (c) a positive balance of trade in services, using similar criteria as Porter's original approach¹. This paper has integrated dependency on financial markets (as related industries) and factor endowments, as it deviated from economic development and economic geography approaches to one of pure agglomeration²⁰. The case approach is therefore deemed to be theoretical, positivist and scientific in this respect⁶, alleviating some criticisms of Porter's work.

Using different theories, the case effectively points to important determinants for successful financial clustering that match with those benefits and needs that global industry players seek. In line with Porter's suggestion¹, the interaction between the cluster and other supporting clusters has been found to create further superior conditions, such as the energy derivative market. The study finds many aspects of Porter's Diamond conditions to have a significant influence on the services cluster and the model is generally applicable to a cluster in a smaller and open economy, albeit with minor modifications.

Domestic factor conditions - the skilled and specialised labour, legal and regulatory framework, IT and communication infrastructure – are found to be very competitive advanced conditions. They are essential conditions for an international financial centre and are determinants for firms' pursuit (domestic and foreign banks

alike) of competitive advantage against international rivals. The presence of related industries, such as securities, insurance and fund management firms, is significant as they are important buyers and sellers. There is evidence with a sixth of loans was made within the SFC. The complementary nature of financial services increases the importance of linkages and labour mobility within the SFC, which indirectly helps the cluster in generating spin-off firms.

On the other hand, it is found that domestic demand is no longer a sole driver for the banks to succeed. The existence of strong regional demand conditions is evident from the regional expansion of domestic banks to countries such as Thailand, China and Hong Kong. The large number of foreign banks versus its small population base also suggests that much of the market lies outside Singapore. This indicates that Porter's initial model¹ must be adapted for clusters in smaller economies as they would require the global demand to sustain their international competitiveness. There is weak evidence of sophisticated domestic customers that drive the industry to be internationally competitive, although indications also show that the liberalisation has introduced fierce foreign competitors to the domestic market. The perception that supporting industries are less important than other clustering conditions may also be unique to Singapore, as it is a smaller economy with a well supported transport infrastructure (i.e. airport and seaport)

Critics argued that the Diamond will be stripped of its local context if components of the Diamond come from abroad. However, some studies⁵⁶ on the London Financial Centre find that a reason for its prosperity is the demand from the international market, arguably even so even more important for a smaller economic cluster. Understanding the Diamond could allow policy makers and regional planners to plan for the necessary conditions needed to gain international competitiveness. It would also remind industry players and managers what they really seek as a business location. Four key lessons can be derived for policy makers and industry players:

1. A country should continue to maintain its superior factor conditions in political stability, financial stability, and transport infrastructure to support its financial cluster; for Singapore, there may be a need to accelerate the

Infocomm Development Authority's strategy to advance its information and communication infrastructure.

2. The country should establish internationally competitive upstream and downstream activities to aid the financial cluster in creating a *critical mass* of activities, but also allow the cluster to attain a good mix of related and supporting industries, so that synergy can be derived within the cluster.
3. Industry players should accept that high labour mobility occurs both inside and outside the financial cluster and should be promoted as the mechanism for knowledge transfer and upgrade; for Singapore, the cluster should continue to main focus in attracting talented workforce to work in Singapore.
4. Industry players should attempt to increase the opportunities for interaction and networking within the financial cluster by establishing more social and business networks so that people can interact. The cluster should also seek to achieve more active roles by the industry players and self-regulatory bodies (funded by membership), which can act as institutions for collaboration.

The Singapore's Economic Review Committee (the "ERC") has recommended that Singapore should focus on a few key financial services industries - global processing, wealth management and private banking – in order to position Singapore as a pre-eminent financial centre in Asia⁵⁷. The key question for policy makers is whether Singapore should focus on a few niche industries to achieve cost competitiveness, or further look into increasing her critical mass and range of related and supporting industries to enhance international competitiveness? Focusing on a few niche industries may increase scale economies and create cost competitiveness in certain areas, but will not have the further-reaching and longer-standing benefits should Singapore wants to succeed as an international financial cluster.

Conclusion

This paper takes Porter's idea of clustering to examine the evidence as to whether his model is truly robust in general to the services sector, to a small economy, and whether financial clustering brings about competitive advantage to incumbents.

