

## **Christian Kruse**

Institute of Territorial and Landscape Development  
Swiss Federal Institute of Technology (ETH) Zurich  
8093 Zurich – Switzerland  
Kruse@nsl.ethz.ch

### **When form follows function – Financial centers as starting points for researching the interrelationship between financial intermediaries and the management of firms.**

Paper presented at the 43<sup>rd</sup> ERSa-Conference 2003 in Jyväskylä

#### **Abstract:**

This paper will discuss these issues from a different perspective while concentrating on some systemic backgrounds of the financial system, which shape those complex interrelationships and put them into a dynamic process. First, the paper will introduce a functional approach to explaining institutional changes within the financial systems. Secondly, it will show some of the consequences and trends for financial centers with regard to their structure, functions, participants and activities. In closing, I will attempt to apply a framework for analyzing a financial center. This will open up starting points for future research into Innovation, Financial Industry and Space (IFIS)

### **Introduction - Financial innovation spiral or A wave of changes**

The financial industry has shown by far the highest growth rates in the world economy. It is an innovation system that is based on the internationalized knowledge-intensive system of financial intermediaries as well as being highly concentrated in several financial centers in the world.

In the past 10-15 years, international financial markets have faced an enormous wave of financial innovation that has built up over time into an out-of-proportion dynamic, finally collapsing in a manner both adverse and renewing to the current financial landscape. Hence, in spite of all the absurdities in capital market performance within the past two years and the partly unbelievable dimensions of capital loss of institutional and private investors, this has had consequences on the whole economy.

The transformation of the international financial landscape has also changed the role of its acting participants. The replacement of the traditional role of the banks and insurance companies with new financial institutions, and the tendency toward financial conglomerates, have turned the financial system into a consulting-intensive and information-dependent field. A system of financial intermediaries has evolved within financial places. Their job is to act as middleman centers around the concentration and transformation of interests between investors (lenders) and companies (borrowers) (see table 3). This has led to their role as indispensable participants in the economic process. Merton and Bodie (1995) argued, that “the evolution of the financial system can be viewed as an innovation spiral, in which organized markets and intermediaries compete with each other in a static sense and complement each other in a dynamic sense.” (1995, 20)

The theory of financial intermediation is justifying the existence of financial intermediaries in the context of information economies as information brokers (Diamond 1984, Hartmann-Wendels 1998). Financial intermediaries execute four basic functions (Freixas and Rochet, 1998):

Four basic functions of financial intermediaries	
	▪ Liquidity and payment services
	▪ Asset transformation
	▪ Risk management
	▪ Monitoring and information processing

Table 1: Functions of financial intermediaries: Source: Freixas and Rochet 1998

These functions are transferred into financial activities with certain financial products and services offered to lenders and borrowers. The interrelationship between the financial intermediaries, investors and the management of firms is determined by the structure of the value chains which put financial products into practice. “As in other innovating industries, competition to create new products and services, and to find new ways to produce established ones at lower costs could make the research and development activity the lifeblood of the financial service firm. Along this hypothetical path, the need to distribute a higher volume and more diverse set of products promises continued relative growth of the firm’s sales activity” (Merton and Bodie 1995, 26).

### Financial intermediaries as information brokers Theory of financial intermediation



Illus. 1: Financial Intermediaries as information brokers; Source: Own illustration according to Diamond 1984; Hartmann-Wendels 1998

The implementation of the finance function of financial institutions and the continuous strain to come up with innovative financial products will expand the coverage of the increased capital needs of firms but under the condition of complex risk management. This will turn the relationship between the financial intermediaries and the management of firms into a new structure of dependencies.

Hartmann-Wendels (2000) indicated the consequences in corporate financing through latest developments within financial markets and its institutions. According to his argumentation, a whole set of functional settings (such as Basle II, new financial institutions) that changed within the last years has put the relationship between financial intermediaries and firms into new dimensions.

