The Swiss Financial Center as a Value Added System 2007

Monitoring Report

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Swiss Financial Center Watch

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Monitoring Report

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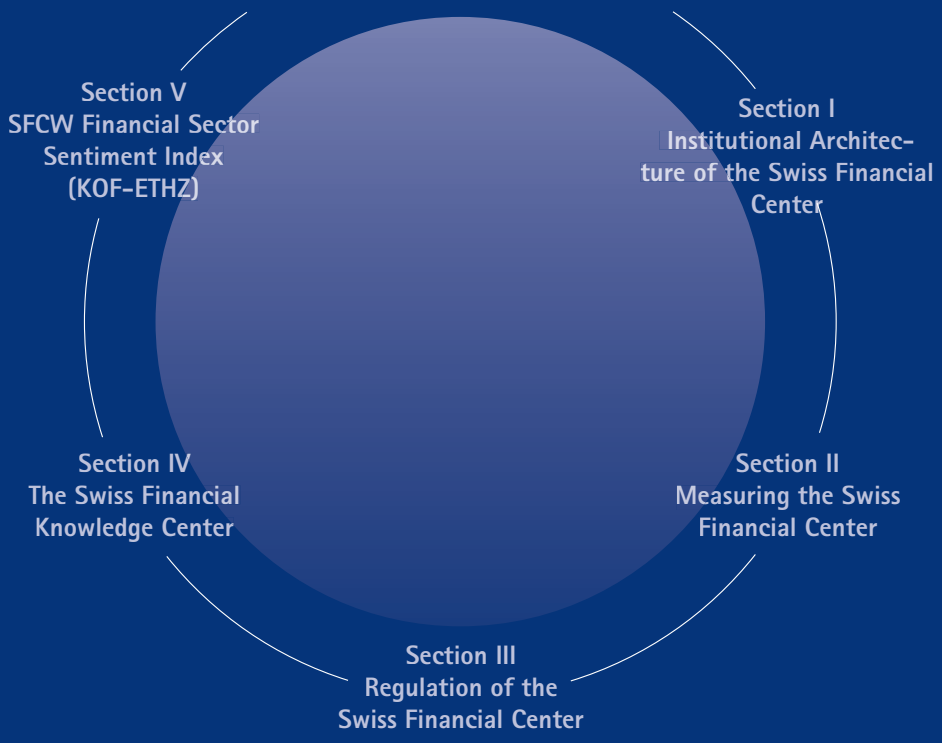


Preface – Introducing the Swiss Financial Center

The Swiss financial center is an innovative value added system, which is rooted in different territorial structured centers, and where the institutional arrangements of the financial system are located.

1. Definition of a Financial Center

Research on financial centers does not exist per se. The reason is that no scientific discipline solely deals with «financial centers». There have been seveal works of different disciplines in the last years regarding the emergence, the development and the analysis of particular aspects of financial centers. But, compared to the importance of financial centers, research is still marginal. In these studies there are only limited attempts to come up with a definition, of what a financial center is. Porteous has provided the most differentiated definitions:

«(...) a financial centre is an area, usually a city, although often more localized within city boundaries in which high-level financial functions are concentrated.» Porteous (1995, 93)

Swiss Financial Center Watch is using the following definition, from which also the research approach has been deduced:

«The Swiss financial center is an innovative value added system, which is rooted in different territorial structured centers, and where the institutional arrangements of the financial system are located. Geneva, Lugano and Zurich as internationally structured financial centers are embedded within a polycentric network of other national locations of knowledge intensive financial and financial related services, which develop the architecture of the Swiss Financial Center. The financial center depends on the quality of knowledge and human capital, the technological infrastructure and the networks between the different financial institutions.»

2. The Financial Center in the Swiss Economy

The financial sector represents one of the main pillars of the Swiss economy. As Table 1 shows, all institutions, contributing to the Swiss financial center have a share of 11 percent of the total employment in Switzerland and a growth rate of 20 percent (1995 – 2001). In comparison, the high-tech and life science industry has a share of 5.5 percent of total employment with a growth rate of 13 percent.

Table 2 illustrates, that the Swiss banking and insurance sectors have contributed around 12.9 percent to the Swiss Gross Domestic Product (GDP) in 2003. Compared to other financial centers, Switzerland crucially relies upon its resident banks.

Since the financial sector does not only consist of banks and insurances, but of a large number of other specialized financial service providers, it can be estimated that the whole financial sector (including all financial institutions) is one of the most important sectors of the Swiss economy.

The financial center is rooted in a market participants network, which, depending on the business segment (financial activity), is regionally, nationally or internationally interlinked. Figure 1 shows the structure of the market participant system.

Table 1: Development of employment at the Swiss financial center

	Total Employment (in 1000)		Share of Total Employment (in %)		Growth (in %)
Year	**1995**	**2005**	**1995**	**2005**	**1995–2005**
Swiss Economy	3.051	3.053	100	100	0.1
Financial Services	207	214	6.8	7.0	6.0
KIBS	90	115	2.9	3.8	27.8
High-Tech and Life Sciences	152	168	5.0	5.5	10.5

Table 2: Value added of Swiss banks and insurances (billions, CHF)

Year	1997	1998	1999	2000	2001	2002	2003
Banking Sector	34.9	36.9	43.4	50.4	42.5	42.1	39.4
Insurance Sector	14.6	18.5	17.6	21.4	14.1	7.8	16.5
Total	49.6	55.5	61.1	71.9	56.6	50.0	55.9
Gross value added to the GDP	13.04%	14.23%	15.37%	17.32%	13.41%	11.62%	12.90%

Table 1 *SFCW Research, Swiss Federal Statistical Office*
Table 2 *SFCW Research, Swiss Federal Statistical Office*

The inner fields are the core financial center participants, i.e. those institutions selling and trading financial products (banks, insurances and other financial service providers).

The outer lying fields are made up of the participants and institutions:

- which provide financial related services such as consulting or accounting as they are defined as Knowledge Intensive Business Services (KIBS),
- which offer clearing and settlement as well as trading platforms (Swiss Value Chain),
- which are responsible for education, training and research,
- which are responsible for regulation, control and governmental support.

The interactions among these participants form the body of the Swiss financial center.

Figure 1: Market participants at the Swiss Financial Center

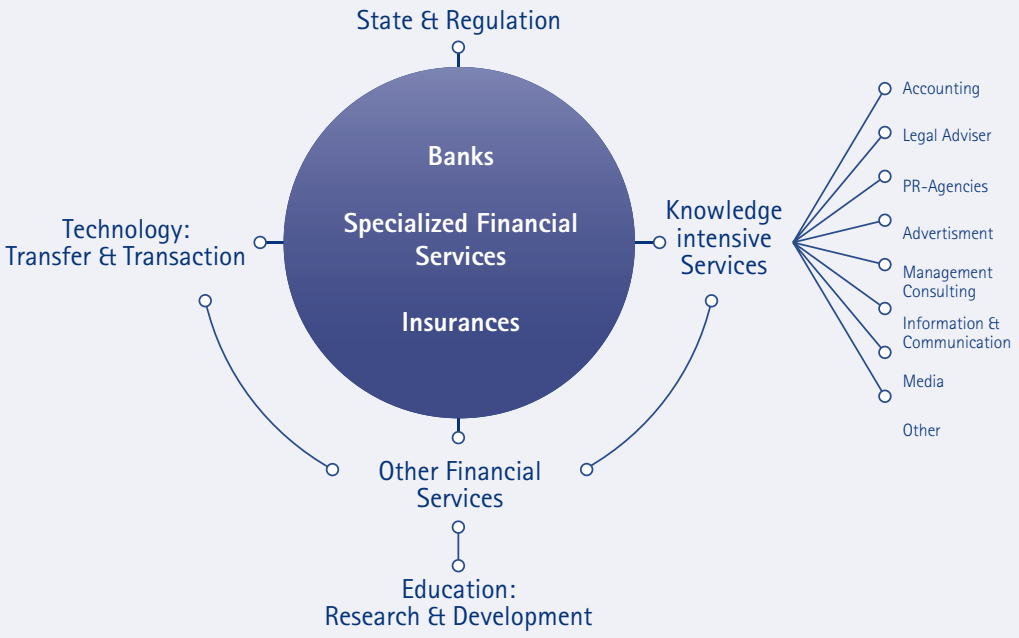


Figure 1 *Based on Kruse (2005)*

3. Concentration Process of International Financial Centers

Through the application of information and communications technologies, the financial services business has become increasingly international, consequently leading to a change in the spatial allocation of the international distribution of tasks. At a global level, a process of concentration in the financial sector core activities around a small number of international financial places can be noted.

Primarily, New York's and London's financial places were able to strengthen their leading positions. These changes on a level of financial institutions have also lead to a stronger international competition on the level of financial centers. However, it became clear quickly, that the future competitive position depends on their ability to identify strengths and competitive advantages in order to maintain core competencies and remain leading houses of the international financial community.

Table 3: Characteristics of Developmental Processes in the Financial Service Sector

Characteristics	Description
Segmentation of value chain	The value chain in the financial service industry is under a constant segmentation process. Outsourcing of specific parts of the value chain to highly specialized niche players and new market entrants is a major characteristic.
High international divison of labour	Financial market transactions, product development, innovations, etc., arise out of the networks of specialized institutions and participants in the international financial place.
High speed of developing innovations	Competitive conditions among international financial service providers call for high innovation activity in financial products and services.
Quick implementation of innovations in financial places	Due to the intensive application of information and communication technology, innovations rapidly take hold on a global scale.
High frequency of institutional changes	Institutional start-ups, spin-offs from legal independent subsidiaries, and mergers, as well as rapid relocations of financial service departments, all permanently change the architecture of the financial market.
The necessity for specialized human capital	The availability of specialized human capital, as well as the role of education and research, are significant competitive factors for the locations of financial services providers.
Spatial concentration tendencies of specialized financial services	Financial service institutions tend to concentrate themselves in increased numbers around a small number of international financial places, in turn leading to centers for specialized human capital and knowledge as well as for technical infrastructure.

Structure of the Report

Swiss Financial Center Watch represents a unique approach for studying the development of the Swiss financial center. While many of the recent surveys focused either on specific statistical measures or on qualitative questionnaires about competition as well as about strengths and weaknesses of those financial centers, SFCW followed a more holistic concept. The research project has been structured in line with five thematic landscapes, which cover different perspectives on the development of the Swiss financial center. Therefore, the structure of this report represents those thematic landscapes and tries to put the different bits and pieces together.

Section I – Institutional Architecture of the Swiss Financial Center

Based on the NOGA-statistics of the Federal Statistical Office this thematic landscape examines the development and structural change of the market participant model over the last 20 years in order to identify functional, institutional and regional economic and geographical impact on the financial center. Core data are employment statistics, branch office development, import and export of services as well as foreign direct investments. Within this section, we furthermore discuss the evolution of different specialized financial service providers such as Independent Asset Managers (IAM), Hedge Funds, Venture Capitalists as well as Private Equity firms. In addition, the structure of foreign banks in Switzerland is monitored.

Section II – Measuring the Swiss Financial Center

This section concentrates on the analysis of quantitative parameters, which describe the historic development of the financial center. The focus is a value added index that describes the creation and distribution of the value added within an international and national comparison. Through statistical methods, the influencing factors of the development of the value added have been acquired in order to understand the key drivers for the economic development of the cluster.

Section III – Regulation of the Swiss Financial Center

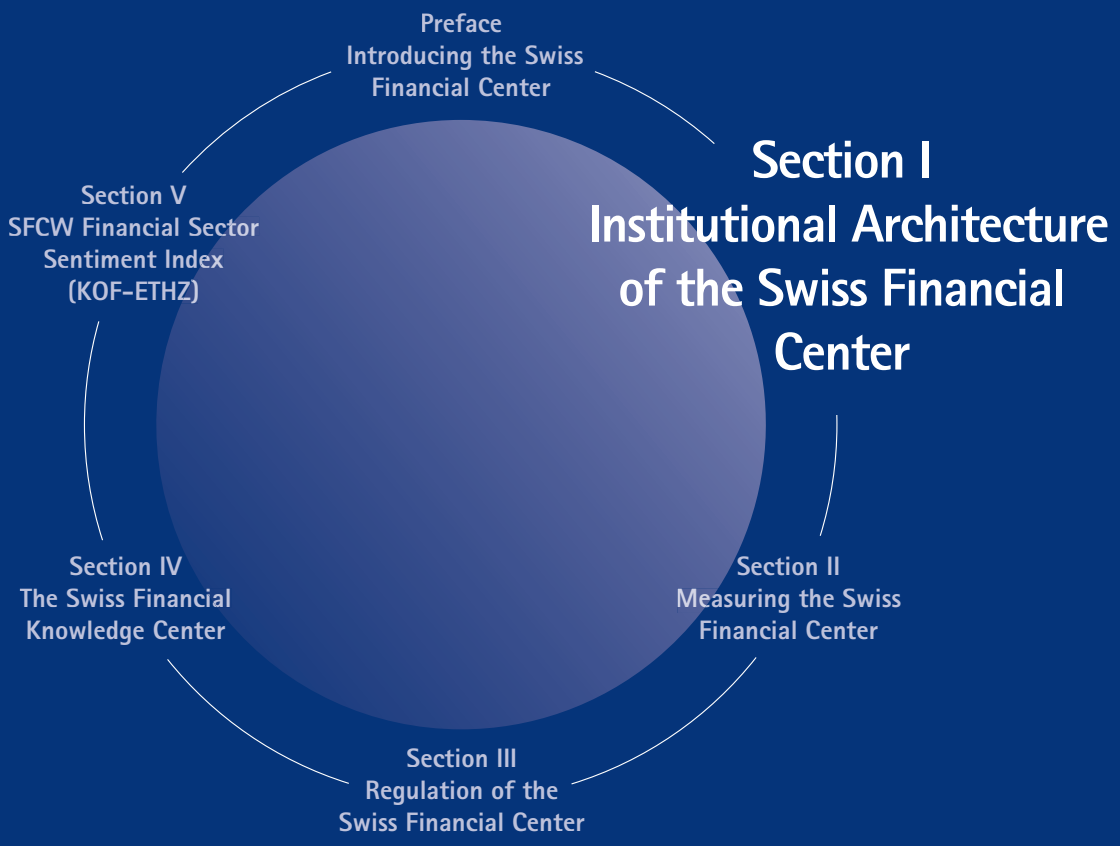
In this section the evaluation assesses the impact of policy, financial markets and bank oriented regulation on the financial center.

