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Evolution, Spatial Self-organisation and Path Dependence: Tokyo's Role as an International Financial Center

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EVOLUTION, SPATIAL SELF-ORGANISATION AND PATH DEPENDENCE: TOKYO'S ROLE AS AN INTERNATIONAL FINANCIAL CENTER

Beate Reszat

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Abstract

Japan's markets for money, capital and foreign exchange are among the biggest worldwide. For many years, Tokyo's role as the leading financial center in Asia has been unchallenged. However, recently, other places in the region such as Singapore and Hong Kong have invested heavily to strengthen their competitiveness, and countries like Malaysia and Thailand stand in line to follow their example. This raises two questions: First, how can the emergence of financial centers be explained in general? Second, what are Tokyo's longer-term prospects and how are they affected by the various influences? The study draws the attention to the role of evolutionary forces and the way by which micromotives and the interaction of many agents produces macrobehavior. In this preliminary paper representing a very early stage of research, financial markets are considered as emergent systems characterised by a high degree of complexity. Starting from an analysis of the strengths and weaknesses of a basic concept of the New Economic Geography possible alternatives to capture the idea of evolving financial markets are discussed. Then a tentative classification of financial places in Asia and, in particular, Tokyo's future role is given.

Zusammenfassung

Japans Finanzmärkte zählen zu den größten der Welt. Lange Zeit erschien die Rolle Tokios als führendes Finanzzentrum Ostasiens unumstritten. In den letzten Jahren haben jedoch in einigen Ländern der Region alte und neue Märkte begonnen, verstärkt in Wettbewerb dazu zu treten. Das wirft die Frage auf, welche Faktoren generell die Entwicklung von Finanzzentren beeinflussen und in welcher Weise insbesondere Tokio davon betroffen ist. Die folgende Studie, die höchst vorläufiger Natur ist und die Forschungsarbeit in einem sehr frühen Stadium darstellt, lenkt die Aufmerksamkeit auf die Bedeutung evolutionärer Veränderungen. Finanzmärkte werden hier als emergente Systeme betrachtet, die durch ein hohes Maß an Komplexität gekennzeichnet sind. Ausgangspunkt der Analyse ist eine Beschreibung der Stärken und Schwächen eines Ansatzes aus der Neuen Ökonomischen Geographie zur Erklärung von Agglomeration, die Weiterentwicklung seiner grundlegenden Ideen und die Untersuchung, in welcher Weise sich diese auf die Evolution von Finanzmärkten anwenden lassen. Daran schließt sich der Versuch einer vorläufigen Klassifikation von Finanzplätzen in Asien an, bei der besonderes Augenmerk auf Tokios zukünftige Rolle in der Region gerichtet ist.

JEL: N25, G15, R12

Evolution, Spatial Self-organisation and Path Dependence: Tokyo's Role as an International Financial Center

Beate Reszat

1. INTRODUCTION

Among the many challenges Japan is facing in a globalising economic environment Tokyo's position as a financial center both regionally and internationally has become increasingly threatened in recent years. Japan's markets for money, capital and foreign exchange are among the biggest worldwide. But, recently, other places in Asia such as Singapore and Hong Kong have invested heavily to strengthen their competitiveness, and countries like Malaysia and Thailand – although so far on a modest scale - stand in line to follow their example. Although the turbulences of the Asian crisis have overshadowed and temporarily dampened the ambitions,[1] these developments raise two related fundamental issues. On the one hand, the question is how the emergence of financial centers can be explained in general. On the other, it has to be asked how Tokyo as a financial place is affected by the various influences and which are its longer-term prospects. Will it manage to maintain its position without making major concessions to the changing international environment or will convergence and institutional adjustment be the only way to meet the growing competition from outside Japan?

The following paper which represents a very early stage of research emphasises the role of evolutionary forces for the emergence of financial centers in general and Tokyo's future prospects in particular. Starting point is an approach from the New Economic Geography as it has been developed by Paul Krugman and other authors. In general, those and other proponents of theories of international trade consider financial services as so-called footloose industries. Since – at least, at first sight[2] - their existence does not depend on natural resources, in principle, they seem not restricted in their choice of location. Nevertheless, as the Asian example shows, they are not evenly spread over the world. On the contrary, regionalism and "clustering" prevail.

[1] See for a thorough analysis of the various financial markets in the wake of the Asian crisis Menkhoff and Reszat (1998).
[2] A detailed discussion of this aspect can be found in Reszat (2000).

Taking an evolutionary view of financial markets means considering them as emergent systems which are characterised by a high degree of complexity. This has two aspects. One is *spatial self-organisation*. Under certain circumstances the interactions of many actors taken together - of individuals, firms and financial institutions as well as the administration and political authorities - are able to create a new quality or "culture" of a market place allowing it to become a truly international center. Then, in principle, what needs to be explained is that process as well as the emergent quality. The second aspect is *path dependence*. Broadly stated, path dependence means that a system's current state is a function of past initial conditions and developments. This stands in contrast to traditional equilibrium models in economics which take as given that their results are generally valid, holding independently of past trajectories. The term is closely related to another one which is *lock in*: A system which has once reached a particular state may at times stay there even if this does not appear an optimum to outside observers. Path dependence and look in are strong arguments for a financial center to maintain a once-reached dominant position even if its competitiveness is in decline, but, on the other hand, might also condemn a lagging place to stay behind forever.