Since the 1990's, a multiplicity of young technology firms has tried to enter the new markets. Some MNE's have merged or established new competitive firms through spin-offs. SME's have often found themselves in the middle of a consolidation process, developing, under strong pressure of competition, new ways of legal forms and management structures such as management buy-outs. Capitalization, raising of capital, and managing and hedging risks, have all become strategic factors of success in participating in the global innovation competition. This

links the system of financial intermediaries with the production and innovation system. Firms are raising capital from the financial markets to finance their innovation and production processes through credits, bonds, stocks, venture capital, private equity and other financial products (derivatives). A successful transaction is dependent on a knowledge-intensive, technology-based and worldwide operating system of financial intermediaries. Through ratings, risk analysis, monitoring, information processing, pricing and further tools, financial intermediaries take on the role of middleman centers. “Intermediaries help markets to grow by creating products that form the basis of new markets. In turn, markets help intermediaries to innovate new more customized products by lowering costs of producing them” Merton and Bodie 1995, 26). The financial innovation spiral builds up complex structures within which financial markets evolve.

The fatal crash of the international financial markets and the bankruptcy of hundreds of national and worldwide operating firms have left a strong mark on the international financial landscape map as it stands today. New concepts of corporate governance with demand for stronger transparency, information policy and risk control, have to be developed in order to maintain any sense of future relationship between investors, financial intermediaries and the firm's management. What will be the consequences that follow?

### **Institutional form follows function or a conceptual framework for analyzing the financial environment**

Merton and Bodie (1995) developed a conceptual framework for analyzing the financial environment in order to explain the evolution and innovation processes in the global financial system. Considering financial systems as being evolved through an innovation spiral, the authors plead for the use of a functional instead of the often-used institutional perspective in explaining the complex processes that lay behind it. In analyzing central developments within the financial system as well as looking at aspects of the impact of a single financial product, a functional approach can provide a deeper understanding of interrelated factors. Due to Merton and Bodie, a functional approach rests on two basic premises (1995, 4):

	<ul style="list-style-type: none"> <li>▪ <b>Financial functions are more stable than financial institutions – that is, functions change less over time and vary less across borders.</b></li> </ul>
	<ul style="list-style-type: none"> <li>▪ <b>Institutional form follows function – that is, innovation and competition among institutions ultimately result in greater efficiency in the performance of financial system functions.</b></li> </ul>

Table 2: Two basic premises of a functional approach: Source Merton and Bodie (1995)

When considering resource allocation as the primary function of financial systems, Merton and Bodie (1995, 12ff) propose six basic functions performed by the financial system as being the starting points for analysis.

<b>Function</b>	<b>Description</b>
<b>1. Clearing and Settling Payments</b>	A financial system provides ways of clearing and settling to facilitate the exchange of goods, services and assets
<b>2. Pooling resources and subdividing shares</b>	A financial system provides mechanism for the pooling of funds to undertake large-scale indivisible enterprise or for the subdividing of shares in enterprises to facilitate diversification
<b>3. Transferring resources across time and space</b>	A financial system provides ways to transfer economic resources through time, across geographic regions, and among industries
<b>4. Managing risk</b>	A financial system provides ways to manage uncertainty and control risk
<b>5. Providing information</b>	A financial system provides price information that helps coordinate decentralized decision-making in various sectors of the economy
<b>6. Dealing with incentive problems</b>	A financial system provides ways to deal with incentive problems when one party to a financial transaction has information that another party does not, or when one party is an agent for another

Table 3: Six basic functions of financial systems; Source: own illustration according to Merton and Bodie (1995)

The functional perspective is applicable at several levels of analysis:

Four levels of analysis	Example
On the level of the system	national financial system, financial centers
On the level of an institution	banks, insurance companies, i.e., localized market participants and driving institutions of a financial center
On the level of a financial activity	corporate finance, asset management, i.e., core capability localized in a financial center (London, Zurich)
On the level of a financial product	bonds, funds, equity; also, in being an innovative product, developed and managed at specific financial centers

Table 4: For levels of analysis and its application; Source: Own illustration and concept according to Merton and Bodie (1995)

The author of this paper is proposing the application of this conceptual framework in order to step into a deeper understanding of interdependencies, changes and interrelationships between market participants. This reveals a starting point in which to enter into the core issue that characterizes the interrelationship between the financial system and the production (innovation) system gained through an understanding of the implementation of value chains used by financial institutions, which are based on their operational models, and determine the interaction between investors, financial intermediaries and capital borrowers.