Section IV – The Swiss Financial Knowledge Center

The availability, production and distribution of knowledge is crucial to the success of an internationally competitive financial center. In order to position Switzerland in a leading role for advanced and sophisticated financial service competence, Swiss Financial Center Watch aims to concentrate on the important drivers as well as influencing processes that determine the quality of knowledge. There are three major research subjects within this thematic landscape: Education (secondary and tertiary), competencies of human recourses and innovation.

Section V – SFCW Financial Sector Sentiment Index (KOF–ETHZ)

Based on a quarterly conducted survey this section concentrates on the development of a sentiment index in combination with a reference series of the value added index.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Section I – Institutional Architecture of the Swiss Financial Center

Within the period of 1995 – 2005 the Swiss financial center has undergone a major and significant change. Switzerland, globally renowned for its traditional banking sector, shifted from a banking center towards a financial services center with a strong focus on private banking / wealth management as well as asset management.

Key words	Key methods	Key data
structural change employment workplaces banks insurances specialized financial services (SFS) knowledge intensive business services (KIBS) tertiary education knowledge economy Security Dealers independent asset managers Alternative Asset providers Swiss Value Chain foreign banks	Time series analysis of employment and workplace data as well as regression analysis to reveal the dynamics of different sectors Questionnaires Interviews Data analysis Descriptive statistics	NOGA-statistics (General Classification of Economic Activities) of the Swiss Federal Statistic Office for the period between 1995 and 2005 ISB-Questionnaire on Independent Asset Managers ISB-Questionnaire on Alternative Asset Providers Interviews SWX Swiss Exchange Association of Foreign Banks in Switzerland

Section Abstract

The monitoring of the functional and spatial development of the institutions of the Swiss financial center is an important element, which helps identifying structural changes.

The financial industry is under constant change. Technology continues to drive changes. A restructuring of value chains leads to the market entrance of new institutions from non- or near-banking areas such as boutiques, hedge funds, venture capital but also the financial arms of large productions companies as well as specialized information-technology corporations.

One of the basic problems for the analysis of financial centers is the difficulty to identify dynamic changes and to define the functions and roles of the institutions. Our perception of the Swiss financial center is much focused on banks and insurances. But this is not telling the whole story. Yet, there is not much academic and systematic knowledge about economic indicators on operations of specialized financial services (SFS) like Alternative Asset providers (e.g. hedge funds, venture capital, pivate equity etc), independent asset managers, Security Dealers or the Swiss Value Chain. The same stands true for the role of knowledge intensive business services (KIBS). In a world of increasing complexity of business processes the demand for knowledge-intensive expertise is huge. A successful financial center is reliant on specialized services.

Therefore this section focuses on two specific aspects. The first part (chapter 1) of this section discusses the structural change at the Swiss financial center and analyses the cornerstones of a strong shift from banking to financial services. Within the second part of this section, chapters 2 – 7 concentrate on the analysis of specific market participants, such as independent asset managers, Security Dealers, Alternative Asset providers, the Swiss Value Chain and foreign banks in Switzerland. Through this, this section wants to introduce the role and impact of these important non-bank financial center participants.

Key Conclusions

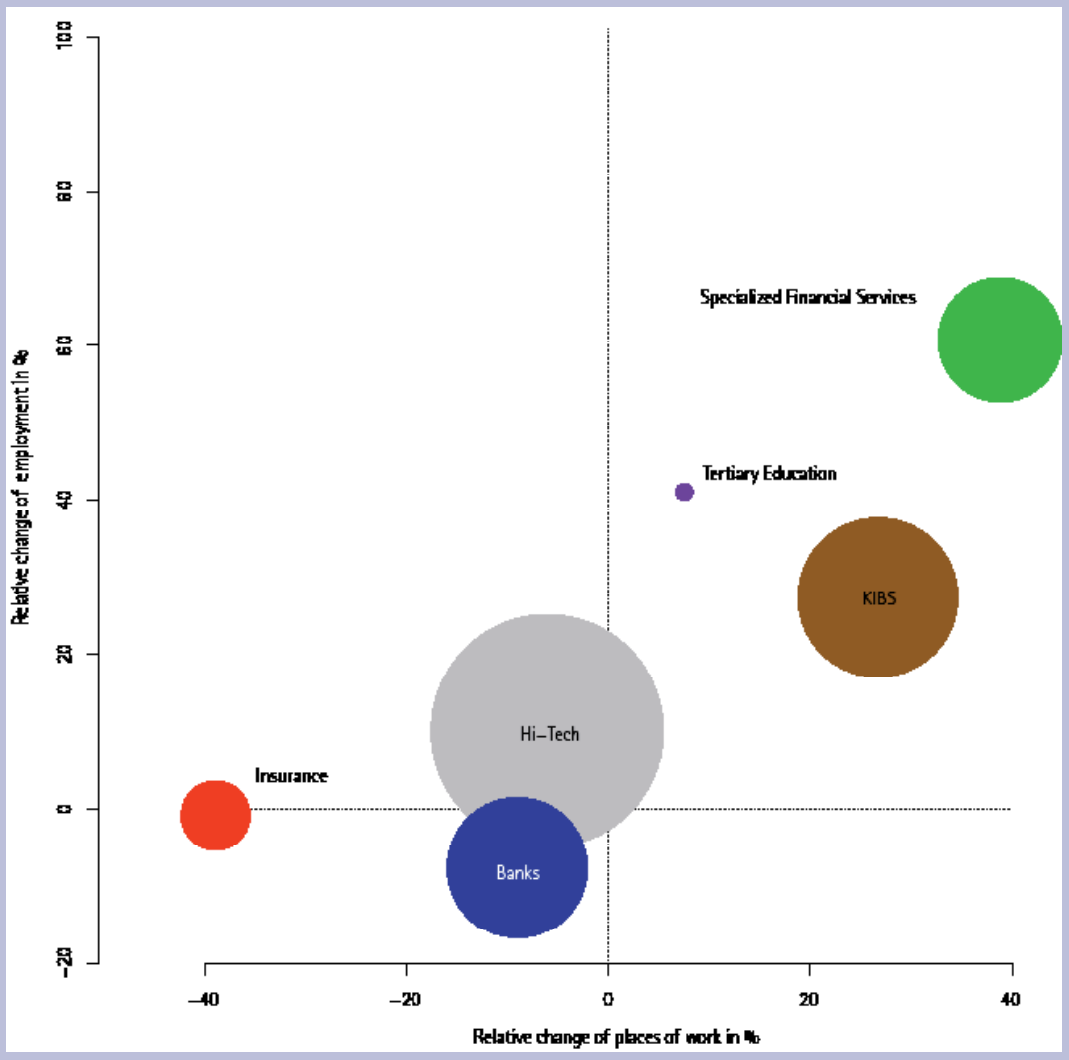
The Swiss financial center has created massive new jobs in the period between 1995 and 2005. The decrease in the number of employees in the banking sector is a consequence of the change within the international financial service sector. The financial activities have been restructured while many processes have been outsourced to the specialized financial services. The decrease in employment within the banking sector has been over-compensated by the increase of employees of the specialized financial services. In total, the Swiss financial center has met a tremendous growth of employment within the period of 1995 - 2005.

The structural change has shown two faces: While both the banking and insurance sector stagnate in terms of employment and places of work, the specialized financial services and knowledge intensive business services as well as the tertiary education sector grew strongly from 1995 to 2005. It is an indication of the increasing relevance of the knowledge economy.

The structural changes do not take place everywhere. There is a clear tendency towards a clustering within the core cities as well as in locations within the agglomeration.

Therefore these structural changes can be identified by looking at different non-bank market participants.

Figure 2: Relative change of locations (places of work) and employment per sector (1995 – 2005)



1. Structural Change and Institutional Architecture of the Swiss Financial Center

This chapter aims to document the development in Switzerland's financial services using data from the Swiss Federal Statistical Office NOGA-statistics. The figures are evaluated for the time period between 1995 and 2005.

The first part of the analysis refers to the general employment development as well as to the places of work within the four defined sectors, as they are described later in this chapter (→ Table 1).

The second part concentrates on sectoral patterns of structural changes. Subsequently, the developments of financial service areas are examined using regression analysis and location quotient ratios.

By analyzing changes in this figures in municipalities and agglomerations and by applying the location quotient as a means of measurement, in the third part the spatial implications are presented. We provide a cartographical visualization and statistical picture of the spatial impact.

Four general results of the analysis:

1. Structural change: (a) Concentration within the banking and insurance sector, (b) diffusion and segmentation in terms of specialized financial services and knowledge intensive business services sector.
2. Strong growth of SFS and KIBS: While banks and insurances stagnate in terms of employment and places of work, the other sectors grow strongly.
3. Job cut in banking and insurance sector compensated a multiple by specialized financial services. Employment growth at the Swiss finan-cial center through new market entrants: It is true that the traditional banking sector has cut jobs at. -7.64 percent which is about 8,367 employees in total within ten years (1995 – 2005), which is a huge number. But on the other hand, these job decreases have been compensated by the oversized growth within the specialized financial services sector. In the same period, this sector increased by 51 percent or 21,401 employees in total. The growth of the specialized financial service (SFS) and knowledge intensive business services (KIBS) sector is among other aspects due to new entrants into the market.
4. Clustering within Core Cities: The structural changes do not take place everywhere. There is a clear tendency towards a clustering within the core cities as well as in locations within agglomerations.

1.1. Definition and Methodology

The available data make it difficult to follow the spatial behavior of these participants as well as the services they provide over time. For this reason, the establishment census presently provides the most useable data in Switzerland. Financial services are classified into various NOGA classes.

The official NOGA-statistics of the Swiss Federal Statistical Office serve as reference data. They contain employment data as well as data on the work places and locations. The data are being collected within certain intervals and exist for the years 1985, 1991, 1995, 1998, 2001 and 2005. It is necessary to consider adjustments and delays, which occurred within and between the individual NOGA units as a result of institutional changes in the past years. For this reason, the data in NOGA 65 (banking system) and NOGA 67.1 (activities affiliated with the banking system) as well as NOGA 66 (insurance industry) and NOGA 67.2 (activities affiliated with the insurance industry) and finally NOGA 74 (services) should be interpreted carefully.

The following analysis presents the development for the years 1995 to 2005. The data were used in the following ways:

- Composition of database on the NOGA 5 level.
- Aggregation of the data to six new sectors (banks, insurances, specialized financial services, knowledge intensive business services, tertiary education and hi-tech).
- Data adjustment and data conversion into full time equivalence.
- Data adjustment on territorial entities (cities, agglomerations, cantons).
- Time series analysis of employment data.
- Time series analysis of work place data.
- Regression analysis to reveal the dynamics of the different sectors.
- Calculation of the location quotient of the four sectors on municipality level.

In this analysis the Swiss financial center is structured into four sectors, which represent, from our perspective, the best observable clusters of the different subbranches. The following NOGA classification data noted in the list below were provided for this article's analysis:

1. Banks
2. Specialized financial services (SFS), such as hedge funds, venture capitalist, private equity, SWX swiss exchange, brokers, traders, independent asset managers (IAM), and others.
3. Insurances
4. Knowledge intensive business services (KIBS), such as lawyers, consulting agencies, accounters, public relation and others.

As reference groups for the knowledge economy we consider in addition to the above mentioned four groups, the tertiary education and the hi-tech sector.

1.2. Switzerland: The Shift from a Banking to a Financial Services Center

Table 4 lists places of work and employment development data at the level of Switzerland for the four sectors.

Within the period of 1995 – 2005 the Swiss financial center has undergone a major and significant change. Switzerland, globally renowned for its traditional banking sector, shifted from a banking center towards a financial services center with a strong focus on private banking / wealth management as well as asset management. This seemingly slight semantic difference is of strong importance for Switzerland's most prominent economic sector. The structure of Table 4 visualizes the division of the major categories of the Swiss financial center market participants into four consolidated groups:

1. the traditional banking sector,
2. the insurance industry,
3. the relatively new phenomenon of specialized financial services (SFS),
4. the knowledge intensive business services (KIBS) as a fourth group.

The data reveal two different types of structural change.

First type of structural change: Concentration and employment decrease in the traditional sectors of banking and insurance:

Banks and insurances show clear signals of a concentration process in terms of locations and a decrease in terms of employment. Both sectors relocated places of work. Insurances decreased their number of places of work by 39 percent. Little less but still significant is the decrease of places of work within the banking sector (-9%), which derives notably from relocation strategies in Retail Banking. Employment in banks remained stable (-0.3%) from 1995 to 2001, before the period between 2001 and 2005 the employment decreased by 7 percent. This is on the one hand due to the consolidation process in banking after the burst of the dot.com bubble and the stock market crash in 2001. This market development is comprehensible through the data, which document the impact of the burst on employment after 2001. On the other hand, the Swiss banking sector is following a global trend within financial services, which leads to a transformation and splitting up of the value chain, the outsourcing process of the banking industry and the integration of newly arising specialized financial services (SFS) into the product and process development. Therefore within the banking sector, a constant and intensive decrease of employment notably within the major banks has been compensated by the sector of specialized financial services (SFS).

Second type of structural change: Dynamic growth and diffusion and segmentation in the specialized financial services sector:

The sector of specialized financial services experienced the opposite development: dynamic growth in terms of employment and number of new firms and a diffusion and segmentation process in terms of location strategies. With a growth rate of 41 percent in places of work and 51 percent in employment, the sector specialized financial services performed by relative numbers by far the strongest growth. While this sector was in 1995 only around 44 percent (in terms of absolute employment) compared to the banking sector, in 2005 it reduced this distance to 63 percent. This sector preferably located in agglomerations close to the core cities like Zurich, Zug, Basle, Geneva and St. Gall. With an average size of 6.4 employees per place of work compared to 27.9 in the banking sector, the specialized financial services sector is characterized by small companies.

A similar change can be observed in the sector of knowledge intensive business services. In the last ten years, both the number of working places as well as employment has increased by about 27 percent. While in 1995 the ratio of employees in the KIBS to employees in the banking sector was around 83 percent, the number of employees within the KIBS has exceeded the banking sector (110%). In 2005, the number of employees per working place was 3.9 employees. The displayed numbers show the development of the whole KIBS-sector, which does not primarily and exclusively, represent a subsidiary of the financial center. Only specific parts of the KIBS-sector contribute to the financial sector, yet hardly distinguishable within the data, but the analysis serves as an important indicator for the importance of knowledge based services and the clear shift of the Swiss economy towards a knowledge based economy.