The paper is divided into four parts. The first will give a short overview of financial places in Asia and their main characteristics. The second will describe the basic ideas of the New Economic Geography and discuss the strengths and weaknesses of this concept as well as possible alternatives to capture the idea of a system of evolving financial markets. The third part will study the possibilities to apply concepts of self-organisation and evolution to international financial markets in general asking how far the analogy to biological systems can be drawn at all. The fourth will come to a tentative classification of financial places in Asia and, in particular, of Tokyo's future role. One important question in this context is to what extent Japan's program of stepwise financial liberalisation, the so-called *Big Bang*, may contribute to meet the place's ongoing hollow out or *kûdôka*.

2. COMPETING FINANCIAL PLACES IN ASIA

The Asian crisis has somewhat obscured the view for the region's long-term growth potential and its ongoing attractiveness for banks, security houses and other financial institutions. According to World Bank estimates before the outbreak of the crisis infrastructure spendings in east Asia would have required the remarkable sum of 1.5 trillion US dollars and industry projects another hundreds of billion dollars (Marsh 1998). Even if the most ambitious plans have been abandoned or at least postponed, in the long run, the volume of the remaining projects exceeds all that can be expected from other parts of the world.

In contrast to the impression which, at times, emerged during the Asian crisis, there are ample means to finance these requirements. Even with international capital owners shunning to invest strongly in the region's emerging markets after having come down to earth from the euphoria of recent years – and there are already indications that their cautious attitude will not last - there is sufficient capital due to the high saving rates prevailing in those countries. The problem is to make these savings available for productive investments. The biggest obstacles here are underdeveloped securities markets, an insufficient technical knowledge and sophistication, a lack of experience to handle large investment projects and the absence of institutional investors such as pension funds and insurance companies which would add to the markets' depth and liquidity. In fighting these deficiencies some countries appear better equipped than others clearly demonstrating the need for an international hub for the region's capital.[3]

Table 1: Japan's Stock and Bond Markets in International Comparison[1]

Country	1990	1991	1992	1993	1994	1995	1996	1997	1998
Japan									
• Stocks	1303	827	476	782	855	889	938	898	744
• Bonds	365	215	117	184	160	218	181	139	68
United States									
• Stocks	1325	1520	1746	2283	2454	3083	4064	5778	7318
• Bonds	11	13	12	97	72	70	55	50	38
United Kingdom									
• Stocks	587	570	674	859	1014	1134	1389	2013	3004
• Bonds	943	1042	1171	1265	1244	1310	1614	...	1744

1 Exchange turnover in billions of US dollars.

Source: Bank of Japan (1999: Table 23, 24).

So far, Tokyo is the biggest financial center in Asia and therefore, at first sight, the best place to play this role. Its rise to one of the three most important international centers beside London and New York dates back to the second half of the 1980s, when first the Japanese stock market, and later the markets for other assets as well, experienced an unprecedented

[3] There are several works in Japanese offering a fundamental comparison of financial systems in the region before the outbreak of the crisis. See, for example, Nihon Shôken Keizai Kenkyûsho (1994), SSKKKS (1996) and Igarashi (1996). See also Emery (1997) and Glick and Hutchison (1994).

speculative boom.[4] At its peak in December 1989, the stock market made up 42 per cent of the total capitalisation of world markets. In 1990, Japan's total property had an estimated value of ¥2,000 trillion – more than five times the size of the country's GNP at that time and about four times the value of total property in the United States (Wood 1993: 8).

When the bubble burst, a long-lasting overall decline of asset values set in, accompanied by company failures and bankruptcies on a large scale which severely undermined both corporate and consumer confidence. The Nikkei index which stood at 6,870 yen in 1980 and at 12,556 yen in 1985, which survived the worldwide crash of stockmarkets in October 1987, and on its peak on 19 December 1989 reached 38,915 yen, fell within a few months by 48 per cent to 20,221 yen in October 1990 (Nakao 1995: 99 f.). Suddenly, Japanese banks faced a massive overhang of bad loans and the situation worsened with every new wave of company failures.[5] As a result, the banks became reluctant to lend new money and, at the same time, activities in Japan's securities markets became very low (table 1). All this triggered a serious debate about whether the Japanese financial system would experience a fundamental hollowing out. In this situation, for Tokyo to play a greater role as the region's international financial center became unthinkable.