The revelatory case concludes that the Diamond model can be generalised analytically and theoretically to a small, developing and open economy, albeit with minor modifications. It also highlights several generic lessons for policy makers in their cluster planning processes, while questioning Singapore's rationale to specialise.

Strategically, locating in a successful cluster can provide economic benefits to industry players, such as the access to international markets and external economies of scale and scope. The managerial goal must be to connect into the economic activities of the cluster and to increase firm-to-firm external economies and creating greater value for the firm's activities. This also creates a stronger level of embeddedness to counteract external competitors.

Secondly, the strategic social context of clustering means those industry players can have access to a highly specialised workforce, who can be more productive relative to non-clustered locations. The managerial implication for industry players is to further create, or participate in, networking opportunities and to form collaborative institutions to promote the industry's objectives to attain their international competitiveness.

Finally, clustering also implies that there may be many corporate headquarters located in a cluster. Being in a cluster that is already successful will intensify the opportunity for industry players to influence governing institutions and governments. Collectively, they would create political power for incumbents and aid the cluster in attaining global articulation.

These three golden rules are more generic in helping industry players exert leverage through clustering to obtain competitive advantage. It may also serve as a guide for policy makers in their regional planning. This paper has shed some light through the lens of the Diamond on what is needed and the benefits that players seek, capturing ultimately what constitutes successful clustering to attain competitive advantage.