Table 4 shows the growth rates for each period. The high growth rates of places of work and employment within the SFS and the KIBS between 1998 and 2001 show the structural change, while the positive growth rate from 2001 to 2005 can be interpreted as a consolidation of the previous trend.

Table 4: Development of the relevant sectors and changes for 1995 – 2005

	Places		Employees (Full time equivalent)			
Year	1995	2005	1995	2005	+/- Places	+/- Employees
Banks	3'993 22%	3'631 18%	109'515 54%	101'146 47%	-9%	-8%
Insurances	3'648 21%	2'226 11%	50'004 25%	49'572 23%	-39%	-1%
SFS	9'624 56%	13'542 70%	41'686 21%	63'087 30%	41%	51%
Total Financial Center	17'265 100%	19,399 100%	201'205 100%	213'805 100%	12%	6%

Table 4 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

Figure 3 and Figure 4 provide two different perspectives on the structural changes.

Figure 3 shows the relative change of places of work and employment. It is visualizing the two forms of structural change: concentration and stagnation (bottom-left quadrant) and diffusion and growth (top-right quadrant). The size of the elements indicates the number of employment per sector.

Figure 3: Relative change of locations (places of work) and employment per sector (1995 – 2005)

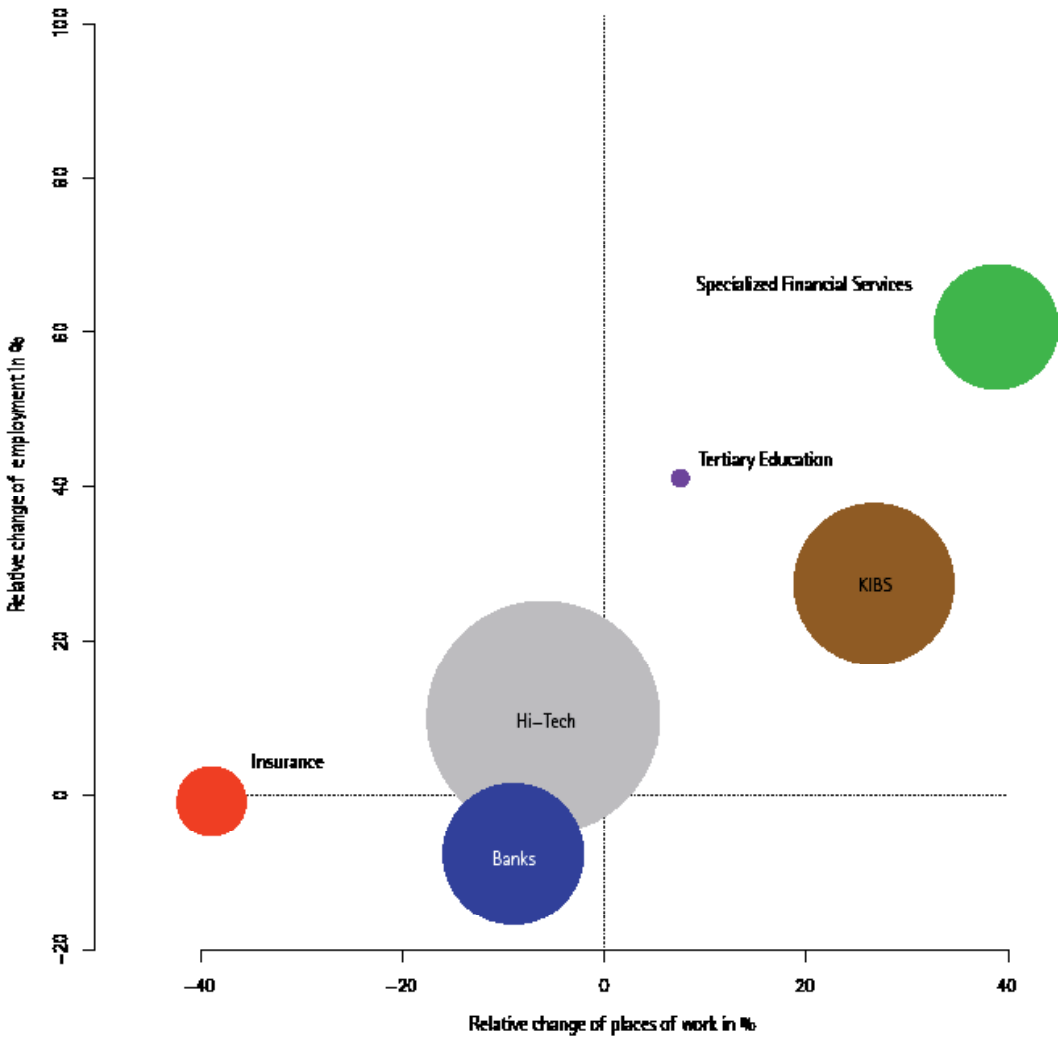


Figure 3 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

Figure 4 shows the migration movement of each sector compared to the Swiss economy. While the insurance and banking sectors move little and exhibit low dynamics, the specialized financial services and the knowledge intensive business services accomplish big steps ahead. In comparison to the Swiss economy as a total, these two sectors gain in importance. It is an indication of the increasing relevance of the knowledge economy. This conclusion is assured by the positive development of the reference categories tertiary education and the hi-tech sector.

Figure 4: Changes in weight of the sectors compared to the Swiss economy (1995 – 2005)

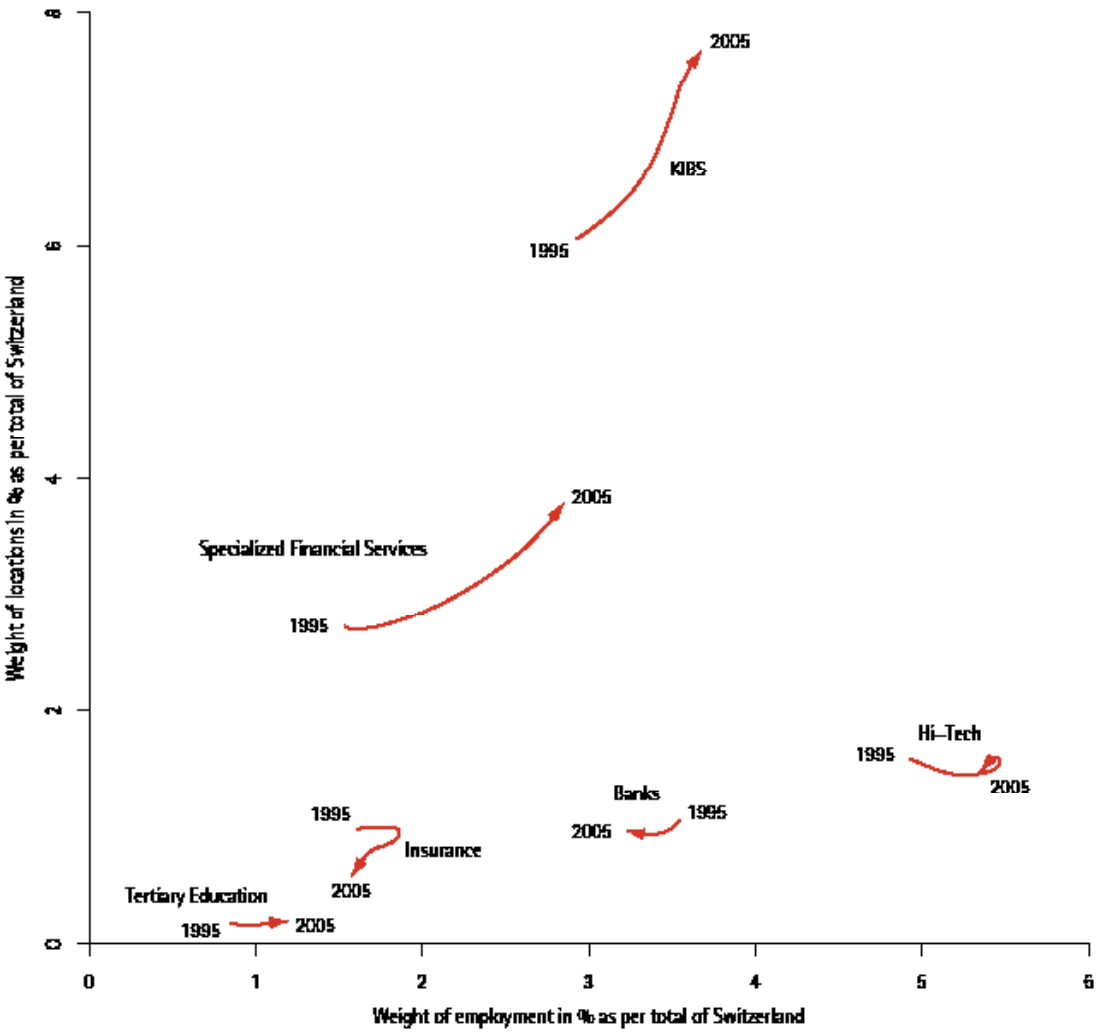


Figure 4 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

1.3. Structural and Geographical Change per Sector

1.3.1. Approach and Methodology

This second part concentrates on the identification and visualization of the patterns of structural and geographical change within each sector. At first, the spatial impact of alteration on the places of work is illustrated in cartographic visualizations. Secondly, additional cartographic illustrations focus on the spatial impact of structural changes on the distribution of employment within each sector. Thirdly, we have calculated the location quotient of each sector for each municipality. This indicator shows the relative impact in comparison to all other economic sectors. A location quotient of more than one indicates that the sector is especially important for the municipality.

1.3.2. Banking Sector: Concentration of Working Places and Employment

Figure 5 indicates changes within the structure of places of work; Figure 6 illustrates changes of employment. While banks relocated their branch offices, employment remains still comparatively stable but concentrates within urban areas (agglomerations and core cities). One can clearly see that within agricultural areas banks tend to concentrate their activities on specific municipalities.

Figure 7: The banking sector tends to remove its branches especially from small and medium size municipalities and shift employment to larger, neighboring municipalities. In the larger urban areas a trend towards a growing size of places of work can be identified.

Figure 5: Changes in places of work within the Banking sector per municipality (1995 – 2005)

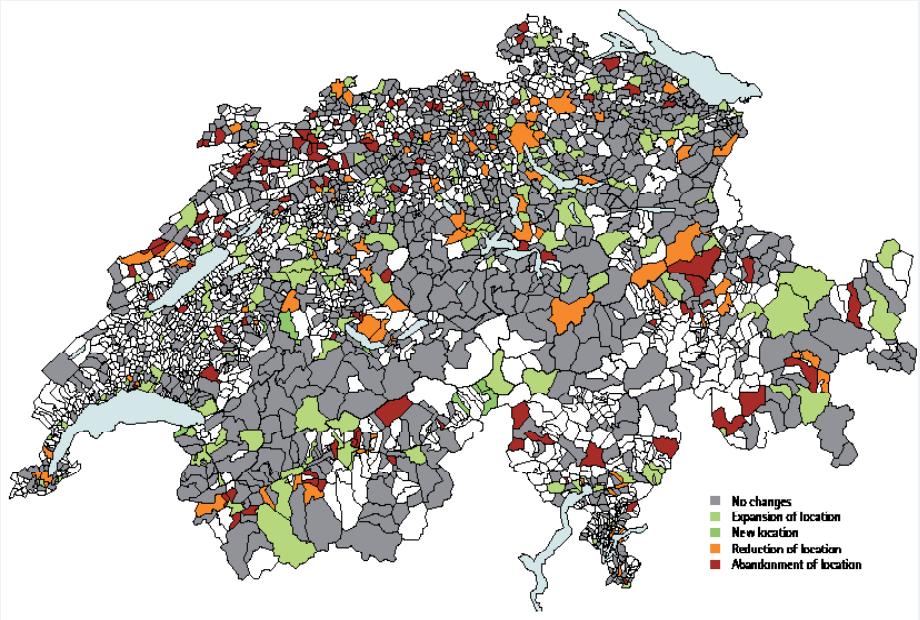


Figure 5 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

Figure 6: Changes of employment within the Banking sector per municipality (1995 – 2005)

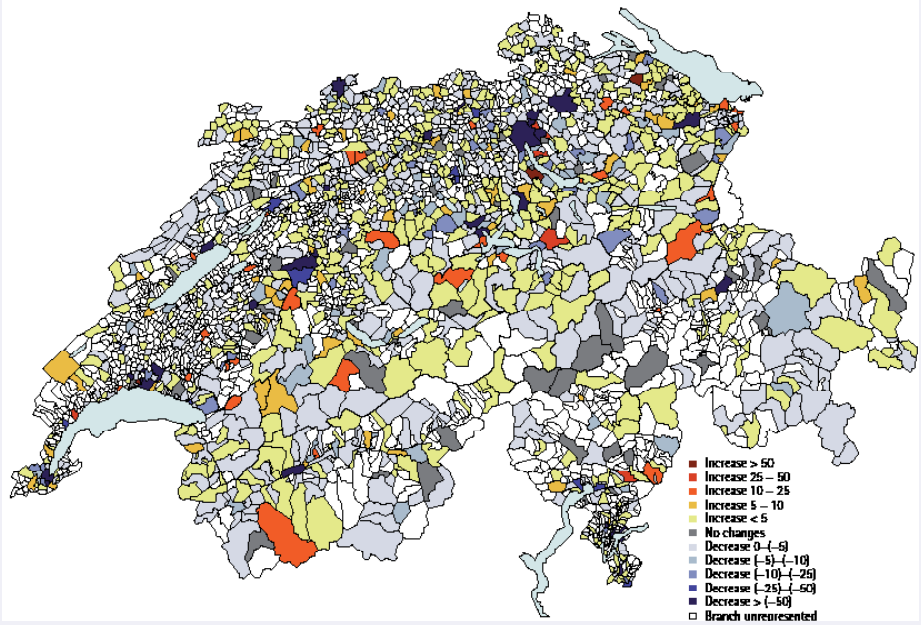


Figure 7: Location quotient of the Banking sector per municipality (2005)