Table 2: Average daily foreign exchange market turnover in selected countries[a]

	April 1989		April 1992			April 1995			April 1998	
Country	Amount	%	Amount	%	1989-92[b]	Amount	%	1992-95[b]	Amount	%
United Kingdom	184.0	26	290.5	27	58	464.5	30	60	637.3	32
United States	115.2	16	166.9	16	45	244.4	16	46	350.9	18
Japan	110.8	15	120.2	11	8	161.3	10	34	148.6	8
Singapore	55.0	8	73.6	7	34	105.4	7	43	139.0	7
Hong Kong	48.8	7	60.3	6	24	90.2	6	50	78.6	4
Switzer-land	56.0	8	65.5	6	17	86.5	5	32	81.7	4

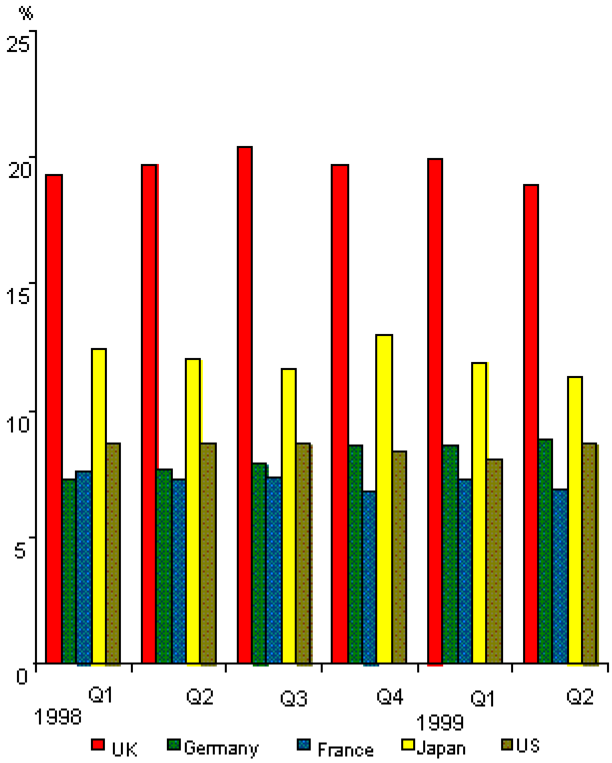
a In billions of US dollars.
b Percentage change.

Source: Bank for International Settlements.

[4] See for the details Reszat (1998).
[5] See for a detailed chronology and analysis of the crisis Fukao (1999).

Since then, a slight recovery has taken place and long-term prospects do no longer look that bleak. Now it may matter that Tokyo still has the biggest stock market in the region, that its foreign exchange market is the third-largest worldwide (table 2) and that its market share of cross-border international bank lending is only surpassed by the United Kingdom (figure 1). The resulting scale economies may well establish first-mover advantages and lock-in effects with strengthen its international position. However, so far, these phenomena reflect less the place's international importance than the size of Japan's economy and the activities of Japanese banks and corporations abroad.

Figure 1: Market Share of Cross-border Lending Worldwide



Source: Bank for International Settlements, Bank of England (1999).

In general, Japan's financial system is characterised by several features which make it appear rather inattractive. Traditionally, there is a strict separation and specialisation of financial services which has been loosened only recently. The stock market is still rather underdeveloped. Bank lending has an overwhelming importance for the economy and corporate governance is weak (Suto 2000). The so-called main bank system is still working in many respects: Companies are linked in a system of long-term interlocking shareholding and borrowing relationships with one or a small number of banks in order to obtain their support in times of crisis (Fukao 1998: 21), making the prospects of both groups hard to judge for investors and observers from outside. These and other factors weaken the place's competitiveness both regional and worldwide.

Nowadays, Tokyo's biggest rivals in the region are Singapore and Hong Kong. In particular, Singapore has taken several steps recently to enhance its international competitiveness. In 1999, the authorities encouraged Singapore's five commercial banking groups to consolidate, lifted a 40 per cent limit on foreign investors' total shareholding in local banks and instituted a five-year liberalisation package in order to increase foreign bank access to Singapore's domestic money market and heighten corporate governance. In addition, foreign law firms became permitted to form joint ventures with local firms to provide advisory and drafting services for onshore, cross-border and offshore financial transactions (McNulty 1999). These measures are further improving Singapore's already strong position in Asia which traditionally is explained by the quality of its economy as well as its stability, legal infrastructure and perceived security. Another often mentioned advantage is Singapore's historical role as a trading place going back to its outstanding position in the British colonial system.[6]

Tokyo's other big competitor in the region is Hong Kong. There are many similarities between Singapore and Hong Kong with respect to the underlying strength of the economy, political stability, a well-developed infrastructure of legal, accounting and other services and the British-influenced civil service. Observers generally hint at the complementary rather than competitive relation between the two. This can be explained by the differences between them. Above all, they are located in different time zones. Singapore has the advantage of overlapping business hours with Tokyo and Sidney as well as with European centers such as London and Paris which helped it to develop a more active international money market than Hong Kong. Another difference until 1982 has been the withholding tax in Hong Kong, which was lacking in Singapore. As a result, Singapore attracted offshore funds from Asia as well as from Europe and the Middle East making the place the funding center for international loans to Asian-Pacific borrowers (Park 1983).

[6] A detailed overview of the place can be found in Teufel (1998).