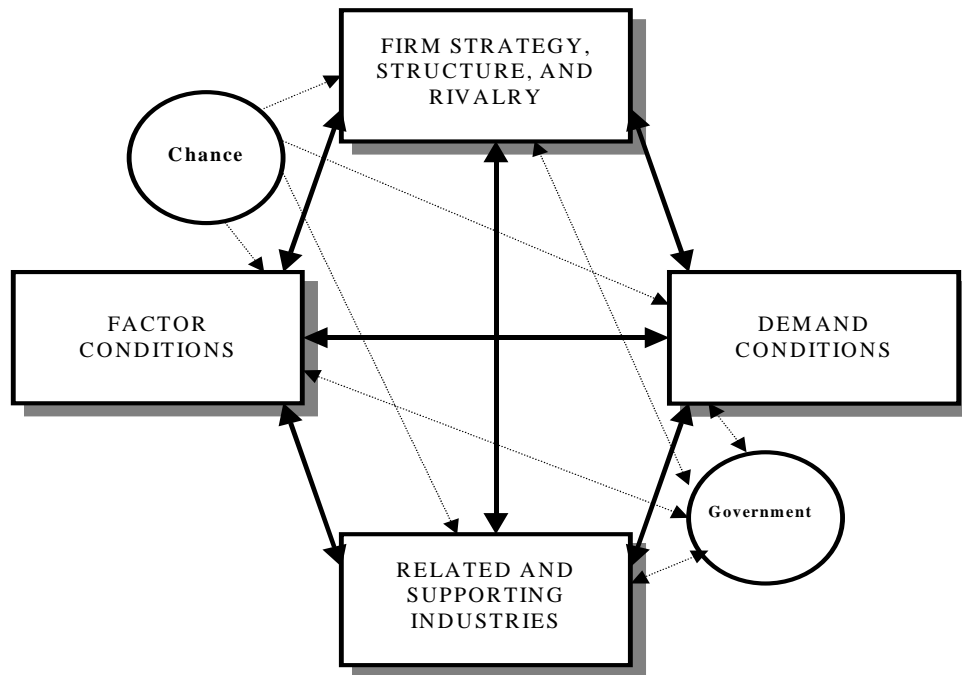


Figure 1: The Determinants of National Competitive Advantage

Source: Adapted from Porter, 1998a;b

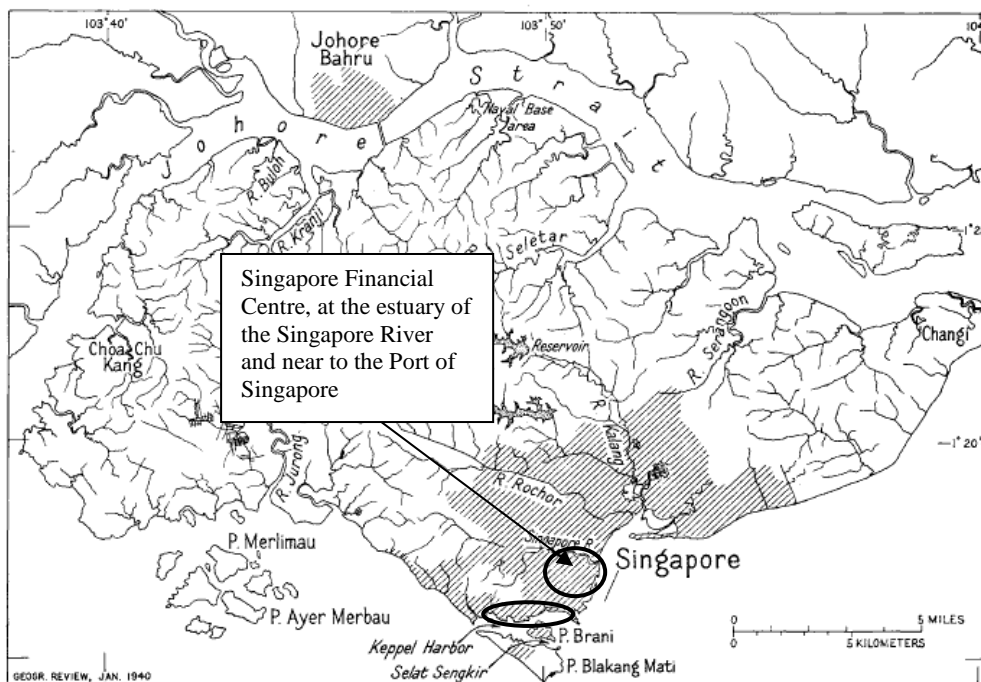


Figure 2: A Map of Singapore showing the Port and Financial Centre

Source: Dobby (1940) Scale: 1:315,000

	Specific Industry versus Overall Financial Industry Employment in Singapore	Herfindahl Index
Bank and Building Society	42.00%	0.293
Securities and Treasury	7.00%	
Trust Funds	4.00%	
Stock Broker and Exchange	6.00%	
Insurance	10.00%	
Financial Auxilliary and Others	31.00%	