### Financial centers and the shift of competency

Current processes in the location structure of financial centers provide an interesting approach for a starting point to research the interrelationship between finance and innovation systems. In the concept of Merton and Bodie (1995), neither space nor financial centers play an important role. Certainly from a functional perspective, the existence of national financial centers does not necessarily imply that the implementation of an interrelationship between the financial system and the regional innovation system has to be regarded as an expression of a direct connection between the national financial center and a geographically close regional innovation system. That would neglect the international interconnectivity of a world financial system. But in the functional perspective, financial centers should be regarded as important knots wherein the market participants execute transactions. Considering a spatial and organizational division of labor within the value chains of financial intermediaries distributed over several financial centers, one can observe the shift of financial activities from one center to another, making for a build-up of

concentrated key competencies in specific financial activities such as the investment banking concentrating today in London and New York. These shifts change the nature of knowledge resources, human capital and decision processes that structure the interrelationship between the financial and the production system – form follows function.

Grote et. al (2002) used a value chain approach in the case of implementation of information and communication technologies (ICT) in wholesale financial services. They analyzed the value chains of some financial products “with a focus on the implications for the financial center of Frankfurt” (Grote et. Al. 2002, 412). This approach seems to be promising in advancing the systemic structure and function of financial centers. In the past years, there have been several attempts to measure the competitive advantages of financial centers and to compare them to others. Due to a poor availability of comparable data and unclear geographical concepts, these attempts are often covering analysis from a national statistic basis, without advancing into the core activities of the financial center participants.

A study provided by Dietl et. al. (1999) regarding Frankfurt's position in the international competition of financial centers, argues - as do Merton and Bodie (1995) - that a functional approach in measuring better guarantees stability of the observed changes of financial centers in comparison to an observation of institutional changes. They assume the existence of indicators (see Table 1) covering financial center functions and describe on a major level the dynamics of competition which result from the institutional changes. In their competition analysis, they do not show relevant data but they transfer assumptions for the German financial market to the position of Frankfurt in the international field of competition.