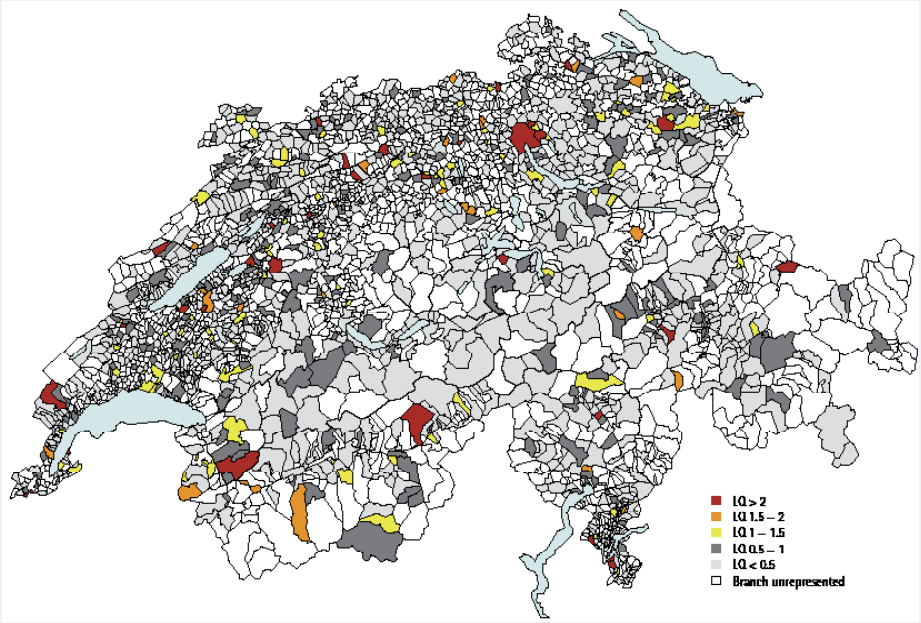


Figure 6 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*
Figure 7 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

1.3.3. Insurance Industry: Strong Adjustments after the Burst of the Bubble

The insurance industry (NOGA 66) exhibits a development similar to that of banking. There was an employment development of -0.85 percent between 1995 and 2005. The increase until 2001 resulted from a rise in pension funds and independent insurance brokers, while employment figures stagnated in the traditional businesses. Within the period from 2001 to 2005, the tremendous changes in global financial markets and the bursting of the stock-exchange bubble led to an adjustment within the insurance sector and resulted in a decrease of employment and a strong spatial concentration process.

Figure 8 shows employment development of Switzerland's insurance companies at home and abroad. The insurance companies[1] attained a domestic growth in employment of only 1.4 percent between 1997 and 2002, while employment abroad rose during that same time period by 69 percent. However, this growth abroad reversed into a downfall after the stock market crash from 2002 to 2004 by 27 percent. In 2005, the situation improved slightly.

Figure 8: Employment development of Switzerland's insurance companies at home and abroad

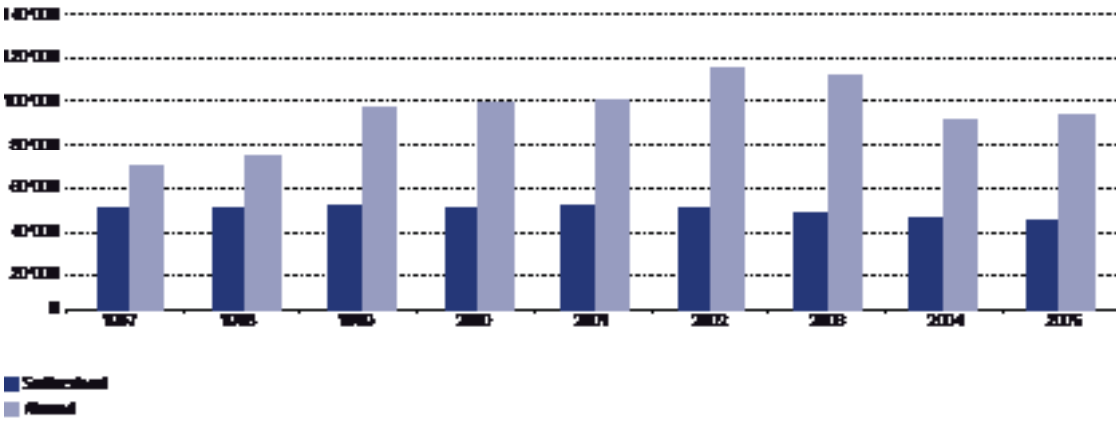


Figure 8 *SFCW Research, Schweizerischer Versicherungsverband, 2006 (Data without health insurance)*

1 *Data without health insurance companies*

The cartographic illustrations undermine this trend. Insurances constantly withdraw their presence from the Swiss landscape and concentrate stronger than the other three sectors mainly in the metropolitan region of Zurich. According to the map, which displays the location quotient for the insurance sector (→ Figure 9), there are in comparison to the other three sectors only few municipalities with a high location quotient. Stronger than the banking sector the insurance companies cluster their activities on few locations and relocate their branches from small and medium size municipalities to agglomerations and the core cities.

Figure 9: Change within places of work in the Insurance sector per municipality (1995 – 2005)

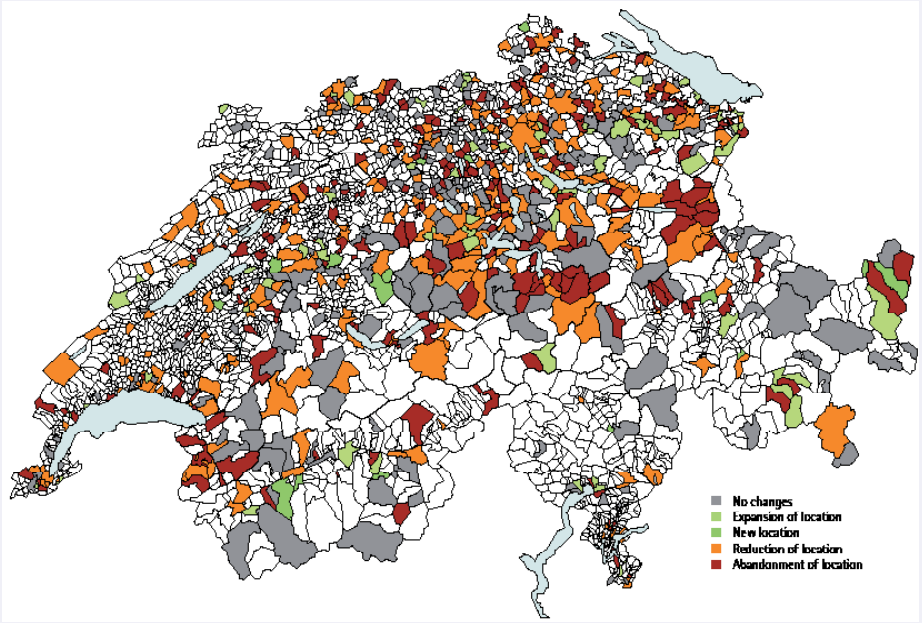


Figure 9 *SFCW Research*

Figure 10: Changes in employment within the Insurance sector per municipality (1995 – 2005)

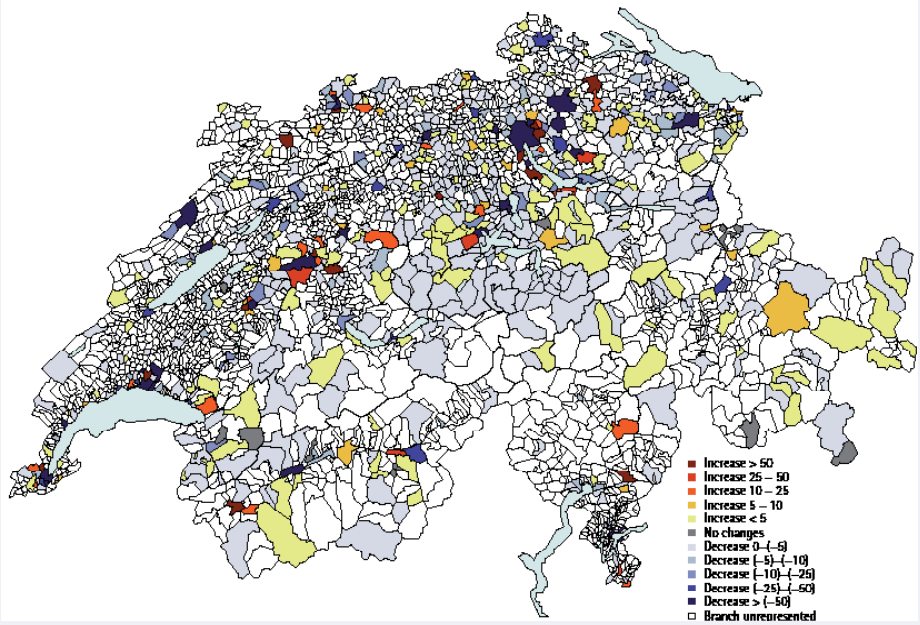


Figure 11: Location quotient of the Insurance sector per municipality (2005)

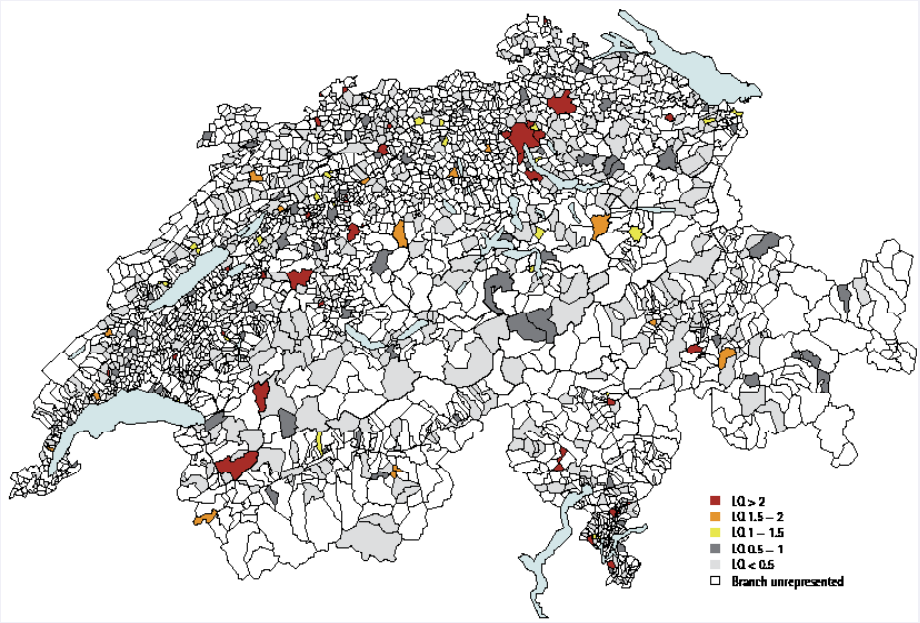


Figure 10 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*
Figure 11 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

1.3.4. SFS Sector: Enormous Increase of Employment

The sector specialized financial services encompasses participants in exchanges, portfolio management, trading, independent asset managers (IAM), hedge funds, venture capitalists etc. Between 1995 and 2005, the employment rose by 51 percent. The huge increase can primarily be traced back to the period of the equity boom between 1997 and 2000.

Figure 12 and Figure 13 show the development. The underlying data proof the structural developments of diffusion and segmentation of the specialized financial services sector. The main areas of growth are within the agglomerations and core cities like Zurich, Zug, Pfäffikon (SZ), Basle and Geneva.

It is characteristic for this sector, that the comparatively small sized companies perform within a young and volatile business environment, where market changes have a strong impact on the life cycle of these companies.

Figure 12: Changes of places of work in the specialized financial services sector per municipality (1995 – 2005)

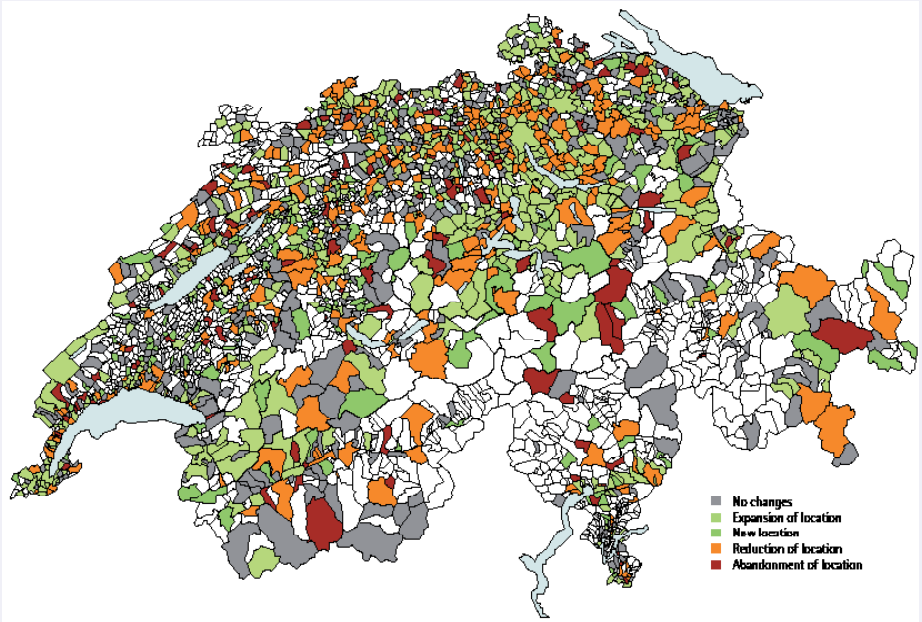


Figure 12 *SFCW Research*

Figure 13: Changes of employment of the specialized financial services sector per municipality (1995 – 2005)