Figure 3: Breakdown of Employment in the SFC in 2001

Source: Calculated from data obtained from the MAS

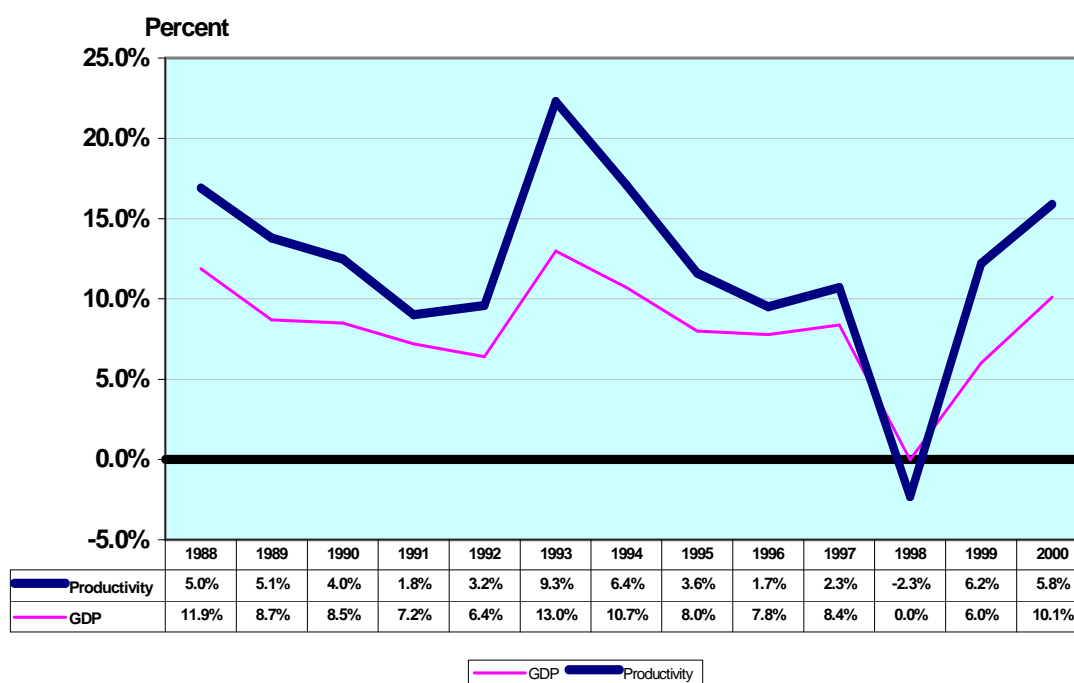


Figure 4 GDP Growth and Productivity Growth from 1988 to 2000

Source: Monetary Authority of Singapore

	1962	1970	1980	1990	1999
Number of banks	-	-	97	141	154
Per 1,000 population	-	-	4.0	4.7	4.0
Total bank loans (S\$)	731.1	2167.7	20206.9	57696.4	147178
Manufacturing (%)	12.8	34.1	21.6	13.0	7.9
General Commerce	51.6	31.3	39.3	23.7	13.5
Financial industries	6.7	3.6	10.4	17.2	14.3
Transport & Comm.	2.7	1.5	6.4	3.0	2.5
Construction	2.6	8.4	9.3	22.3	39.8
Individuals	-	13.1	7.0	13.4	14.7
Prime rates (%)	-	8.00	13.60	7.73	5.80
					1998
Stock market turnover	-	746.9	7806.1	36756.0	74479.4
Ratio to GDP at	-	12.9	31.1	55.3	52.7
Current prices (%)					

Figure 5: Financial Markets and Institutions in Singapore, 1960–1999 (in S\$mil)

Sources: Monetary Authority of Singapore (various years) adapted from Yeung, 2003

Orgins	No. of Full Banks (% Total)	Banks' Name	Origin	Total Assets Size US\$ bn(2002)	By Total Assets Size
North America	3 (12%)	Citibank NA	USA	1100.0	1
		JP Morgan Chase Bank	USA	758.8	5
		Bank of America	USA	662.4	6
Europe	4 (16%)	BNP Paribus	France	867.9	2
		Credit Agricole Indosuez	France	655.8	7
		ABN Amro Bank NV	Netherlands	627.6	8
		Standard Chartered Bank	UK	119.9	9
Asia	18 (72%)	Sumitomo-Mitsui Bank Corp	Japan	825.4	3
		HSBC	Hong Kong	759.0	4
		HSBC	Singapore	84.9	10
		DBS Bank	Singapore	60.9	11
		UOB Bank	Singapore	47.8	12
		OCBC Bank	Malaysia	39.4	13
		Malayan Banking Berhad	Thailand	29.9	14
		Bangkok Bank Public Co Ltd	India	16.7	15
		Bank of India	India	9.0	16
		Indian Overseas Bank	India	7.7	17
		Indian Bank	India	7.6	18
		Indian Bank	Japan	-	-
		UCO Bank	Hong Kong	-	-
		Bank of Tokyo-Mitsui Ltd	Malaysia	-	-
		Bank of East Asia Ltd	Malaysia	-	-
		HL Bank	Malaysia	-	-
		RHB Bank Berhad	China	-	-
		Southern Bank Berhad	Indonesia	-	-
		Bank of China			
		PT Bank Negara Indonesia			
Total	25	(2 locally incorporated banks	not included)		

Figure 6: Full Banks in Singapore ranked by Assets Size

Source: Monetary Authority of Singapore Website

APPENDIX

Case Study Protocol

Objective of Case Study:

To identify how clustering influences the Singapore Financial Centre, whilst defining the conditions of financial services clustering in a small and open economy. Thirdly, to understand the sources of competitive advantage in the SFC and how industry players can exploit them.