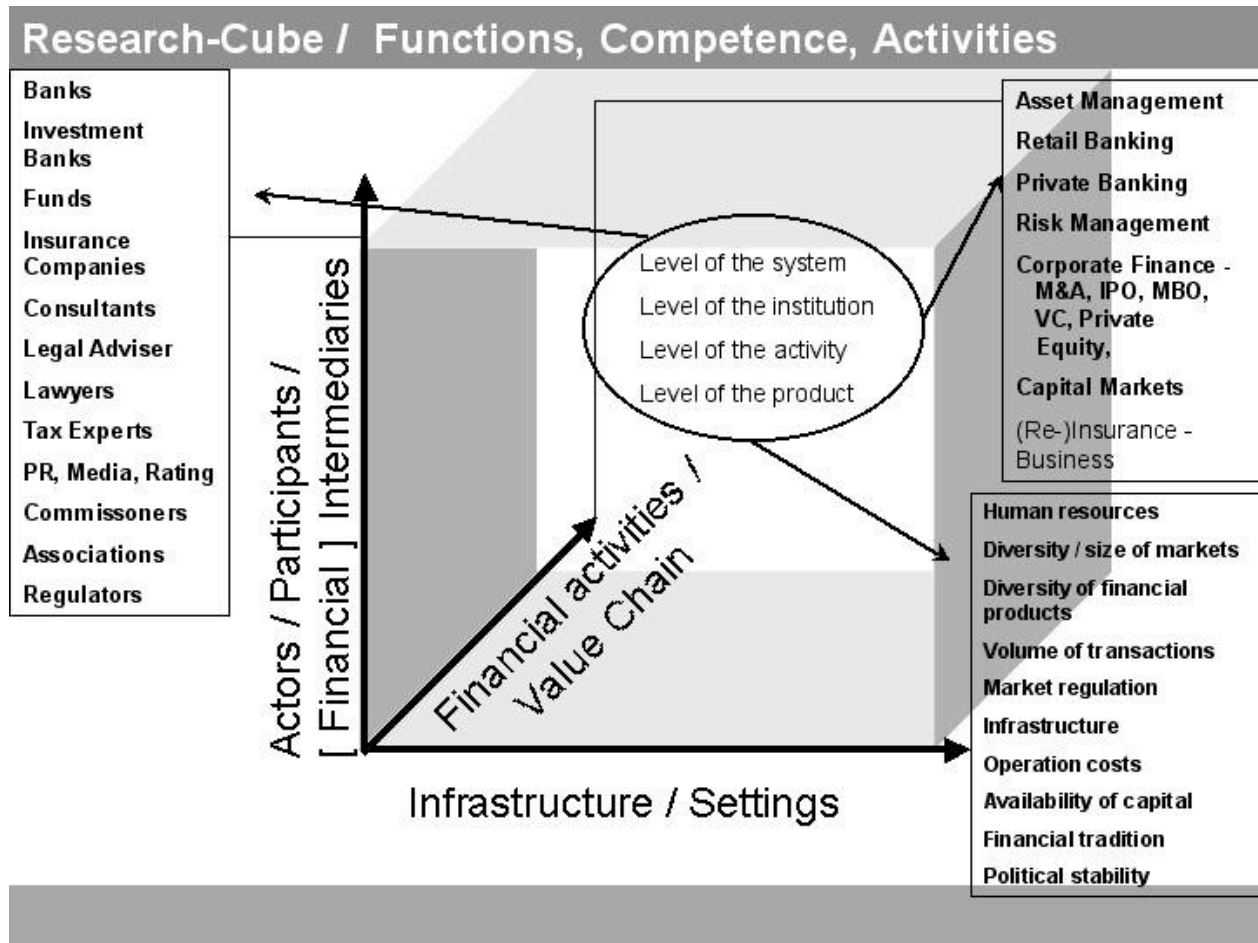
An earlier study from 1996 by Bindemann (1997) about the future of European financial centers took a different approach. Through empirical research in several financial centers, they developed a set of criteria that have been indicated by the respondents to be the most important ones when choosing a financial place (Bindemann, 1997, 28). The criteria have been roughly categorized into four categories: factors of production, man-made environment, regulatory framework and fiscal regulation.

Study by Dietl et. al. (1999) – Unweighted criteria of analysis	Study by Bindemann (1997) Weighted criteria by respondents of empirical study
<ul style="list-style-type: none"> <li>▪ Size of markets and liquidity</li> <li>▪ Human capital</li> <li>▪ Regulation</li> <li>▪ Stock exchange trading system</li> <li>▪ Stock exchange settlement system</li> <li>▪ Information and Communication Technology</li> <li>▪ Reputation</li> <li>▪ Legal form of stock listed companies</li> <li>▪ Listing requirements</li> <li>▪ Regulation of takeovers</li> <li>▪ Insiderregulation</li> <li>▪ Price manipulation restrictions</li> <li>▪ Economic stability</li> <li>▪ Currency</li> <li>▪ Life quality</li> <li>▪ Tax system</li> <li>▪ Pension system</li> </ul>	<ol style="list-style-type: none"> <li>1. Human resources</li> <li>2. Diversity / size of markets</li> <li>3. Diversity of financial products</li> <li>4. Presence of international banks</li> <li>5. Volume of transactions</li> <li>6. Market regulation</li> <li>7. Infrastructure</li> <li>8. Operation costs</li> <li>9. Availability of capital</li> <li>10. Financial tradition</li> <li>11. Political stability</li> <li>12. Banking sector</li> <li>13. Settlement of transactions</li> <li>14. Circulation of information</li> <li>15. Strength of currency</li> <li>16. Language</li> <li>17. Innovation</li> <li>18. Commissions</li> <li>19. Fiscal regulation</li> <li>20. Automatic continuous system for transactions</li> <li>21. Bank secrecy</li> <li>22. Economic growth of host country</li> <li>23. Independence of central bank</li> </ol>