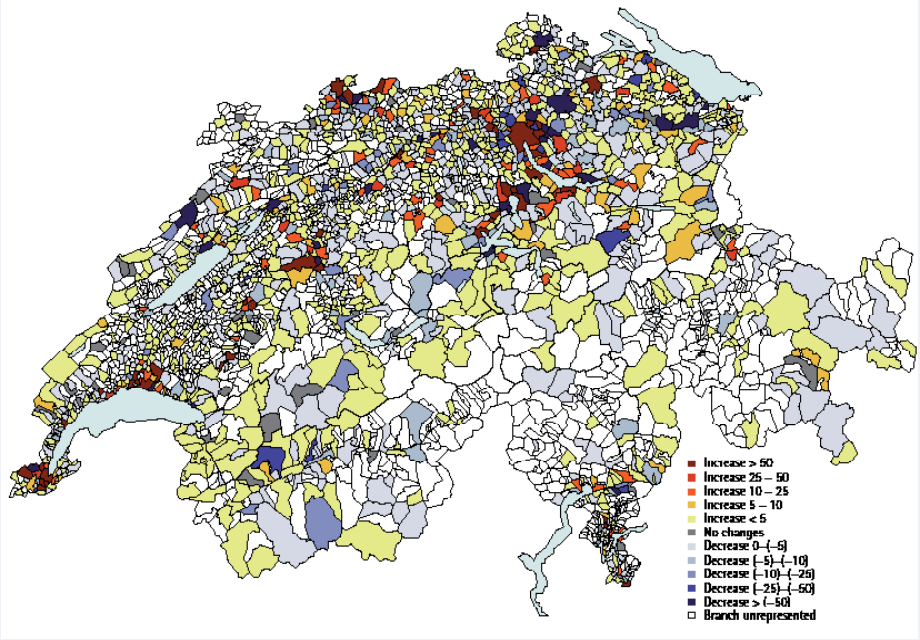


Figure 14: Location quotient of the specialized financial services sector per municipality (2005)

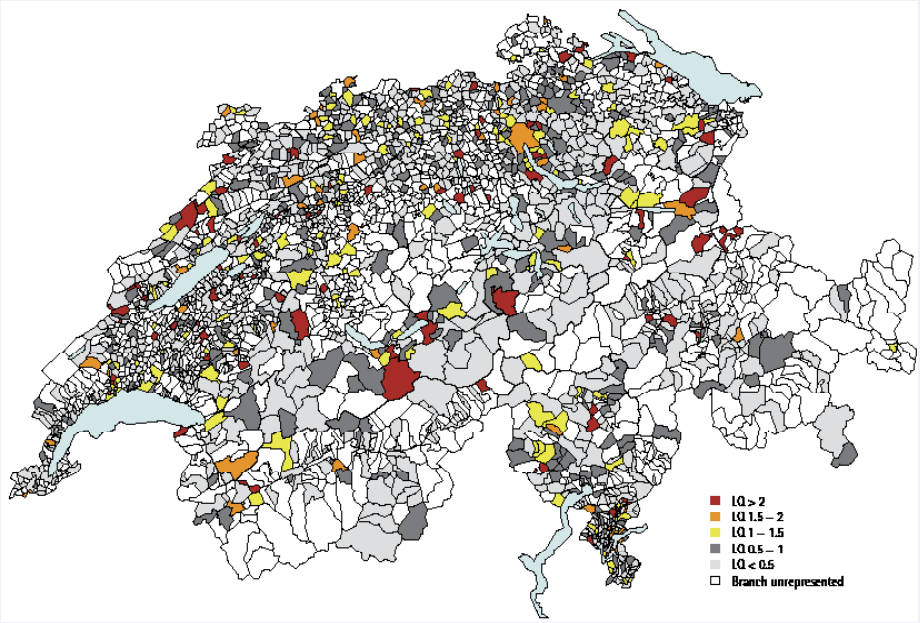


Figure 13 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*
Figure 14 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

1.3.5. KIBS: Visible Clustering in Metropolis Areas

Table 4 denotes the employment development of knowledge intensive business services. Some caution should be taken in assessing these values because the businesses listed are not exclusively active in the financial services sector. In fact, the data are a representation of high-quality, knowledge-intensive services, e.g. legal counseling, auditing, management consultancy and marketing and opinion research. The employment growth figure of 27 percent indicates the evolvement of Switzerland into a knowledge-based economy.

It is difficult to asses the contribution of this sector to the Swiss financial center. From a functional perspective many of the companies incorporated in the knowledge intensive business services sector perform important intellectual services to the financial center.

The knowledge intensive business services sector is a very heterogeneous sector, as we can see strong structural dynamics almost independent from size of places of work or number of employed staff.

A view on the distribution of high location quotient ratios (→ Figure 15) clarifies the spreading behavior of this sector. Different from the other sectors a strong cluster is visible in the metropolitan region of Zurich towards St. Gall, but mainly into the direction of Zug, Schwyz and Lucerne. The second cluster appears in the metropolitan region of the Arc Lémanique.

Figure 15: Changes of places of work in the knowledge intensive business services sector per municipality (1995 – 2005)

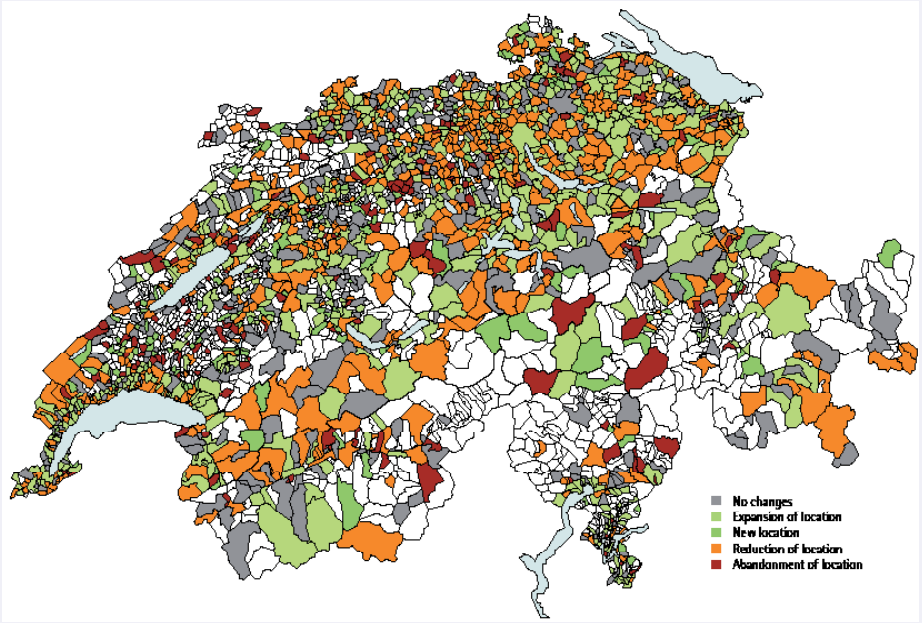


Figure 15 *SFCW Research*

Figure 16: Changes in employment in the knowledge intensive business services sector per municipality (1995 – 2005)

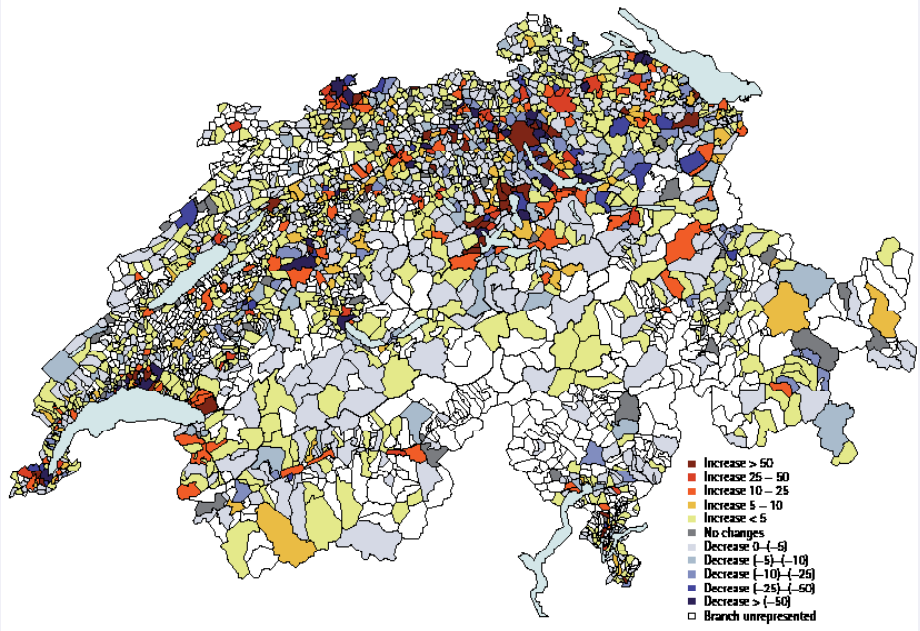


Figure 17: Location quotients of the knowledge intensive business services sector per municipality (2005)

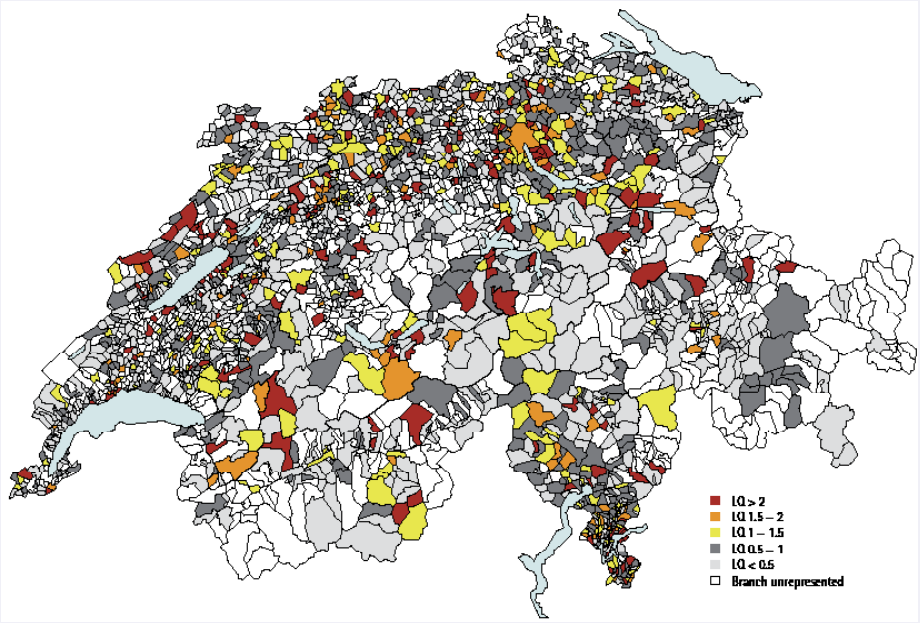


Figure 16 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*
Figure 17 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

1.4. The Swiss Financial Landscape

Spatial effects of change processes in the financial sector - mapping uneven development:

The third part of this analysis tackles the issue of mapping the Swiss financial landscape. How do the processes and developments express themselves on the level of the geographical locations for financial services? By transferring developments to a spatial level, the link between territorial and institutional developments becomes pronounced.

A fundamental pattern can be identified for all four sectors. Zurich, Geneva, Basel and Lugano show the greatest absolute increases in employment (→ Table 5).

As to relative growth, marked differences appear on the one hand between the core cities. On the other hand, agglomeration municipalities like Kloten, Opfikon or even Dübendorf, show a greater relative rate of growth than the core cities. In the knowledge intensive business services sector, the situation is different. Here the cities show the highest absolute and relative growth in employment. At the same time, the agglomeration municipalities around the core cities of Zurich, Basel and Geneva are also performing high relative growth. The demand for knowledge-intensive consultancy services appears to have increased, while the core businesses of the financial service provider have taken on a rather low-key pattern of development. This is true especially for Geneva, which shows a negative development among Swiss cities.

Table 5: Number of employees in 2005 and the absolute and relative change between 1995 and 2005

Sector	Banks			Insurances			KIBS		
Year	2005	Change 95 – 05		2005	Change 95 – 05		2005	Change 95 – 05	
		absolute	relative		absolute	relative		absolute	relative
Aarau	800	-7	-1%	635	-137	-18%	624	99	20%
Basle	4'959	-2'631	-35%	4'089	-309	-7%	5'455	259	5%
Berne	2'474	-852	-26%	3'611	-227	-6%	5'503	1'463	36%
Geneva	13'848	-1'303	-9%	1'509	-1'062	-41%	7'838	435	6%
Lausanne	2'653	-1'032	-28%	3'035	69	2%	3'353	-48	-1%
Lucerne	1'374	-340	-20%	1'970	371	23%	1'823	240	15%
Lugano	4'815	-652	-12%	598	-214	-26%	1'809	-124	-6%
Schwyz	373	60	19%	86	-24	-22%	154	49	46%
St.Gall	2'336	80	4%	1'591	-144	-8%	3'447	1'306	61%
Winterthur	474	-592	-56%	3'634	282	8%	1'552	135	10%
Zug	619	-34	-5%	243	-145	-37%	1'736	322	23%
Zurich	33'665	1'965	6%	11'276	778	7%	18'901	3'835	26%

Table 5 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

Financial services concentrate themselves around the cities and agglomerations of St. Gall, Winterthur, Zurich, Basel, Bern, Lausanne, Geneva and Lugano, as well as the somewhat smaller Zug, Schwyz, Lucerne. At first glance, this still does not prove the structure of these locations and their significance to Switzerland.

Financial places must be understood as functional/spatial systems, which are marked by a high spatial division of labor. Certain locations contribute in a complementary manner as a quasi subordinate value chain process to an international financial place. For example, Zurich's metropolitan region, which includes locations like Zug, Schwyz, Winterthur, Olten, Basel and St. Gall. The value chain in Zurich's financial place covers a broader supply of services than in the case of Geneva and Lugano.

Table 6: Places of work in 2005 and the absolute and relative change between 1995 and 2005

Sector	Banks			Insurances			KIBS		
Year	2005	Change 95 – 05		2005	Change 95 – 05		2005	Change 95 – 05	
		absolute	relative		absolute	relative		absolute	relative
Aarau	17	2	13%	28	-12	-30%	151	21	16%
Basle	91	20	28%	57	-18	-24%	1'179	218	23%
Berne	50	-3	-6%	83	-5	-6%	1'060	229	28%
Geneva	175	-23	-12%	48	-43	-47%	1'474	134	10%
Lausanne	73	-2	-3%	57	-24	-30%	652	41	7%
Lucerne	29	5	21%	37	-19	-34%	488	104	27%
Lugano	93	5	6%	39	-16	-29%	478	5	1%
Schwyz	13	3	30%	8	-5	-39%	54	23	74%
St.Gall	35	4	13%	46	-16	-26%	528	135	34%
Winterthur	21	1	5%	38	-8	-17%	377	98	35%
Zug	13	-1	-7%	21	-11	-34%	758	339	81%
Zurich	413	72	21%	129	-58	-31%	4'079	709	21%

Table 6 *SFCW Research, Swiss Federal Statistical Office (General Classification of Economic Activities)*

1.5. Development of Cities and Agglomerations as Locations for Financial Services

It appears that there are five different types of functional locations at the Swiss financial center. They differ in terms of value chain, institutions and customers. Switzerland's financial place functions as a regulatory construct, working at a level at which it can create the legal, political and regulatory conditions under which the financial service industry can operate:

1. Cores of the major Swiss international financial center with a global reach: The leading locations of Zurich and Geneva.
2. Locations of special financial service providers: like Lugano (international private banking businesses, with an important cross-border function to Italy), Winterthur (insurance companies) and Basel as mainly a center for specialized financial services such as private equity and for knowledge intensive business services or Zug for trade finance or Alternative Assets.
3. Important processing centers, specialized financial service providers and locations of cantonal banks.
4. Smaller locations of processing centers with Schwyz or Bellinzona.
5. Retail banking locations within small and medium size municipalities.