Planned Evidence Schedule:

1. Understand the historical background leading to the formation of the financial centre, pointing out any critical events or the role certain institution/ government played. (Reed, 1981, Piore and Sabel, 1984, Sassen, 1991)
2. Evaluate the contemporary driving forces as reported and gathered such as mergers, acquisitions, government support...etc^{*,#}
3. Evaluate evidence of important and competitive conditions for an international financial centre (Reed, 1981)^{*,#}, including the importance of:
 - (a) Legal and regulatory framework
 - (b) Skilled and specialised labour
 - (c) Political and fiscal environment
 - (d) Working environment
 - (e) Transport and communication infrastructure.
4. Understand the demand conditions in the cluster, including evidence of rising demand, sophisticated and demanding customers (Porter, 1990)^{*,#}.
5. Analyse the supporting industries present in the financial centre and understand the roles and types of related industries in the cluster (Porter, 1990; Reed, 1981)^{*}.
6. Analyse the structure (Porter, 1990) and players in the domestic (banking) industry, and the spatial relationship (Markusen, 1996) of players in the cluster, including:
 - (a) Number, size and market share of banks
 - (b) Size of banking agglomeration comparing other related industries.
7. Evaluate the evidence of dynamics and benefits (e.g. Marshall, 1890; 1920; Pandit et al, 2001) that players enjoy in the cluster^{*,#}, such as:
 - (a) Ease of suppliers and customers contact through proximity
 - (b) Role of local business and universities research institutions
 - (c) Labour market pooling, specialised labour
 - (d) Economies of scale and scope, critical masses of firms

Note:

- (#) Based on documentary evidence
- (*) Supported by semi structured interviews for Singapore

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- ¹ M.E. Porter, *Competitive Advantage of Nations*, Free Press, New York (1990).
 - ² See, for example, M.J. Piore, and C.F. Sabel, *The Second Industrial Divide: Possibilities for Prosperity*, Basic Books, New York (1984); W. May, C. Mason, and S. Pinch, Explaining industrial agglomeration: The case of the British high-fidelity industry, *Geoforum* **32**(3), pp. 363-376 (2001), and A. Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, Harvard University Press, MA (1994).
 - ³ Based on informal discussions with Yorkshire Forward in the UK and the Singapore Economic Development Board; both government agencies make use of cluster planning but neither consider financial services in their cluster planning and strategy.
 - ⁴ See, J. Friedmann, The world cities hypothesis, *Development and Change*, **17**, pp 69-83 (1986) posits that that major cities are nodes or control centres in the new international division of labour. Together with later works (for example, J. Friedmann, Where we stand: A decade of world city research, in P.L. Knox, and P.J. Taylor, (Eds), *World Cities in a World System*, Cambridge University Press, Cambridge, pp 21-47 (1995), and P.L. Knox, Globalisation and urban change, *Urban Geography* **17**(1), pp 115-117 (1996).
 - ⁵ H.C. Reed, *The Pre-eminence of International Financial Centers*, Praeger, New York (1981).
 - ⁶ R.K. Yin, *Case Study Research: Design and Methods*, 2nd Ed, Sage, Thousand Oaks, CA. (1994).
 - ⁷ This case study draws on multiple sources of information to form a view of the cluster. The unit of analysis for this research is the cluster and not the industry, the firms, or the country. Other than published sources of evidence from Bankscope, academic publications and government reports, I draw case observations from 44 actors to articulate the case study.

Yin (1994) contends that these observations need not be statistically representative or follow a sampling logic, as case studies aim at analytical generalisation, not statistical generalisation. The actors in the Singapore cluster are essential observers or case observation points consisting of 35 industry players, 4 directors of closely-held government agencies, 1 Minister of State for the Ministry of Manpower, 1 consultancy manager of the Boston Consulting Group, and 3 professors from the local universities. Scott's (1990) criteria was used to assess the authenticity, credibility, representativeness and meaning to information, while Silverman's (2000) technique was used to treat interview data.