Hong Kong is always said to have a deeper and broader market structure than Singapore. In earlier years, the decisive factor here had been its geographic advantage of being located near major international borrowers such as Korea, Japan, the Philippines, Taiwan and, above all, the People's Republic of China with its enormous demand for capital (figure 2). Due to this proximity Hong Kong became important for the arrangement, syndication and management of Eurodollar loans to borrowers from those countries. But, the difference is not only geographic but also in government policies: While Singapore is strongly reguated with its financial development depending on government controls and government incentives Hong Kong basically relies on private sector initiatives. In the past, its government had been content to provide the general framework and largely abstained from direct interference. However, to some extent, this was changing with the Asian crisis, when the Hong Kong authorities felt obliged to intervene to stabilise the stock market and intensify monitoring of the banking sector (Schüller 1998).

Figure 2: Financial Places in Asia

A growing source of uncertainty in recent years has become mainland China's increasing presence in Hong Kong's banking sector raising fears of spillover of financial instability. But, mainland China is still felt in another respect, namely the growing competition from Shanghai and Shenzhen. Since July 1997, Hong Kong belongs to China as a Special Administrative Region. In competing for domestic business its main rival is Shanghai. The Shanghai Stock Exchange, which started operating in December 1990, has several advantages for Chinese investors and corporations, above all, the legal and accounting systems which in Hong Kong differ from those used everywhere else in China. In contrast, Hong Kong's relation to Shenzhen has more cooperative than competitive aspects. Both use the same language, the Guangdong dialect, and the Hong Kong dollar is widely used in Guangdong as well. This opens prospects for an integration of operations by which Hong Kong could position itself as the financial center of the greater Hong Kong/Guangdong region (Fuchita and Osaki 1995).

Beside Singapore and Hong Kong, other financial places in Asia are trying to improve their competitiveness, too. This holds, above all, for Malaysia. The Kuala Lumpur Stock Exchange (KLSE), founded in 1973, is the biggest exchange in Southeast Asia with respect to market capitalisation. For many years it had a system of dual listing with the Stock Exchange of Singapore (SES). Securities listet on one exchange were automatically traded on the other as well. This system was abandoned by Malaysia in 1990. In reaction, Singapore established a new segment within its electronic trading system, the Credit Limit Order Book (CLOB), which had been founded in 1988. Since then, Malaysian and other foreign shares are traded on CLOB International. Competition between Singapore and Malaysia is traditionally fierce. Recently, KLSE's reputation suffered badly when, in the wake of the Asian crisis, it imposed strict capital controls thereby freezing trading in Malaysian shares in the CLOB market.

The Asian crisis temporarily has put an end to the most ambitious plans in some countries to become one of the region's dominant financial centers. However, in some cases, necessary reforms would not have been taken otherwise and the crisis has sped up progress. In particular, this holds for market access for foreign investors and financial institutions. There is widespread agreement that in the long run, only few financial centers in the region will survive and that the conditions for decline and survival are set now and in the years to come. The question is, to what extent measures taken now by various parties can influence the final outcome. An analysis of the main determinants of this process will have to start with some theoretical considerations.

3. CONCEPTS OF SPATIAL SELF-ORGANISATION AND PATH DEPENDENCE

Lessons from history show that, in general, financial market development and the emergence of financial centers does not take place in a straightforward way but is characterised by high irregularities, self-reinforcing effects and inertia which to overcome often requires an external shock or a "critical mass" of events. One starting point in order to explain the influences behind these processes is location theory which looks at how an economy organises its use of space and how agglomeration and clustering occur.

Location theory is a strand of economics which has its roots in Germany, in the works of von Thünen, Christaller, Lösch and others.[7] In the 19th century, Johann Heinrich von Thünen first analysed the problem how land around an isolated town supplied by farmers should be allocated for given yields and transportation and production costs taking into account different crops and different intensities of cultivation. More than a hundred years later Walter Christaller and August Lösch developed their theory of central places for a community of farmers who are assumed to be in need of some activities, such as manufacturing or administration, which due to economies of scale cannot be spread evenly among them but have to be provided centrally. Then, there is a tradeoff between scale economies and transportation costs which eventually leads to the emergence of a lattice of central places each surrounded by farmers relying on them.

In principle, the ideas of those early theories can be applied to business districts within a metropolitan area, financial centers in a region or any other phenomenon of spatial agglomeration. Krugman (1996) criticises them on the grounds that they do not capture the process by which individuals or firms interact, and centralisation takes place, and that they do not explicitly deal with complexity and the mechanisms through which macrobehavior emerges from micromotives.[8] In contrast, his edge city model aims at shedding some light on this process. Along the lines of modern urban economic theory the model starts from the assumption of a long narrow city which, in fact, is one-dimensional and located on a circle[9]

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[7] Von Thünen (1842), Christaller (1932) and Lösch (1944). The following relies heavily on Krugman (1996), Fujita et al. (1999). See for a description of the early roots of the theory also Kopp 1999.

[8] These terms Krugman refers to are the title of an earlier book by Thomas Schelling. See Schelling (1978).