Table 5: Criteria for competition analysis of financial centres

A further study from 1995 (The City Research Project, 1995) assessed “the competitive position of London’s financial services” using a different approach consisting of a mixture of environmental criteria (infrastructure, economic development, regulation) and the analysis of five financial activities: international banking, the Sterling money market, general insurance, marine services and fund management. It provides a deeper insight into several aspects of the activities at the financial center in London, trying to measure some of the core competencies in banking. This study shows that the basic functions of the financial system (as suggested by Merton and Bodie) are offered but with a different national or international specification. These specifications are illustrated through analyzing the organizational structure of the value chains in banking and finance.

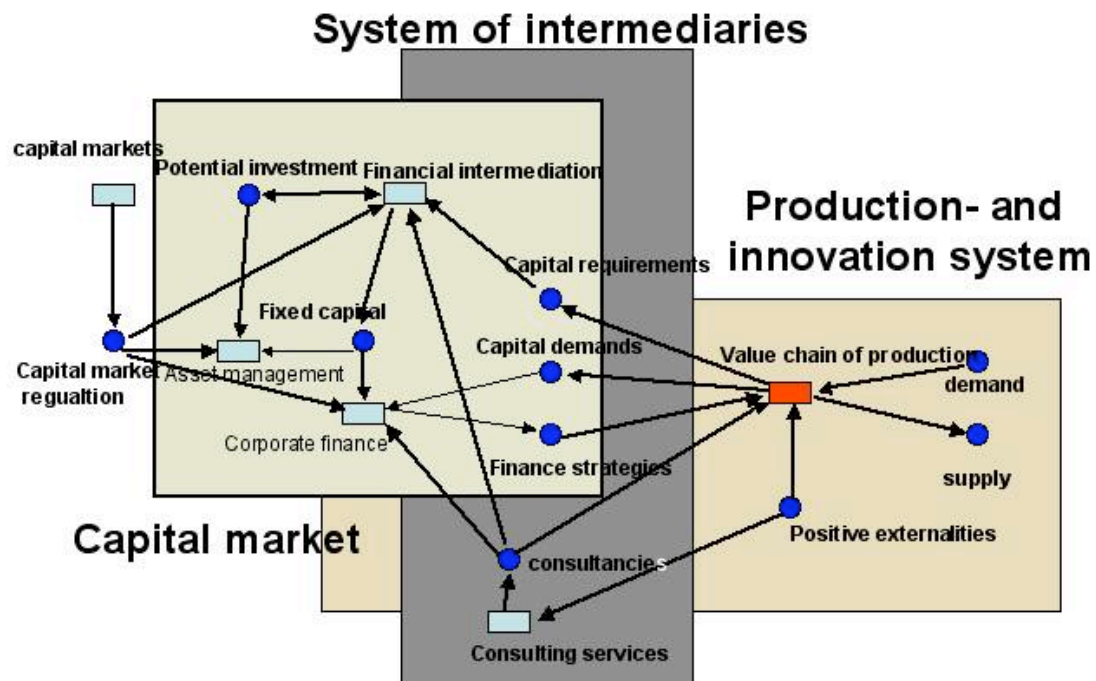




Illus. 2: The financial center research cube – Source: Own illustration together with Kish, firsttuesday.com

The illustration of a research cube (see Illus. 2), identifies different starting points of a financial center competition analysis with a strong focus on the organizational structure of value chains within the core businesses of the financial intermediaries. This is done according to the functional perspective as described above.

From the author's perspective, it is necessary to reflect both by first trying to view relevant changes through analyzing the more stable financial functions, and secondly, in focusing on the resulting institutional changes and its consequences on the structure of the value chains of certain financial activities. This can give us, on the one hand, a clearer insight into the actual state of and competencies in financial centers. And on the other hand, this also offers a starting point from which to approach the nature of the interaction between financial intermediaries and firms as shown in a process model in Illustration 3.