Semi-structured interview is chosen as a primary instrument to gather case observation from a breadth of industry players, policy makers and expert witnesses in order to: (a) strike a balance of viewpoints; (b) ensure that the interviews remain focussed; and (c) allow emerging topics to be discussed. The main technique for summarising and analysing the evidentiary documents and interviews is to adopt an analytical framework (Yin, 1994; Stake, 2000) and case protocol (See Appendix). Porter's (1990) diamond model is used as the main analytical framework, while integrating Reed's (1981) conditions and Markusen's (1996) typologies to assess clustering in financial services. With strong underlying theories, the case approach is deemed to be theoretical, positivist and scientific (Yin, 1994).
 - ⁸ See, M.E. Porter, *On Competition*, Harvard Business School Press, Boston, pp 313 (1998a).
 - ⁹ Please see, M.E. Porter, *Competitive Strategy*, Free Press, New York (1980) for former, and M.E. Porter, *Competitive Advantage*, Free Press, New York (1985) for latter.
 - ¹⁰ See, for example, J. Barney, Firm resources and sustained competitive advantage, *Journal of Management* **17**(1), pp 99-120 (1991). See also its contention in R.L. Priem and J.E. Butler, Is the resource-based "view" a useful perspective for strategic management research?, *Academy of Management Review* **26**(1), pp 22-40 (2001).

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- ¹¹ See, S. Tallman, M. Jenkins, N. Henry, and S. Pinch, Knowledge, clusters and competitive advantage, *Academy of Management Review* **29**(2), pp 258-271 (2004).
- ¹² Porter (1990) observes: (a) apparent differences in economic performance of certain states and cities within 10 countries; (b) leading competitors of global industries are usually found in one or two locations around the world; and (c) global companies are continuing to concentrate a critical mass of their most important activities at one location for competition.
- ¹³ Porter (1998a:206) recognises the contributions of agglomeration economies; economic geography; urban and regional economics and industrial district literature to better understanding clusters.
- ¹⁴ See, G.G. Bell, Clusters, networks, and firm innovativeness, *Strategic Management Journal* **26**, pp. 287-295 (2005).
- ¹⁵ See, for example, O. Aktouf, M. Chenoufi and W.D. Holford, The false expectations of Michael Porter's strategic management framework, *Problems and Perspectives in Management* **4**, pp 181-200 (2005), and H. Davies and P. Ellis, Porter's competitive advantage of nations: Time for the final judgement?, *Journal of Management Studies* **37**(8), pp 1189-1213 (2000).
- ¹⁶ See, L. Budd and A.K. Hirmis, Conceptual framework for regional competitiveness, *Regional Studies* **38**(9), pp 1015-1028 (2004).
- ¹⁷ See the international debate, in particular, P. Clancy, E. O'Malley, L. O'Connell and C. van Egeraat, Industry clusters in Ireland: An application of Porter's model of national competitive advantage to three sectors, *European Planning Studies* **19**(1), pp. 7-28 (2001); A.M. Rugman and J.R. D'Cruz, The 'double diamond' model of international competitiveness: The Canadian experience, *Management International Review* **33** (Special Issue), pp 17-39 (1993); and P. Yetton, J. Craig, J. Davis, and F. Hilmer, Are diamond a country's best friend? A Critique of Porter's theory of national competition as applied to Canada, New Zealand and Australia, *Australian Journal of Management* **17**(1), pp 89-119 (1992).
- ¹⁸ With exception to A.T.H. Kuah, Is there a Diamond in the City: Leveraging the competitive advantage of the London Financial Centre, *Singapore Management Review* **30**(2), pp (2008).
- ¹⁹ See, for example, R. Martin and P. Sunley, Deconstructing clusters: chaotic concept or policy panacea?, *Journal of Economic Geography* **3**(1), pp 5-35(2003).
- ²⁰ I. Gordon and P. McCann, Industrial clusters: Complexes, agglomeration and /or social networks? *Urban Studies* **37**(3), pp 513-532 (2000).
- ²¹ For more discussion, see, P. Benneworth and N. Henry, Where is the value added in the cluster approach? Hermeneutic theorising, economic geography and clusters as a multiperspectival approach, *Urban Studies* **41**(5/6), pp 1011-1023 (2004).
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- ²³ See, for example, P. Krugman, Increasing returns and economic geography, *Journal of Political Economy* **99**, pp. 483-499 (1991) and GMP Swann and M. Prevezer, A Comparison of the Dynamics of Industrial Clustering in Computing and Biotechnology, *Research Policy* **25**, pp. 1139-1157 (1996).
- ²⁴ A. Marshall, *Principles of Economics*, Macmillan, London (1890).
- ²⁵ N.R. Pandit, G.A.S Cook and G.M.P. Swann, The dynamics of industrial clustering in British financial services, *Service Industries Journal* **4**, pp 33-61 (2001); J. Jacobs, *The economy of*