[9] The assumptions about the nature of the urban area in this context are:

- The city has a single center of fixed size, the central business district (CBD) in which all job opportunities are located;
- There is a dense radial transport system, free of congestion, with travel consisting only of workers commuting between residences and CBD;

with movement only possible along its circumference. To keep the model as sparse as possible there is no land rent and land scarcity is thought of as, in a sense, included only in an implicit reduced form. For the same reason, there is no forward-looking behavior. In addition, although the conceptual weaknesses of the approach are acknowledged, external economies are assumed, that is, agglomeration is, in a sense, explained with the non-specified benefits of agglomeration. These drastic simplifications are considered as necessary to explain the basic idea as clear as possible.

In the model, locational decisions are determined by two kinds of "forces", a centrifugal and a centripetal one. The decision of each firm where to locate is depending on all other firms' choices. The two kinds of forces are determined by different interdependencies. On the one hand, firms are assumed to dislike having other businesses nearby because they compete for customers, workers and land. These motives are called centrifugal forces. On the other hand, to have other businesses close also has advantages. For example, they attract customers to the area or add to the variety of local services offered. These considerations are interpreted as centripetal forces that attract businesses and make them locate in "clumps". The interaction of centripetal and centrifugal forces determines the process of businesses migrating from less to more desirable sites over time.

In contrast to what is claimed, the repellent and attracting forces in the Krugman world are not emergent properties of a self-organising system.[10] They contribute to accumulation and growth of a location. But, at every moment, they are fully attributable to the firms' behavior. There are not really the many interacting units whose interplay adds a new quality to the system which is fundamentally changing its nature in the adaption process. Thus, concepts like this can only serve as a starting point for a further, more elaborate analysis of the emergence of financial centers.

- The land is featureless plain, all land parcels are identical and ready for residential use. There are no local public goods and no neighbourhood externalities.
Under these assumptions, the only spatial feature of each location that matters is distance from the CBD which justifies a one-dimensional treatment. See also Fujita (1989: 12).

[10] See in greater detail Reszat (1999). Emergence refers to a quality added to the system which is not inherent in its parts. For example, for Stuart Kauffman "life" is an emergent whole of biological systems which is not located in the property of any single molecule. Compare Kauffman (1995: 24).

4. HOW FINANCIAL MARKETS EVOLVE

In contrast to the described approach, here, it is the emergent property, the "organic" change in nature, which is thought crucial for the transition of a financial market place to become an international or regional center. Banks deciding to establish their business in the same location do not constitute a center in this sense. There are many markets and places in the world fulfilling functions and offering kinds of services that can be found in Tokyo, London or New York as well. And many of the banks in Tokyo, London and New York have businesses elsewhere, in principle, engaged in the same kinds of activities.

What is thought to make the difference is that with the growth of a market and increasing complexity sometimes - to draw an analogy to the natural sciences - a kind of *self-organized criticality*[11] is reached after which the place is not the same as before. Slowly and perhaps imperceptibly an adaption process to the needs and demands of internationally active participants in the market takes place meeting more and more the criteria of an international financial center, respective facilities grow, and norms, rules of conduct and attitudes and behavior patterns become established. Sometimes, as recent examples in Asia demonstrate, politics try to influence this process from outside. But, if the financial market is a truly emergent system the possibilities are limited. There are certain preconditions which must be met and which can be designed as favorable as possible, but, in the end, whether the odds are in favor of the place or against it is decided by circumstances, or by what evolutionary theorists would call historical accident.

How can the markets' organic nature be explained? In recent years, it has become more and more accepted to regard all kinds of economic processes as the result of evolution and self-organisation. In particular, in Japan this strand of research has found a broad resonance.[12] The focus here is not on financial markets but on the real economy. The topic has attracted special attention among authors from the so-called *comparative institutional analysis* (CIA) – hikaku seido bunseki – which is based on the view that an economy is a complex organic system (fukuzatsukei) which is in constant evolution (shinka). This process is path-dependent (keiro ni izon suru) and dependent on initial conditions and historic developments which differ from

[11] This term which was coined by Per Bak originally described a type of macroscopic instability in condensed-matter physics. An application to the economics of production and inventory dynamics can be found in Scheinkman and Woodford (1994).

[12] See, for example, Shiozawa (1997) and the literature cited there. Compare also the contributions of Sechiyama (1997), Kuratsu (1997), Hattori (1997), Aruka (1997) and Asari (1997).

country to country resulting in a plural nature (tagensei) of the world. Thus, what is best for one country and one economy need not necessarily be so for another one.[13]

Nowadays, in economics there is a wide variety of evolutionary theories searching explanations for all kinds of social and economic change. Most of them share several characteristics which constitute a kind of common basis on which the following considerations are founded, too.[14] For example, there is an emphasis of dynamics. None of those concepts is interested in simply explaining something being but is asking how it became what it is. Theories are explicitly microfounded. There is no "macrobehavior" without "micromotives". And, in a very broad sense, rationality is "bounded". Agents are assumed to have at best an imperfect understanding of their environment.

In general, evolutionary theories consider three factors as decisive for evolution. Those are mutation, natural selection and chance. *Mutation* provides the material, i.e. the genetic difference, on which natural selection acts. As one famous geneticist puts it: mutation proposes but selection decides (Cavalli-Sforza and Cavalli-Sforza 1995: 102). *Natural selection* enables a system or an organism to adapt to its environment driving it toward fitness maximisation and reproductive success. *Chance* comes in in several ways. On the one hand, there is a statististical effect known as genetic drift. The carrier of a mutation may die without passing the mutation on to subsequent generations. Or, in contrast, the mutation may be spreading widely due to casual events. On the other hand, mutation itself occurs randomly. Chance makes evolution not just the survival of the fittest but also the survival of the luckiest.