Illus. 3: Innovation, Financial Industry and its interrelationship: Source: IRL-Institute, ETH Zurich, Chair for Spatial Development

### Multiple value chain financial intermediation

The financial service industry is dispersed into business units structured along a strong, but not uniform, organization of value chains. From a financial institution perspective, each single financial activity has to be permanently evaluated as being profitable because as a group they

- provide different spreads to the financial institutions, which influence operational models of the institutions in the context of whether these activities are being looked at as core activities.
- tend to shift from intermediaries to markets once products have standardized terms, so that new innovative products have to be developed and offered to the market.
- achieve different degrees of internationalization (customers, investors, etc.).

- d) require shifts in the spatial division of labor according to the premise that form follows function.

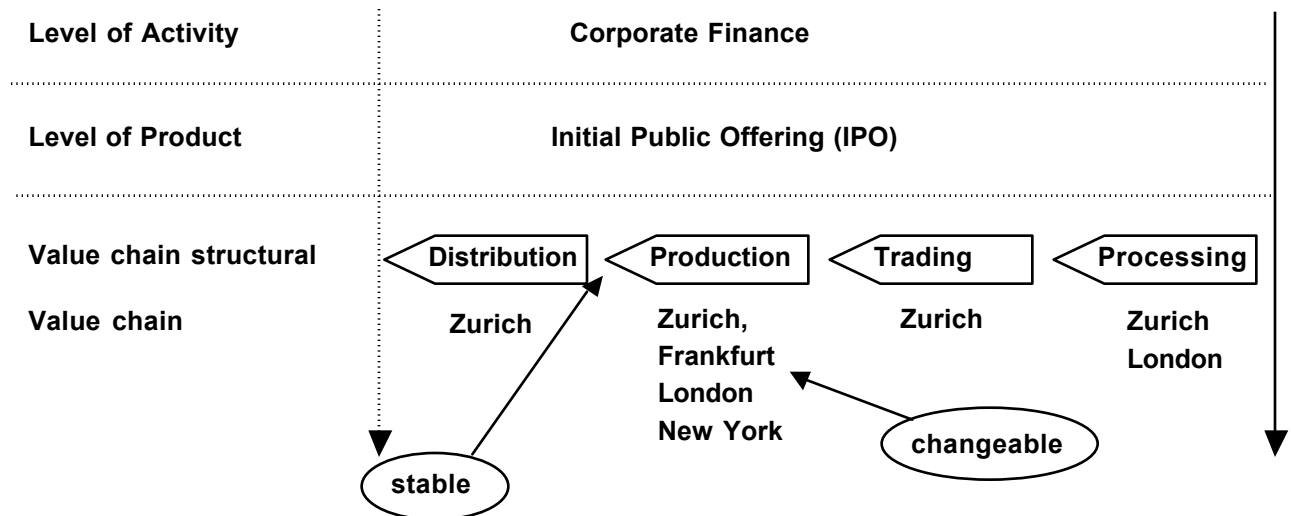
As indicated above, financial activities are based on financial innovations, products and tools, which require highly specialized human capital with individual knowledge, personal networks and personal embeddedness. Human capital is a very sensitive risk factor to the financial community – positive, because it reveals chances of innovation and success; negative, because it contains the loss of competitive advantages through the loss of employees. For example, there have been numerous shifts of complete analyst or m&a teams from one bank to another, showing that success in banking and finance is – among other things – highly personalized.

The financial center criteria listed in table 5, as well as the organization of value chains of financial intermediation, rely on a network of market participants and the partially involved group of lawyers, consultants, auditors, PR-agencies, rating agencies and media. If innovation and competition among institutions ultimately result in greater efficiency in the performance of financial system functions (see table 1), most business units of financial institutions undergo a permanent change and restructuring process of strategies, goals, division of labor, costs, risk, efficiency - a whole set of aspects that redefine the organization of value chains of e.g. asset management or corporate finance.