How do spatial developments look like in those locations where financial services are concentrated? Is there a general trend which all locations tend to follow? Are there winners and losers for the time period between 1995 and 2005?

In general, there are two different tendencies identifiable within agglomerations and cities:

- Banks and insurances show a slightly better development within the core cities than within agglomerations.
- Specialized financial services and knowledge intensive business services show a slightly stronger development within agglomerations. This is true in relative numbers; in absolute numbers the strongest growth is still within the cities.

Development within the core cities and agglomerations of the three international financial centers Zurich, Geneva and Lugano:

- Zurich has seen the most consistent development within all four sectors. All growth rates are positive, while the number of employees within the specialized financial services rocketed upwards by a rate of 109.7 percent. It is noticeable that Zurich is the only location, which has almost throughout the banking sector positive development figures. Beside a rise in employment in the sector of major banks, Zurich has a distinct growth within stock exchange banks. Zurich is also one of the major focal points of the specialized financial services in Switzerland in both relative and absolute numbers. This is due to a huge growth rate in the field of independent asset managers as well as in hedge funds, venture capital and private equity. Another enormous increase can be observed in the KIBS sector, where the employment grew by 25.5 percent.
- Geneva performed comparatively weak to Zurich. The traditional banking sector was disappointing in terms of employment (-8.6%) and places of work (-11.6%). Within the other three sectors Geneva shows only within the specialized financial services sector a desirable development. Again, this is due to an extraordinary growth of independent asset managers as well as hedge funds, venture capital and private equity. The number of employees within the specialized financial services increased comparable to Zurich with a rate of 109.5 percent. The employment within the KIBS grew only by 5.9 percent.
- Lugano significantly presents the most heterogeneous development. A moderate performance of employment within the banking sector and an exceptional growth within the specialized financial services sector (66%) stand vis-à-vis a negative performance within insurances (-26.3%) and surprisingly within knowledge intensive business services (-6.4%). It is remarkable that Lugano's positive development within the specialized financial services is mainly arising from independent asset managers but not from hedge funds, venture capital or private equity.

If we compare the absolute change of the number of employees (full time equivalent) in all four sectors between Geneva, Lugano and Zurich, we can see that Zurich created in the period from 1995 to 2005 about six times more new jobs than Geneva and 362 times more than Lugano.

The developments in the following cities and agglomerations underline the supporting functions of these locations to the functional cores of the Swiss financial center as described above:

- Basle is becoming a major center for specialized financial services. The number of employees experienced the highest relative increase of all financial centers (182.2%). Nevertheless, in absolute terms, Basle is behind Zurich and Geneva on the third place. The growth within Private Equity and Venture Capital is by far the strongest throughout Switzerland.
- Zug is in absolute figures comparatively a medium size location, but in relative figures a top performing one. In terms of employment, the decrease in the banking and insurance sector was over-compensated by an increase in the KIBS (22.8%) and the SFS (70%). The main drivers of development are foreign banks, independent asset managers and the alternative investment sector.
- St. Gall gained a growth in employment within the banking sector (3.5%) due to the Raiffeisenbank. But both the city and the agglomeration of St. Gall concentrate on private equity and venture capital and especially on knowledge intensive business services with an astonishing growth rate of 61 percent.

2. The Technical Infrastructure of the Swiss Financial Center

An important resource of the Swiss financial center is the technical banking infrastructure. The insurance industry does not have a similar platform. The infrastructure is operated by three non-profit organizations that are jointly owned by Swiss financial intermediaries: SWX Group, SIS Group, and Telekurs Group. These groups – or major parts of it – are sometimes referred to as «The Swiss Value Chain». The Swiss value chain allows the complete electronic integration of securities trading, clearing and settlement as well as payments.

It consists of four elements:

1. the electronic trading platforms virt-x (blue chips), Eurex (derivatives) and SWX Swiss Exchange,
2. the central counterparties x-clear for virt-x transactions and Eurex Clearing,
3. the securities settlement system SECOM,
4. the payment systems Swiss Interbank Clearing (SIC) and euroSIC.

The SNB considers the following systems to be systemically important: the payment system Swiss Interbank Clearing (SIC), the securities settlement system SECOM, the central counterparty x-clear. In addition, the multicurrency payment system Continuous Linked Settlement (CLS) is also considered «systematically important».

The cooperation between SWX, SIS and Telekurs made the Swiss market a most effective and efficient market. The Swiss Value Chain has helped to reduce trading and settlement costs for securities transactions, and the costs for payment transactions. The Swiss banking infrastructure employs 2'700 people and produced a gross value added of CHF 700 millions in 2005.

These relatively modest figures do not reflect the importance of the infrastructure for the financial center. The purpose of the three companies is not to maximize their own profit and value added, but to make the Swiss financial center more competitive. This is achieved by reducing transaction costs, increasing the safety and stability of the system and, in general, maintaining or improving the attractivity of Switzerland for the customers of the financial intermediaries. These goals have been achieved by a cooperative approach rather than a profit-oriented philosophy. The infrastructure has been seen as a «service publique» of the financial center, the stock exchange as a mutual trading club.

Table 7: Gross Value Added

Year	2003	2004	2005
Gross value added	716	731	707
Staff number	3'069	2'800	2'681
GVA per employee	233	261	264

Table 7 *SFCW Research*

The consolidation of the European (and global) stock exchanges is a subject that has been filling the front pages of the financial press for quite some time. Most exchanges have been de-mutualized and transformed into «normal» profit oriented firms. It is most likely, that consolidation will lead to important benefits for the customers of the financial sector. Stock exchanges and the related clearing and settlement organizations display economies of scale and positive network externalities. They are exposed to strong forces of innovation. The development of the European and global infrastructure for trading, clearing, settlement, and payment will have an important impact on the future capacity to create value in the Swiss financial center. The strategy for the further development of the Swiss infrastructure is highly important.

It is not our intention to make recommendations regarding the future strategy and structure of the Swiss infrastructure. But, we think that a few procedural rules should apply:

- The three infrastructure groups should not take individual decisions. The infrastructural issues should be considered jointly.
- The ultimate goal of the infrastructure should be to reduce the capital costs of the issuers and to increase the capital returns of the investors that use the Swiss financial center.
- The «infrastructure» does not only consist of technology, but also of laws and other rules. The impact of legal and other rules seems to be as important as liquidity, technology, and transaction costs. An illustration of the importance of legal rules on the financial infrastructure is the Sarbanes-Oxley regime. In the year 2000 nine out of every ten dollars in the world's new issue business were raised in the USA. Last year, nine out of ten dollars were issued outside America, primarily in London.[2]
- Sarbanes-Oxley increases the compliance costs of US-listed companies so much, that these internal costs more than overcompensate the much lower transaction costs at NYSE and Nasdaq.[3] Technology and rules are not only relevant for the intermediaries, but ultimately for the customers, i.e. issuers and investors.
- It seems that the Swiss financial community should reconsider the balance between mutualisation and competition in the financial infrastructure.

Figure 22: Banking Infrastructure GVA

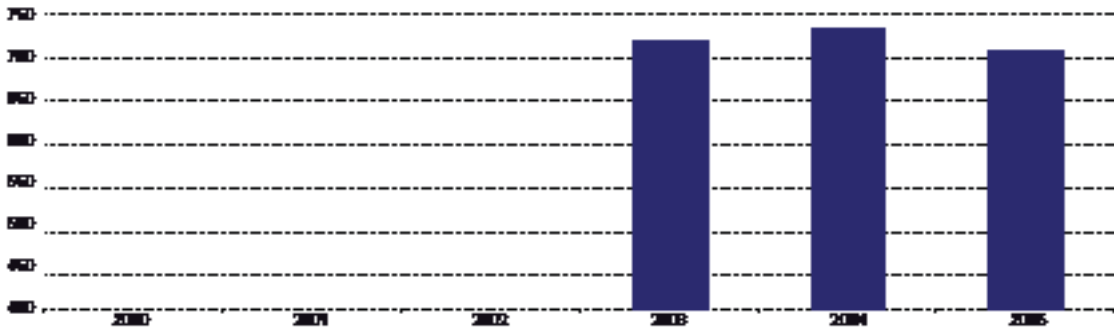


Figure 22 *SFCW Research*

2 *The Economist, May 27th 2006*
3 *Ammann, SIS general meeting, May 18th 2006*

3. Independent Asset Managers in Switzerland

3.1. Definitions

A wealthy private client can either take care of his assets himself or delegate it to an asset manager. Delegated asset managers, private banks and other banks play the major role, but independent asset managers (IAM) have captured a substantial market share of this attractive business.

Once an IAM is involved in the client's asset management decisions the relationship between client, bank and IAM can be described as a triangle. The cooperation between the client and the IAM is stipulated in the asset management agreement. As the IAM is not allowed to keep accounts or deposits, the client still needs a banking relationship. While the IAM is responsible for the asset allocation decisions, the bank takes care of the execution, settlement and custody.

3.2. Development and Market Share of IAM in Switzerland

In Switzerland, the wider spreading of IAM started in the eighties. In 1988 about 500 IAMs managed around 180 to 240 billions CHF. The Swiss federal census of enterprises for the years 1995, 1998 and 2001 reported 659, 2'122 and 6'715 full time equivalents occupied in this industry. Illustration 13 gives an overview about the regional distribution of the IAM in Switzerland.

Over recent time the number of enterprises grew constantly. At the end of 2004 the number of enterprises in this industry augmented to around 2'600. With an average of 3.7 employees per enterprise the total number of employees amounts to around 9'600 persons. Most of the today existing enterprises were founded after 1997. With an average age of ten years the industry can be characterized as rather young. The reorganization of the Swiss banking industry, the introduction of the anti money laundering law as well as the bullish stock markets favored the development of the IAM industry during this period.

Today Swiss IAMs manage around 600 billions CHF in total. In 2004 Swiss banks held securities worth 5000 billions CHF in their deposits. Provided that IAM invest their client's assets predominantly in securities and do not hold larger cash amounts, the 600 billions can be compared with the 5000 billions in Swiss deposits. Consequently around 12 percent of the securities in bank deposits are managed by IAMs. Even more remarkable is the market share in discretionary mandates. In comparison to advisory mandates, discretionary mandates generate superior gross margins and lower costs. Swiss private banks manage about one fourth of their assets via discretionary mandates; IAMs generate almost 80 percentages of their total earnings from discretionary mandates. Therefore it is assumed that IAMs own a substantial market share in the discretionary mandates business.

Figure 23: Regional distribution of IAM in Switzerland (2004)

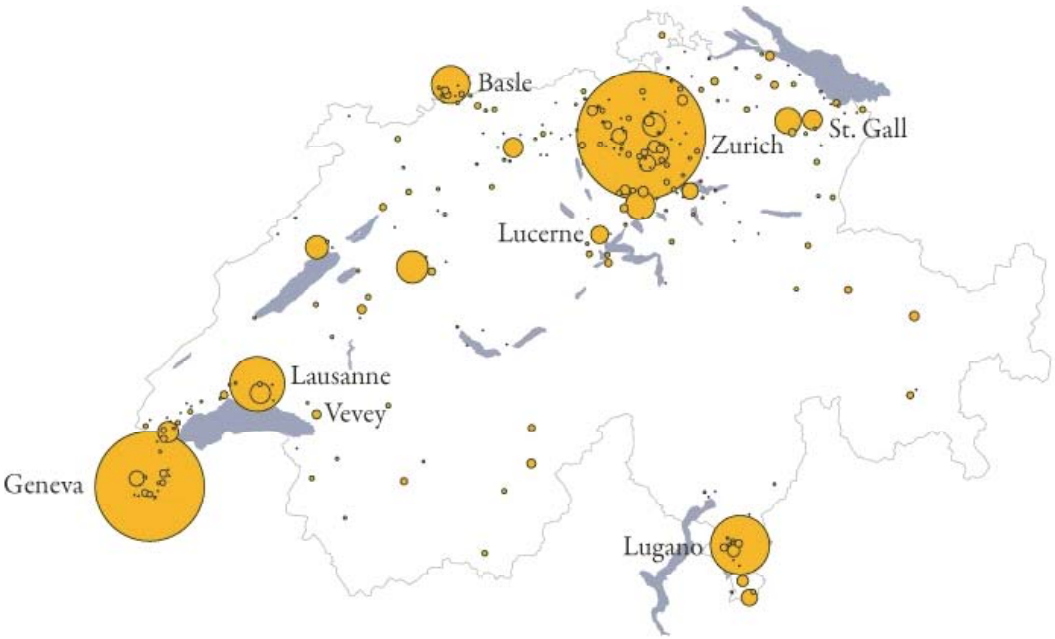


Figure 23 *SFCW Research*

3.3 Value Creation

The value creation of IAMs can either be calculated by subtracting the intermediate inputs from total earnings or by summing up personnel costs, tax expenditures and benefits. The findings presented in Table 8 and Table 9 are the results of 63 IAM surveyed per 2004. On average, these companies manage 60 millions CHF per employee (administrative staff included).

Table 8 illustrates the breakdown of a total of 468'000 CHF earned per employee into three cate-gories: Management fees add up for 52 percentages of total earnings, retrocession for 38 percentages and 10 percentages are considered as other earnings. Table 9 shows the disposal of gross output. Of 468'000 CHF earned per employee 113'000 are spent on non-labor costs of input. Thereof about 11'000 CHF are spent for research and 5'000 for regulatory costs.

The resulting value added amounts to 355'000 CHF. Two third of the value added go to the employees, 9 percent to the state and one fourth to the shareholders.