For evolution to take place by natural selection there must be *replicators* and *interactors*. A replicator passes on its structure intact in successive replications. Genes are replicators. Interactors are by their very name entities that "interact as a cohesive whole with their environment in such a way that this interaction causes replication to be differential." (Rosenberg 1994: 403) In biology, this can be organisms, but also cells, genes, tissues, organs

[13] CIA served to confirm the view of Japan’s uniqueness offering a rationale for peculiarities such as *keiretsu* relations of firms, interlocking shareholdings, the main-bank system, life-long employment and many more. Internationally best-known proponent of this strand of research is Masahiko Aoki from Stanford University (see, for example, Aoki 1996). The results of the comparative institutional analysis have also found their way into politics where one of their most prominent proponents is Eisuke Sakakibara, Japan’s former vice-minister of finance and highly influential “Mr Yen”. He holds the view that over the years Japan has developed its own model of market economy which in many respects is superior to those of many Western industrial countries. Compare Sakakibara (1993). One recent application of CIA to the subject of corporate governance in Japan gives Tsuru (1999).

and the like. Another useful term in evolutionary theories is *lineage* standing for the entity which actually evolves. In general, lineage is defined as the line of decent which can be traced from a common ancestor. Interactors are composed of lines of descent and some proportion of types of interactors in the cohesive whole is changing from generation to generation. In order to demonstrate the meaning of the different terms, the analogy can be tried on an example from economics. A firm which is switching to more adapted rountines is developing, growing in size and increasing its profitability. But, for evolution to take place at the firm level, it must become its own descendant, otherwise the analogy breaks down. According to evolutionary theory, changes within one member of the lineage do not count as evolution. They are simply a matter of development. The improved adaption has to be passed on to descendants, successors, subsidiaries or the like.

Thus, each analysis of an evolutionary economic system has to find an answer to the following questions: What is it that is evolving and what is the lineage? What are the generations? Which are the replicators and interactors and how is "fitness" measured? The answer to some of these questions has been suggested earlier. The evolving entity in the analysis intended here is the international financial system consisting of various centers and subcenters of international financial activity as well as other bank places at the periphery. The interactors in this system are individuals and firms but also markets and market segments as well as institutions and other entities developing the "rules of the game" in a market place. Those rules may consist of laws and regulations but may include norms, conventions and behavior patterns passed on from generation to generation of actors as well.

In this framework, the replicators which pass on their structures intact in successive replications may be thought of, not as the banks and financial institutions and other actors themselves, but as the inherited characteristics, laws, rules of conduct and long-term behavior patterns those actors develop over time, and over generations, which eventually make up for the market "culture". What is reproduced again and again, constantly adapting to the environment, are the interacting components of this culture which allows the place to survive.

Each financial center is distinct from another and from any other market place in the world. What determines its market culture's competitiveness or complementarity and its ability to survive? One could think of several measures of "fitness". One might be a place's share,

[14] The following is by far no exhaustive list of common characteristics. Compare also Dosi (1997).

regional or worldwide, in particular market segments such as stocks or derivatives trading. Another could be the range of financial instruments available or the number of foreign institutions present at that place.

As mentioned earlier, there is one phenomenon deserving special attention in this context which is *path dependence* and *lock-in*. For the spatial organisation of financial centers this point is of special importance. Although financial services are considered widely as "footloose industries" which are not restricted in their choice of location, once established they shun changing places which then becomes costly and cumbersome. One reason for this inflexibility and the resulting lock-in and concentration of the industry in few places is found in their size and range of activities, which has at least three aspects:

First, nowadays, financial institutions depend on a vast net of suppliers of so-called producer services. Those include advertising, accounting, management consulting, legal services and many more. Central to the rise of those services was the growing size, complexity and diversification of financial firms. They have a vast diversity of separate functions, and often geographical dispersal, with the result that banks' central headquarters are no longer simply centres for administration and control but function as centres for orientation of the firm within its business environment. They not only have to decide about overall policies concerning clients' business, trading strategies, risk management and the like but also about product development and expansion and mergers and acquisitions in a multiplicity of situations and countries. In this environment, providing certain highly specialised services in-house is costly and often no longer possible (Sassen 1991).

Reliance on producer services is one argument against the financial industry's being footloose. Another is dependence on the built environment. This is a rather new phenomenon. In former times, developers used to put up offices for financial institutions, which, in principle, were able to move easily in and out, on a speculative basis. Now banks' requirements have become too specialized for this to work and for major houses the trend is to design their own buildings.[15] For example, financial institutions need large trading floors - in the order of 300,000 square feet and even larger - and, depending on a certain technology to handle the huge volume of transactions traded every day, they require adequate space for cables and

[15] Compare, for London, for example, Eade (1998). One side effect is an increase in the banks' demand for another kind of producer services provided by architects, consulting engineers, planners and project managers.

outlets as well as a pool of technical personnel to operate and repair equipment, including building managers who continuously upgrade the information and telecommunication systems (Fainstein 1994).