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- cities*, Penguin Books, London (1984); J. Jacobs, *Cities and the wealth of nations: Principle of economic life*, Vintage, New York (1969).
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- 30 A. Saxenian, (1994).
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- 33 See, W. Chung and A. Kalnins, Agglomeration effects and performance: A test of the Texas lodging industry, *Strategic Management Journal* **22**, pp. 969-988 (2001); M.E. Porter, *Competitive Advantage of Nations*, Free Press, New York (1990); and A.M. McGahan and M.E. Porter, How much does industry matter really? *Strategic Management Journal*, **18**(S1), pp15-30 (1997).
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- 38 The Union Bank of Calcutta was the first overseas bank to set up office in Singapore in 1840, followed by the Mercantile Bank (est. 1856), the Chartered Bank (est. 1861) (now Standard Chartered Bank), Hongkong & Shanghai Bank (est. 1877), Nederlandsche Handel-Maatschappij (est. 1883) (renamed Algemene Bank Nederland and now ABN Amro Bank), First National City

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- Bank of New York (est. 1902) (now CitiBank), and the Banque de L'Indochine (est. 1905). (Source: Tan, 1999)
- ³⁹ Dobby (1940) noted that Singapore handled and financed raw materials for the Malayan Peninsular for trade in rubber, tin and palm oil for export.
- ⁴⁰ The first domestic banks were set up to serve Chinese businessmen of different sub-communities. Kwong Yik Bank (est. 1903) served Cantonese-speaking businessmen. Sze Hai Tong Bank (est. 1906) served the Teochew-speaking community. The next few years witnessed the emergence of a number of local banks for the Hokkien and Cantonese communities: Chinese Commerical Bank (est. 1912), Ho Hong Bank (est. 1917), Oversea Chinese Bank (est. 1919), Lee Wah Bank (est. 1920), and United Chinese Bank (est. 1935) The first local bank was liquidated in 1913 after enduring financial difficulties. Tan (1999: 61) contends that it was due to lack of experience that forced the bank to cease its operations.
- ⁴¹ The Asian Dollar market was established in 1968 after the Government won the bid against Tokyo and Hong Kong. The Asian Dollar Bond market, started in 1971, attracted many international organisations and national governments. The Stock Exchange of Singapore Limited was formed in 1973. The Singapore International Monetary Exchange replaced the Gold Exchange of Singapore (est. 1978), and started trading in financial futures in 1984. The Stock Exchange of Singapore Dealing and Automated Quotation, a second exchange board, was incorporated in 1986 for smaller companies to raise funds. The discount houses did not really take off in Singapore after its introduction in 1972, and formally ceased operations in 1987, with the local banks now acting as primary dealers.
- ⁴² 76.8% of Singaporeans are Chinese (from various provinces in China), 13.9% are Malays (including different Malay ethnic groups from the Malay Archipelago including the Javanese, Bugis, Bawean and Minangkabau) and 7.9% are Indian (Indian Tamils, Sri Lankan Tamils, Malayalees, Punjabis and Bengalis). The rest are made up of smaller groups of Arab, Jews, Thais, Japanese, European and the Eurasian Singaporean community. The median age of the residents is young at 36.2 years with a very large proportion between 30 to 49 years old and 8.2% of the population over the retirement age (Source: Singapore Statistics <http://www.singstat.gov.sg/keystats/annual/yos/labour.pdf> [accessed on 10 May 2005])
- ⁴³ Singapore has 3.3 million residents in 2001. There is an additional 1.2 million non-residents working in Singapore on work permits but are not normally residents in Singapore (Source: <http://www.economist.com>).
- ⁴⁴ The related GDP per person employed in Singapore's services sector was US\$39,789, which placed Singapore 29th in the world in 2003. Likewise, the International Labour Organisation indicates that Singapore's GDP per person is US\$43,156 second to Hong Kong (US\$ 47,142) in Asia. (Source: World Competitiveness Yearbook 2004 and International Labour Organisation)
- ⁴⁵ In 2003, Singapore's legal regulation of financial institutions is ranked 3rd in the world, her institutional framework (4th) and her central bank policy (1st) are well suited for financial stability. Overall, Singapore's government policies are ranked 1st in the world and are conducive to Singapore's overall competitiveness. (Source: World Competitiveness Yearbook 2004)
- ⁴⁶ R. Brown, *The emergence and development of Singapore as a regional/international financial centre*, Paper presented to XIV International Economic History Congress, Session 31, Helsinki, Finland (2006) points out that the MAS 'increased controls but often without supervising them'. She cites the instance where domestic speculative activity is strictly controlled, but in the offshore markets, the activities of brokers, auditing and supervising them are 'fairly lax'. This has led to fraudulent overtrading in the SIMEX on Nikkei and Euroyen futures resulting in the Barings' collapse in 1995.
- ⁴⁷ There are over 25 broadcasters, a well-established publishing industry, a world-class telecommunications infrastructure, and a fast emerging Internet sector to support the SFC..