### **Organizational aspects of value chains in banking and finance**

This final part of the article tries to give an example of how the shift of competencies from one financial center to another as a result of new institutional forms of value chain organization, follows functional changes. Illustration 4 is an example of the nature of financial activities and the pertaining value chain. At the bottom of each step of the value chains, there are different market participants involved, each appearing as part of a complex knowledge system.

From the perspective of the financial center in Zurich, and regarding just the aspect of knowledge shifting in corporate finance, especially in the case of Initial Public Offerings (IPO), there are two observed tendencies:



Illus. 4: Financial activity, financial product and value chain: Source: Own illustration

1. Value chains are organized on a network of local intermediaries that covers standardized, nationally focused, financial products for Swiss based SME's.
2. As soon as a financial business requires a minimum of international orientation, the world's largest financial institutions - as drivers of new organizational structures –execute value chains through temporary international working teams to leverage knowledge by adding components of competencies which are at their disposal due to their overall presence in the global financial centers. To be more precise, in the case of IPO (Initial Public Offerings), they build up teams of diverse specialists that work together for a limited time of the emission process. There is the local team of the lead bank responsible for processing and organizing the transaction. There are industrial specialist teams located in London or New York focusing on the evaluation of the IPO-company. And then there are analysts also located in the world financial centers of London and New York with a close proximity to international investors and rating institutions and a deep understanding of their demands. Related consultancy businesses such as international law or auditing are following these structures through their own offices in most of the international financial centers. Today, IPO's and Merger&Acquisitions are, without an exception, internationally oriented businesses.

The consequences are a constant flow of exchange of knowledge within the financial centres and the concentration of expertise, competence and human capital in just a few of them, from where

central processes are directed towards a global value chain organisation of the worlds largest financial institutions – driving forces of the financial innovation spiral, as Merton and Bodie (1995) describe it.

Besides the impact of these organizational structures on the human capital, its education and global availability, these developments lead to new operating models (business models) of financial institutions in executing transactions of financial services and products and customer relationship.

### **References:**

Bindemann, K. (1997): The future of European financial centres. Routeledge international study in money and banking, London, p. 152.

Crane, D., Froot, K.A., Mason, S.P., Perold, A.F., Merton, R.C., Bodie, Z., Sirri, E.R. and P. Tufano (1995): The global financial system. A functional approach. Global financial system project of Harvard Business School. Harvard Business School Press, Boston, p. 290.

Diamond, D. W. (1984): Financial Intermediation and Delegated Monitoring. In: Review of Economic Studies, 51 (July), pp. 393 – 414, Published by The Review of Economic Studies Ltd., Oxford.

Dietl, H., Pauli, M. and S. Royer (1999): Frankfurts Position im internationalen Finanzplatzwettbewerb. Eine ressourcenorientierte Analyse. CFS Working Paper No. 1999/10, Frankfurt, p. 11.

Freixas, X. and Rochet, J-C. (1998): Microeconomics of banking. MIT Press, Cambridge, p. 312.

Grote, M., Lo, V. and S. Harrschar-Ehrnborg, (2002): A value chain approach to financial centres – the case of Frankfurt. In: Tijdschrift voor Economische en Sociale Geografie – 2002, Vol. 93, No. 4, pp. 412 – 423. Published by Blackwell Publisher, Oxford.

Hartmann-Wendels, T., Pfingsten, A. and M. Weber (1998): Bankenbetriebslehre. Springer Verlag, Berlin, p. 814.

Hartmann-Wendels, T. (2000): Finanzmärkte im Umbruch – Konsequenzen für die Unternehmensfinanzierung. In: Kredit und Kapital, Beiheft 15, 2000, p. 253-272. Published by Duncker and Humbold, Berlin.

Merton, R.C. and Bodie, Z. (1995): A conceptual framework for analysing the financial environment. In: Crane, D., Froot, K.A., Mason, S.P., Perold, A.F., Merton, R.C., Bodie, Z., Sirri, E.R. and P. Tufano (1995): The global financial system. A functional perspective, pp. 3 – 31, Harvard Business School Press, Boston.

The City Research Project (1995): The competitive position of Londons`s financial services. Final report. London Business School Press, London, p. 278.