A third argument against the footloose nature of financial industries is the ongoing need for personal, face-to-face contacts in financial markets. Although this does not only mean spatial proximity – other forms such as organisational, cultural, social, technological and institutional proximity may be of equal importance[16] - the spatial aspect is the one which is a crucial argument for "clustering". The core of financial activities can be described as "information, expertise, contacts" (Thrift 1994: 334). In general, all of these require spatial proximity although the advantages vary in their intensity from product to product. For small securities trades, interbank payments or standardised foreign exchange dealing they are probably minuscule. For mergers and acquisitions, the management of investors' portfolios or the lead management of syndicates they are high.

Besides, there is still another argument for financial agglomeration in the big centres which is identification with a place in its broadest sense. In general, people living and working in world cities like New York, London and Tokyo are aware of their special status. They may complain about the disadvantages such as air pollution and traffic jams, but they also enjoy the advantages. Some of these are in part imaginary by nature, consisting of an experience of a certain way of life, the feeling to be part of a special culture, which differs from those elsewhere. This holds in particular for the financial community located in those cities, which has become a wholly distinct class breeding its own rules, norms, rituals and behavior patterns. Their view is largely determined by the way they see themselves and their industry and by the way they interact. Financial places in this sense are not only places of financial intermediation but interactional proving grounds, centres of representation (of "where the stories are") as well as centres of discursive authority (Thrift 1994). They are places where individuals are bound together by a common "market culture", differing from centre to centre, which is not easily given up in exchange for another environment. The question is, how these influences affect the future financial landscape in Asia.

[16] See for a general discussion of this aspect, for example, Grote et al. (1999).

5. TOKYO'S FUTURE PROSPECTS IN ASIA

The answer to the question about Tokyo's future role as a financial center in Asia has many facets and to develop a classification including all the major centripetal and centrifugal forces involved would clearly go beyond the scope of this paper. Instead, in order to give an impression of Tokyo's relative position with respect to some of the factors mentioned earlier the attention will focus on three groups of influences. The first includes those related to the supply of finance, its quality and availability. The second draws the attention to the demand for finance and the third concentrates on some influences from the vast range of determinants of the places' general environment which affect their overall attractiveness and "market culture".

Table 3: Supply Determinants in Asian Financial Markets in Comparison

	Japan	Singa-pore	Hong Kong	Malay-sia	Thai-land	Taiwan	Korea	UK	USA
Access of foreign financial institutions[a]	6.88	7.37	9.04	6.17	6.65	6.70	6.57	8.35	8.02
Stock market capitalisation[b]	2,102.0	104.1	321.0	63.5	23.5	260.5	41.9	2,097.6	8,607.4
Number of banks among the world's top 500[c]	105	4	5	7	7	14	12	18	63
Banking sector assets[d]	143.60	138.81	211.05	201.00	116.58	150.73	80.09	125.24	78.37

a Results of a survey among 4,160 executives in 47 countries, rating on a scale of 0 (worst) to 10 (best).
b In 1998, in billions of US dollars.
c In 1997.
d Percentage of GDP.

Source: IMD (1999).

On the supply side, there is a wide range of possible indicators of the relative performance of financial places. Among those access of foreign financial institutions to a market seems of crucial importance. Table 3 shows the respective results of a survey among the world’s leading executives conducted regularly by the International Institute for Management

Development (IMD) in Lausanne.[17] According to their general perception in Asia it is Hong Kong which is leading the ranks while for Japan the score reflects its notoriously strong formal and informal barriers to foreign influence.[18] Other important factors, in particular with regard to scale economies and lock-in effects, are market size, the share of leading banks in the world and the size of assets in the banking sector. While with respect to the former two Japan has clear advantages, for the last one, the results, with higher values for so different places as Hong Kong and Malaysia, are not clear and need further interpretation.

Table 4: Demand Factors in Asian Financial Markets in Comparison

	Japan	Singa-pore	Hong Kong	Malay-sia	Thai-land	Taiwan	Korea	UK	USA
Population[a]	125.5	3.9	6.7	22.2	61.2	21.8	46.4	59.2	270.5
Gross domestic savings[b]	31.10	51.80	30.60	43.80	34.90	24.70	34.20	14.60	16.50
Number of firms among the world's top 500[c]	70	4	11	2	-	8	1	51	222
Direct investment stocks inward[d]	33.16	78.06	26.87	45.20	23.10	19.85	14.83	274.37	720.79

a In 1998, estimates in millions.
b In 1997, gross domestic savings (residents and non-residents) as a percentage of GDP.
c In 1997.
d In 1997, in billions of US dollars.

Source: The Financial Times (1998), IMD (1999).

On the demand side, again, the overall impression of Japan is at least a mixed one (table 4). The country has by far the highest population among all competitors considered here. However, the figures do not take into account the huge hinterland China represents for Hong Kong and, on a smaller scale, Malaysia for Singapore. A clear advantage in an economy of this size is the high savings rate, although this is somewhat lower than in other countries.