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- There are many world-class financial information providers such as Reuters and Bloomberg. The Infocomm Development Agency (IDA), a statutory board, formulates IT development policies and the blueprint to develop Singapore as a world class IT hub.
- 48 Singapore's exchange rate stability is placed a strong 10th in the world, while its exchange rate policy is rated 5th in the world. As exchange rate impacts inflation, which affects economic stability, keeping a stable exchange rate is important for financial stability. (Source: World Competitiveness Yearbook 2004)
- 49 The close proximity of supporting industries in Singapore ensures a quicker response to market trends and changes, and facilitates rapid innovation. According to a couple of observers, Singapore is a ready adopter of technology, though regrettably, is not an innovator. However, Singapore's derivative market in energy futures is the result of competitive advantage derived from the oil refinery and IT clusters. The financial cluster became a centre for the trading of spot, forward, and swaps contracts because of its entrepôt and shipping history and oil refinery.
- 50 Singaporean exports are 80% industry and 18% services with only 2% in agriculture in 2003. Her imports are 82% industry and 15% services with 3% agriculture. Manufacturing is the most important sector in Singapore accounting for 24.3% of her GDP in 2002, followed by business services, financial services and wholesale and retail trade. The financial services sector contributes 12.3% to Singapore's GDP and it is one of the main pillars of its economy. (Source: World Competitiveness Yearbook 2004; Economist Website available at www.economist.com/countries/Singapore/profile.cfm [accessed on 1 October 2004]).
- 51 ASEAN Secretariat, available at <http://www.aseansec.org/64.htm> [accessed on 1 October 2004]
- 52 See, R. Brown, (2006).
- 53 SingaporeStats, available at www.singstat.gov.sg/keystats [Accessed on 1 May 2006]
- 54 Six QFBs licences have been granted to Citibank, HSBC bank, Standard Chartered bank, Malayan Banking Berhad, BNP Paribas and ABN Amro bank between 1999 to 2004. These QFBs are now allowed to expand and set up additional branches, off-premise automated teller machines and to share an automatic teller machine network among themselves to compete directly with the three local banks.
- 55 As part of the banking liberalisation, the 40% limit on foreign shareholdings of local banks was also lifted, although the MAS emphasized that it would not support a foreign bank actually acquiring a local bank.
- 56 See for example, L. Nachum, Liability of foreignness in global competition? Financial service affiliates in the City of London, *Strategic Management Journal* **24**, pp 1187-1208 (2003); and A.T.H. Kuah, Is there a Diamond in the City: Leveraging the competitive advantage of the London Financial Centre, *Singapore Management Review* **30**(2), pp (2008).
- 57 See, Economic Review Committee, Sub-Committee on Services Industries, Financial Services Working Group, *Positioning Singapore as a Pre-eminent Financial Centre in Asia- Main Report*, Ministry of Trade and Industry Economic Review Committee, Singapore, September (2002)