In 2004, the total estimated value added of the IAMs amounts to 3'400 millions CHF, which is about 8 percent of the banking industry. The IAMs employ 9.6 percent of the domestic workforce of the banking industry.

The per employee value added of 355'000 CHF corresponds to 86 percent of the average of all Swiss banks employees. In the last ten years, the IAMs have become a significant part of the Swiss financial center. Their total value added exceeds the value of the securities dealers by a factor of 8 to 9.

Table 8: Earnings breakdown for 2004 (n = 63)

Earnings	per employee (TCHF)	in percentages
management fees	245	52 %
+ retrocession	176	38 %
+ other earnings	47	10 %
= total earnings (gross output)	**468**	**100 %**

Table 9: Value added and profit for 2004 (n = 63)

Value added and profit	per employee (TCHF)	in percentages
Total earnings	468	100 %
- non-labour costs of input	113	24 %
= Value added	355	76 % (100 %)
- staff costs	234	50 % (66 %)
- taxes	33	7 % (9 %)
= Shareholder profit	**88**	**19 % (25 %)**

Table 8 *SFCW Research*
Table 9 *SFCW Research*

4. Alternative Asset Providers

Since the early 1990's a boom in the number of institutions offering alternative assets has been mushrooming worldwide. According to the Berkley Group, there are over 5'000 alternative funds worldwide, with an estimated US 1 trillion USD invested.[4] One of the main reasons for the increase in this asset class is that the forecast returns from traditional assets classes will not be as high over the next decade as they were in the last. This expectation and the increasing number of sophisticated investors have caused alternative assets to become one of the fastest growing sectors in the global investment arena. Alternative assets have now become an integral part of portfolios of high net worth individuals and institutional investors.

This new class of non-traditional investments comprises hedge funds, private equity, real estate investments, commodity trading pools and high-yield bonds. Other authors include art, antiques and precious metals under this category. Each of these investments can contribute to a portfolio either in risk reduction or in prompting higher returns.

4.1. Definition of Alternative Assets

What are really alternative assets? Alternative assets are defined as any non-traditional asset with potential economic value that would not be found in a standard investment portfolio. With the inherent characteristics that alternative assets tend to be less liquid than traditional investments. Thus, investors who favor alternative assets will have to consider a longer investment horizon.[5]

Broadly, an investment is considered alternative if it has relatively limited investment history, is relatively uncommon in investment portfolios, has clearly differentiated features from any traditional asset class and requires special skills to manage. Private equity, which includes venture capital and leveraged buyouts, and hedge funds are the most common investments available to high net worth and institutional investors in the Swiss market place. This report will focus on these two types of investments.

4 *Kennedy (2006), http://www.ceoforum.com.au/article-detail.cfm?cid (Sept. 2007)*

5 *Boemle, Gsell et al (2002), p.37*

4.1.1. Alternative Asset Characteristics

Several criteria are considered in order to delimit the differences between alternative assets and traditional assets. Return rates, risk levels, negative correlation to traditional assets, liquidity and transparence are the most commonly referred conditions.[6]

As previously mentioned the most common alternative asset types are the following:

1. Hedge funds are generally regarded as private investment vehicles for wealthy individuals and institutional investors. They are typically organized as limited partnerships, in which the investors are limited partners and the managers are general partners. Investors to the partnership are charged a performance based fee which can be significantly higher than the fixed management fee. Hedge funds employ different types of strategies to generate returns. These return characteristics hold the key to distinguishing between hedge fund strategies.[7] The most common strategies used by hedge fund managers are long/short, global macro, event driven, market neutral, arbitrage and emerging markets.
2. Private equity is broadly defined as investments in unquoted companies; private equity is the universe of all venture and buyout investing, whether such investments are made through funds, funds of funds, secondary or direct investments. A private equity investment is typically a transformational, value-added, active investment strategy.[8]
3. Real estate investments defined as investments in any of the following main categories: physical industry and office space, residential, retail and REITs (Real Estate Investment Trust). The latter option, a publicly traded instrument, which registers a positive increase in property portfolios due to their special tax considerations. Capital gains of such portfolios are realized through successful rent and leasing contracts.[9]
4. Commodity trading pools (CTAs) are trading pools structured in a similar way as hedge fund partnerships with the purpose of trading commodity futures or option contracts operated by commodity trading advisors.[10]

The aforementioned characteristics that define alternative assets make them attractive to investors. Primarily because they display potential for higher returns. The degree of uncertainty surrounding alternative investment returns and the illiquidity of the asset,[11] lead investors to demand a higher return that would normally be required from a comparable investment with a longer track record. Returns from alternative assets generally come in the form of capital gains.

Similarly they offer additional diversification since they exhibit different features to traditional asset classes, thus producing returns with a low correlation to conventional assets. The level of correlation will depend on the specific type of alternative investment considered and the composition of the existing portfolios. If well chosen alternative assets can increase the level of total portfolio return with no extra risk.

A characteristic feature of alternative assets, specifically hedge funds, is that thy can use a number of trading strategies to produce positive returns regardless of the direction of the market. These funds emphasize absolute returns and can trade in a number of different types of securities.

Apart from the financial benefits, there are a number of social and personal benefits that can be attained form investing in alternative assets. In particular investments in private equity stimulate job growth and can develop products and services that enhance life quality.[12]

6 *Boemle, Gsell et al (2002), p.36*
7 *Fung and Hsieh (1999), p.317*
8 *Bance (2004), p.2*
9 *Boemle, Gsell et al (2002), p.38*
10 *Fung and Hsieh (1999), p.310*

11 *Investments are locked away usually for more than five years.*
12 *Kennedy (2006), http://www.ceoforum.com.au/article-detail.cfm?cid (Sept. 2007)*

4.1.2. Investment Structures

There are two principal means of investing in hedge funds and private equity vehicles (1) investing directly in a fund and (2) investing through a fund of funds. Fund of funds is a pooled fund vehicle whose manager evaluates, selects and allocates capital amongst a number of funds.[13] In the case of private equity, a third option is possible; investors have the possibility to invest directly in private companies.

Our study dedicates an important part in evaluating the competence of the financial institutions, located in Switzerland, providing either co-investing services to investors through single hedge funds, single private equity funds and/or fund of funds services. Investors choosing a fund of funds, seek broader exposure through a well diversified portfolio ensuring that the risk of total loss of capital in the fund is relatively low compared to investing directly in a single investment. However, investors in funds of funds need to balance the extra layer of performance and management fees. Funds of funds offer as well a choice of discretionary or advisory services mainly a tailor-made portfolio, as opposed to committing to a blind pool alongside other investors.[14]

4.2. Measurement of Alternative Assets in Switzerland

Following a strong financial tradition, the mushrooming of alternative asset providers was a natural clustering process in Switzerland. Porter's competitive strategy theories, which define a cluster as «a concentration of companies and industries in a geographic region which are interconnected by the markets they serve and the products they produce»[15], were evident in the early 1990's with appearance of the first shops dedicated to alternative assets in the Zurich and Zug area.

The objective of the study is to get a general sense of the business conducted by the non-traditional asset class, with an exclusive focus on the hedge fund and private equity activities performed by Swiss and foreign firms established in Switzerland.

This study is an integral part of the Swiss Financial Center Watch report and aims to complement the findings of the Swiss banking and insurance sector, the independent asset managers as well as the foreign banks present in the Swiss financial center.

13 *Bance (2004), p.10*
14 *Ibid.*
15 *Porter (1990), p.164*

4.2.1. Methodology

A sample consisting of 517 Swiss and foreign financial institutions established in Switzerland including asset managers, investment and private banks, consulting firms, security dealers, family offices, insurance companies, hedge fund and private equity mangers were surveyed via a questionnaire.

The first part of the questionnaire addressed general company information. The second part focused on market related questions whose objective was to measure the value generated by the alternative asset class comprised only by private equity and hedge funds in terms of assets under management and number of employees.

A 20 percent rate of return was achieved, subsequently results were analyzed and descriptive statistics were generated.

4.2.2. Results

Data were examined along seven quantitative headings and across two dimensions: type of institutions offering alternative services and type of products offered. In order to do so institutions were reclassified into banks, security dealers and non-regulated institutions and four product/service categories were defined. Institutions exclusively offering hedge funds services (HFCos), companies dedicated only to private equity services (PECos), companies rendering both hedge funds and private equity services (IntegratedCos), and finaly an aggregate of all institutions and services referred in the text as alternative assets universe (AAUs).

Services provided by the institutional entities surveyed were acknowledged as the performance of any of the following activities: investing, structuring, distributing and advising.

In order to measure the impact on the value created by financial institutions offering alternative assets cross tabulation figures between assets under management (AUM) and number of employees were generated.

Table 10: Summary of institutions surveyed analyzed by institution type and products offered

	In number of cases				In percentage			
	Total Number	Only active in HF (HFCos)	Only active in PE (PECos)	Active in HF and PE (IntegratedCos)	Toal Percentage	Only active in HF (HFCos)	Only active in PE (PECos)	Active in HF and PE (IntegratedCos)
Banks	30	15	1	14	34%	50%	3%	47%
Security dealers	8	3	1	4	9%	37%	13%	50%
Non regulated	51	11	28	12	57%	22%	54%	24%
Total	89				100%			

Table 10 *SFCW Research*

A. Clustering was observed

As mentioned above, the clustering effect was patent in the Swiss financial market. The solid financial experience of the banks was manifest in the number of institutions that flourished around the most important financial cities dedicated solely to the management of alternative assets.

Analyzed by institution type, the headquarters of 33 percent of the banks offering alternative assets are established in Zurich, the same is true for Geneva followed by Lugano with 25 percent. In the case of security dealers specializing in alternative assets, 50 percent are headquartered in the Zurich area, the remaining 50 percent are scattered throughout the country in low concentrations. Fifty-one percent of non-regulated institutions active in the alternative market are present in the Zurich area, 28 percent around the Zug agglomeration, and 15 percent in Geneva while the remaining 6 percent are distributed along the Swiss territory.

Analyzing the clustering effect by the service type we can see that 35 percent of the HFCos are situated in Zurich followed by 19 percent respectively in Geneva and Lugano. Interestingly PECos appear to follow a strong clustering effect since 61 percent are located in the Zurich area, followed by 11 percent around Zug. IntegratedCos, that is financial institutions offering both services, are established as follows: 39 percent in the Zurich area and 17 percent in the Geneva area. If we analyze HFCos, PECos and IntegratedCos together, we can observe that 45 percent of the institutions are located in the Zurich area, 19 percent are located in the Geneva area, 17 percent in the Zug area and finally 8 percent in Lugano.

Furthermore, the average year of establishment for all institutions computed signals 1964. Nevertheless, non-regulated entities, which in greater part are engaged in offering solely alternative assets, were on average established in 1993, proving that this is new business line with a young and dynamic workforce. The modal value for the whole AAUs was 1998.

B. Self description: Advisor, Intermediary and/or Investor

All financial institutions were asked to describe themselves according to their service profile in terms of Advisor, Intermediary and/or Investor. Answers which were complied across the two dimensions result in a shared service vision by almost all financial institutions evaluated emphasizing their profile as advisory service providers.

As seen in Table 11, up to one third of all respondents consider it renders advisory services. Moreover, entities servicing both asset classes qualify themselves very highly as advisors.

From all institutions computed, banks consider they offer the most complete profile serving jointly as advisors, intermediaries and investors. On the other end, companies offering exclusively private equity services tend to profile themselves as specialists rating quite high under one of the following skills: either offering pure advisory or investment services.

C. Staff division by institutional category according to services offered

Accounting for the dedicated staff located in Switzerland performing alternatives asset activities, we observe a constant tendency in employment numbers and in the distribution of people in all service types.

In the case of banks they employ an average number of 15 persons in Switzerland which dedicate themselves exclusively to the alterative asset desk, analyzing the employment number by service area an average of 23 concentrate on hedge fund activities exclusively while five are dedicated to private equity activities. Non-regulated institutions offer a similar picture with an average of 14 employees dedicated to manage alternative assets of which 22 manage hedge fund business and seven private equity transactions. Security dealers have a smaller contingency of employees dedicated to alternatives, with seven employees hired in average for these type of dealings, ten of them are committed to hedge funds while three to the private equity business. This smaller number of persons employed by security dealers proves that even if they show higher ratings in the other headings analyzed, their organizations remain "smaller specialized shops" if compared to banks and non-regulated institutions.

Table 11: Self description: Advisor, intermediary and/or investor

	By type of institution			By type of services offered		
Description	Banks	Security dealers	Non regulated	Only active in HF (HFCos)	Only active in PE (PECos)	Active in HF and PE (IntegratedCos)
Only advisor	27%	38%	31%	21%	33%	37%
Only intermediary	3%	0%	6%	10%	0%	3%
Only advisor	13%	0%	25%	14%	30%	13%
Advisor, intermediary and investor	27%	25%	16%	31%	13%	17%
Advisor and intermediary	10%	38%	8%	14%	10%	10%
Advisor and investor	20%	0%	12%	10%	13%	17%
Intermediary and investor	0%	0%	2%	0%	0%	3%

Table 11 *SFCW Research*

D. Performing activities by staff

Activities executed by the staff located in Switzerland were classified as follows: investment, structuring, distribution, advisory and other activities.

A detail analysis of activities performed by staff on a daily basis reveals a tendency towards specialization when institutions are evaluated by type. Numbers are quite clear and match the overall business line of such organizations; therefore we can observe that 57 percent of staff working in banks perform advisory activities, 63 percent of staff hired by security dealers perform distribution activities and finally 59 percent of staff at non-regulated institutions perform investing activities.

Evaluating the activities by service category we observe a propensity towards advisory activities by PECos and IntegratedCos. In these cases 56 percent and 54 percent of the staff perform advisory activities respectively. On the other hand, HFCos staff carries out investments activities in 48 percent of the cases. If the service category is analyzed jointly as AAUs, 50 percent of staff executes investment activities.

E. Type of customers assisted

The results signal a strong inclination of banks to serve private clients, mainly high net worth individuals, which sum up an important market share. The main reason being that many of these clients are already part of their customer base who are willing to diversify their portfolios investing in alternative assets in order to see an improved risk return profile.

Specialization by type of client was observed in the case of non-regulated institutions which tend to serve the group comprised by institutional clients. In 70 percent of the cases these clients were pension funds.