[17] In a sense, the views behind the concept of the IMD is very similar to those followed in economic theories of evolution and spatial self-organisation. Here as well the picture of two counteracting forces is drawn: of *attractiveness* and *aggression* in response to the economic environment. Attractiveness refers to criteria describing a country’s willingness and ability to trade with, and invest in, foreign places. Aggression includes all factors representing a country’s international presence and activities in world markets. The institute admits that the distinction between the two is not clear-cut. There are criteria which signal both a country’s attractiveness and aggression.

[18] See for respective experiences even in times when the country economically highly depended on foreign presence Ogata (1996: 5) and Bailey, Harte and Sugden (1994: 7-45).

Another clear advantage is the number of Japanese firms among the world's top 500. A by far less favorable impression is gained by the volume of foreign direct investments into Japan. It is not only small compared to other Asian countries but in particular to other highly industrialised economies such as the United States and the United Kingdom.

Table 5: Asian Financial Markets' Environment[a]

	Japan	Singa-pore	Hong Kong	Malay-sia	Thai-land	Taiwan	Korea	UK	USA
Adequateness of legal regulation for financial stability[a]	4.38	8.36	7.14	6.25	4.09	5.89	4.39	6.35	7.53
Insider Trading[a]	6.08	7.88	5.86	4.94	3.74	4.02	4.28	6.34	6.59
Rights and responsibilities of share-holders[a]	3.53	8.00	7.54	6.21	4.81	6.38	2.86	7.27	7.58
New Information Technology[b]	5.87	9.02	6.91	7.46	5.23	7.36	4.39	6.62	7.93
Bureaucracy[c]	2.61	7.45	6.28	4.20	3.14	4.34	1.80	3.80	3.86
Adaption of the political system to economic challenges[a]	2.07	8.24	4.79	5.88	4.16	5.62	2.26	5.70	6.29
Openness of national culture to foreign influence[a]	5.75	8.06	8.24	6.59	7.33	8.49	4.13	6.88	7.58

a Results of a survey among 4,160 executives in 47 countries, rating on a scale of 0 (worst) to 10 (best).
b The implementation of new information technology meets/does not meet business requirements. Results of a survey among 4,160 executives in 47 countries, rating on a scale of 0 (worst) to 10 (best).
c Bureaucracy is hindering/not hindering business development. Results of a survey among 4,160 executives in 47 countries, rating on a scale of 0 (worst) to 10 (best).
d Results of a survey among 4,160 executives in 47 countries, rating on a scale of 0 (worst) to 10 (best).

Source: IMD (1999).

Table 5 summarises a whole range of "environmental" influences just to give an impression of the direction in which further research will have to proceed. Again, for Japan, the picture is not a positive one. This holds for factors directly related to economc activity such as shareholder culture, the question whether new information technology meets business needs or the role of bureaucracy as well as for more indirect influences like the aspect how the political system is adapting to economic challenges or how open national culture is to foreign influence.

At this point, it would lead too far to search for the reasons behind these various responses. With respect to the role of policy in enhancing a financial place’s international attractiveness one aspect seems of special interest: the adequateness of legal regulation for ensuring financial stability. As the results in table 4 indicate, in this respect, the Japanese system is perceived as particularly weak. This may change with the process of financial liberalisation and reform, Japan’s so-called Big Bang, which has begun in 1998. However, as many critics observe, the prospects so far do not look convincing. Many promising starts have been reversed, many plans delayed or postponed. One example is the Japanese stock market:

Since April 1999, physical trading on the Tokyo Stock Exchange has ended, fixed commissions are abolished, the exchange has begun merging with regional exchanges and, facing a threat of Nasdaq Japan, even started a new market for growth companies, called Mothers. But, the positive signals of these and other developments are overshadowed by two still unsolved problems. One is lax financial regulation. Although, officially, there is an independent financial-markets regulator, the Securities and Exchange Surveillance Commission (SESC), it is under strong influence of the ministry of finance which is said to explain why the phenomena survey respondents complain about like insider trading and stock manipulation are going on. A second obstacle is the prevailing system of cross-shareholdings which still accounts for about 42 per cent of the stock market (The Economist 2000). Both are incompatible with Tokyo's claim to play a stronger role internationally.

6. CONCLUSIONS

As stated in the beginning, this paper represents a very early stage of research. Future efforts must be directed at a more stringent classification and categorisation of those centripetal and centrifugal forces affecting the shifting financial landscape in Asia. Nevertheless, with respect to Tokyo's role in the region two general impressions are worth emphasising even from this first rudimentary analysis. On the one hand, apparently the place can benefit from scale economies resulting from the sheer size of its economy and markets, the strength of Japanese firms both at home and abroad and the role Japanese banks play in international financial markets. On the other hand, there are many disadvantages which, above all, affect market culture such as a still very limited openness to foreign influences on every scale or the slowness of the political system to adapt to changing circumstances. Just as the former present strong competition barriers to other places in the region the latter may easily result for Japan to end up in a kind of negative lock-in with its financial system staying in an eternal state of backwardness.

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