Table 12: Average number of clients served by institutional type

	Banks	Security dealers	Non-regulated
Private clients	56%	38%	28%
Institutional clients	21%	25%	43%
Banks / other financial institutions	14%	31%	13%
Others client types	9%	6%	16%

Table 12 *SFCW Research*

F. Degree of competence index

In order to visualize the real competences offered in the Swiss financial market place by the institutions surveyed, an index was generated. The index was created by adding the percent average of the degree of competence in both services for the four different activities: investing, structuring, distributing and advising for all products managed. Average numbers were withdrawn from a Likert scale and the difference between high competence and low competence was calculated. This mathematical equation reduced the information into a two digit number, which was named degree of competence index. The index ranges from -44 to +38, the bigger the number equated the greater the competence shown by the institutional entities.

As reflected in Table 13, all groups analyzed, show a positive indicator when their investing capabilities were examined. This means that most of the institutions enjoy a sound and stable investing background that can be offered to their clients. Once again specialists such as security dealers show the strongest degree of competence both in investing and advising capabilities.

The successful management of alternative assets requires marked management skills and a trained competence in structuring and distribution. Therefore competence in both activities is an impending requirement. Nevertheless, results from the survey show that the financial institutions servicing the Swiss market clearly lack balanced competences.

Table 13: Degree of competence index by institution type and by aggregate

Degree of competence index	Aggregate of all institutional entities	Banks	Security dealers	Non-regulated
Investing activities in alternative assets	9	5	33	2
Structuring activities in alternative assets	-20	-38	-8	-10
Distributing activities in alternative assets	-27	-18	-13	-40
Advising activities in alternative assets	-6	-8	25	-14

Table 13 *SFCW Research*

If analyzed by product division things look quite similar. Financial institutions established in Switzerland show a strong competence in investment activities in both single hedge funds and single private equity funds. Advising in single private equity funds is a superior capability provided by financial institutions as well.

H. Future of the Alternative Asset industry

The same degree of «conservative optimism» was confirmed by most of the financial institutions when asked about the future of the alternative assets industry in Switzerland. The comments reflect a moderate view of the future, they assure the industry will continue to develop gradually but by no means will be a strong contender against other financial centers. According to this information we can easily recognize a spill effect within the financial center which has enormously profited from the existing local knowledge and expertise to develop new capabilities.

Table 14: Degree of competence index by product type

Hedge funds activities	Degree of Competence Index	Private equity activities	Degree of Competence Index
Investment in a trading strategy or SHF	24	Investment in SPEFs	38
Structuring SHFs	-37	Structuring SPEFs	-2
Distributing SHFs	-43	Distributing SPEFs	-33
Advising on SHFs	-22	Advising on SPEFs	20
Investing in FoHFs	2	Investing in PE FoFs	-36
Distributing FoHFs	8	Distributing PE FoFs	-44
Advising on FoHFs	14	Advising on PE FoFs	-39

Table 14 *SFCW Research*

4.2.3. Impact on Value Creation

Figures analyzed reflect a positive correlation between the number of employees managing alternative assets and the AUM the financial institutions exhibit. An interesting case is again security dealers, where extrapolation in the number of employees exists for small and big financial institutions.

If analyzed along the dimension of service division PECos offer an extreme image as well. Small and big companies employ on average the same amount of persons to manage private equity services. Nevertheless, medium size institutions utilize the biggest amount of employees leading to conclude that those institutions are already recognized mid size shops specializing in private equity transactions.

Table 15: AUM vs. average number of employees by institution type and by service provided

	Average number of employees					
	By institution type			By service provided		
	Banks	Security dealers	Non regulated	Companies only managing HF products (HFCos)	Companies only managing PE products (PECos)	Companies managing HF and PE products (IntegratedCos)
Less than CHF 250 million	2.7	1.8	3.8	2.3	3.9	1.0
CHF 250 million to less than CHF 500 million	3.0	4.0	5.5	4.2	3.7	2.5
CHF 500 million to less than CHF 1 billion	4.0	0.0	11.0	4.0	18.0	0.0
CHF 1 billion to less than 5 billion	9.1	21.0	11.8	10.6	17.2	8.8
CHF 5 billion to less than 25 billion	7.0	0.0	29.7	31.0	7.0	15.4
CHF 25 billion and more	62.5	8.0	24.6	29.3	2.0	50.8

Table 15 *SFCW Research*

4.3. Conclusion

According to the survey findings we can not refer to alternative assets as a business sector but as an integral and complementing part of the financial industry product palette specializing mainly in investment and advisory services. Their offers are geared towards private clients in the form of high net worth individuals as well as institutional investors.

Along the report we evaluated the capacity of financial institutions to offer private equity and hedge fund products though both structures. Institutions showed a higher degree of proficiency when managing both direct funds and fund of funds for private equity products. We also observed that each type of financial institutions tends to profile their staff towards very specific tasks. In the case of banks, staff dedicates most of their time to advisory services, security dealers to distribution and non-regulated companies to investment of alternative assets illustrating a certain degree of specialization. In addition, most of the alternative asset providers in Switzerland see themselves solely as advisors and tend to hire more personnel to take care of the hedge fund business.

security dealers revealed interesting characteristics as they seem to be the new motor driving alternative asset offerings in Switzerland. As a whole, they reflect more competences for managing non-traditional assets than the rest of the financial institutions in the market place.

The clustering effect of financial institutions offering alternative products was quite evident throughout our study, as most of the new organizations could be traced as spin-offs or new off-springs of traditional financial institutions around the Zurich, Zug and Geneva area.

Finally, we can assure that alternative assets have proved to be a «new investment route» in Swiss territory according to the year of institutional establishment. Managers believe that the industry will follow a steady pace in the next decade even if the optimism they express reflected a light of conservatism.

5. Securities Dealers, a New Class of Financial Intermediaries

With the enactment of the new Federal Act on Securities Exchanges and Securities Trading («SESTA», «BEHG») in 1997 a new regulatory category of financial intermediaries was introduced in Switzerland, the securities dealer («SD», «Effektenhändler»). Of the initial 420 applications, 38 licenses were granted by 1999. The number increased to 82 in 2002, since then it shrunk to 68 by 2005.

The associated ordinance and a SFBC circular define five categories of SD: own-account dealers, issuing houses, derivative houses, market makers and client dealers, the last-named being predominately active in the wealth management business. The regulation of the SDs is very similar to bank directives and is the same for all five categories.

The shrinking number and average size of the securities dealers indicate that this new category of financial intermediary has not been a successful concept. In general, the securities dealers seem to be overregulated. The regulatory burden is higher than for private banks with more than 100 employees and higher than for the banquier privé.[16] It is higher for smaller private banks, but the banking status bears also much higher reputation than the SDs'. The SDs' regulatory burden is much higher than for the unregulated Independent asset managers, which were very successful over the last ten years and employ a workforce eight times larger than the SDs'. The IAM's average gross value added per employee is similar to the SDs.

Table 16: Overview of securities dealers in Switzerland

Year	2001	2002	2003	2004	2005
Number of SD - of which foreign	77 30	82 33	73 29	68 22	68 21
Number of employees	1'688	1'841	1'399	1'213	
Average nr. of employees	22	22	19	18	
Gross value added (millions CHF) - per employee (CHF)	714 423'000	749 407'000	521 372'000	391 323'000	

Table 16 *SFCW Research*

16 *Buehrer, C., Hubli, I., Marti, E. (2005)*

6. Foreign Banks in Switzerland, Swiss Banks Abroad

For many decades, Switzerland has been an open international financial center with a substantial community of foreign banks. The foreign banks always played an important role in specific niches. In the 80's, they were primarily engaged in the international bond issuing business, today they focus on international private banking. In 2005, they have assets under management of close to CHF 900 billions. Their share in domestic gross value added (GVA) and number of staff employed has fluctuated between 12 and 21 percent since 1987. In 2004, the figures show a 14 percent share in domestic GVA. 16 percent of the domestic banking staff is employed by foreign banks.

During the same period, the fraction of the GVA produced abroad by all Swiss banks increased from six percent to 15 percent. The respective figure for the staff working abroad was five percent in 1987 and14 percent in 2004. For the big banks the figures grew from10 percent to 30 percent for GVA, and from eight percent to 25 percent for the number of staff (→ Figure 24).

Figure 24: Foreign banks' stake in domestic GVA and staff

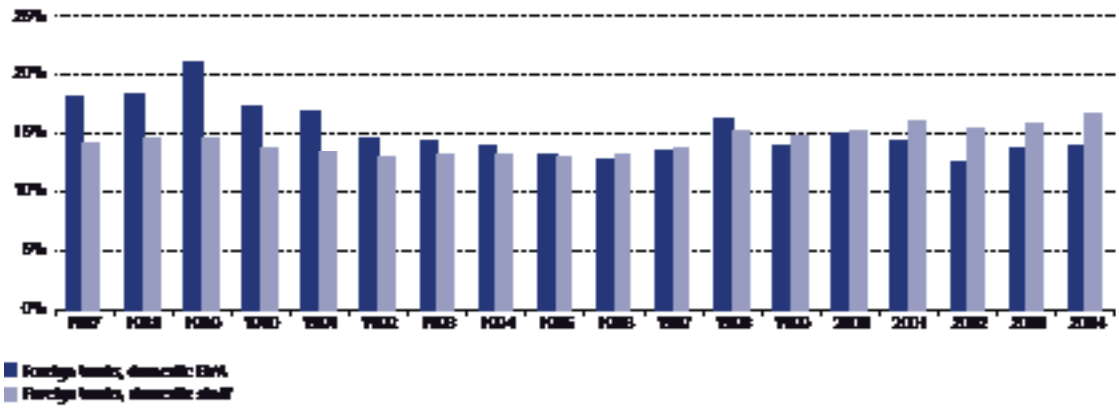


Figure 24 *SFCW Research*

In line with all other sections of this report, this analysis is based on the Swiss National Bank statistics, which only take into account banks domiciled in Switzerland and their branches abroad.[17] They do not include foreign subsidiaries of Swiss banks. The analysis shows that «Swiss Banking» is basically a business conducted within the geographic boundaries of Switzerland. Only the two big banks have branched out successfully into foreign territories.

The extent of internationalization of Swiss banking is not fully reflected in these figures. The two big banks have expanded their activities abroad primarily through takeovers and organic growth through foreign subsidiaries rather than branches. The analysis of the consolidated statements of the big banks reveals a much more pronounced internationalization than the SNB statistics.

Figure 25: All banks in Switzerland, foreign GVA and staff (in % of total GVA and staff)

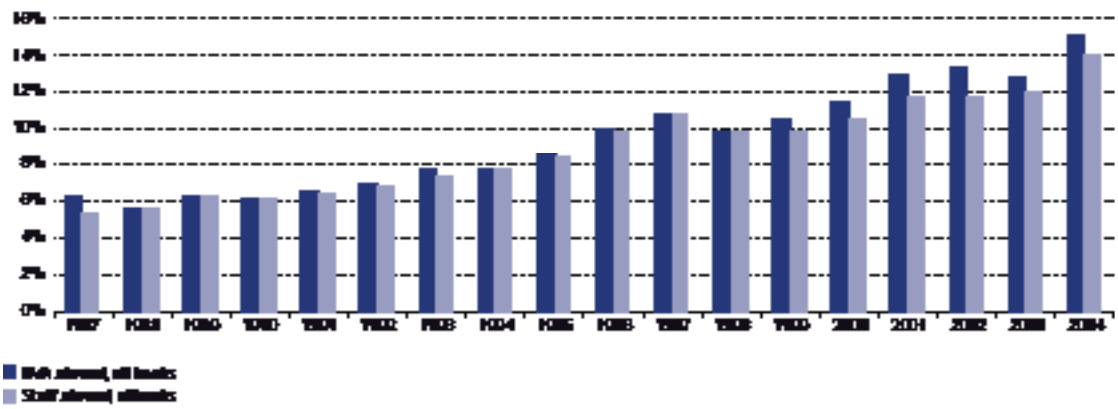


Table 17: Key figures on Swiss banks abroad

	1998	2004	Changes in %
SNB figures (non consolidated)			
- Gross output abroad	5'391	9'223	+ 71%
- Gross value added abroad	4'044	7'491	+ 85%
- Staff abroad	9'696	13'057	+ 35%
Consolidated figures			
- Gross output abroad	14'063	44'047	+ 213%
- Gross value added abroad	9'950	36'166	+ 263%
- Staff abroad	31'058	63'034	+ 103%

17 *The figures do include Swiss branches of foreign bank, i.e. SNB category 7.00*
Figure 25 *SFCW Research*
Table 17 *SFCW Research, SNB*

Within just a few years, the two big banks have changed their business model completely. Since 1998, they have developed from big Swiss banks with strong outposts abroad into big international banks domiciled in Switzerland. In this respect, the two big banks have become even more different from the remaining Swiss banks.

Figure 26: Big banks - consolidated figures, GVA (in millions)

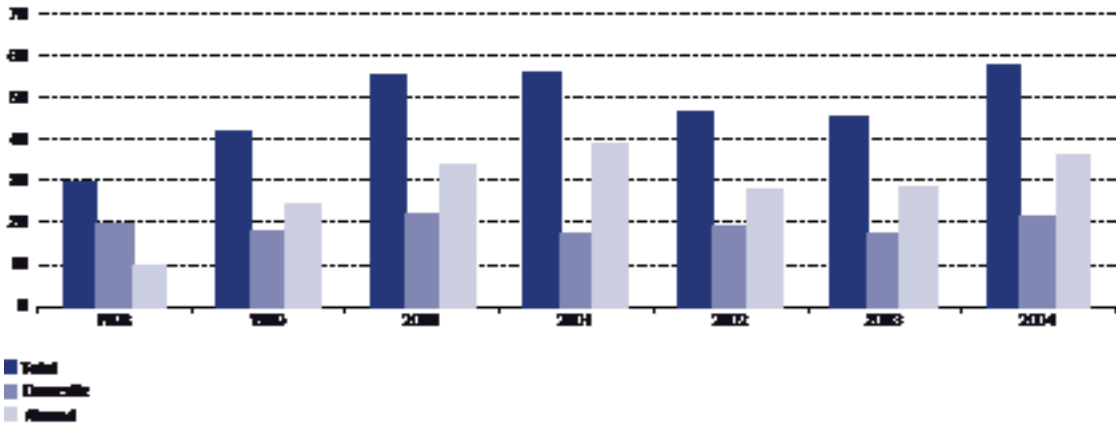


Figure 27: Banks - consolidated figures, number of staff (in 1'000)

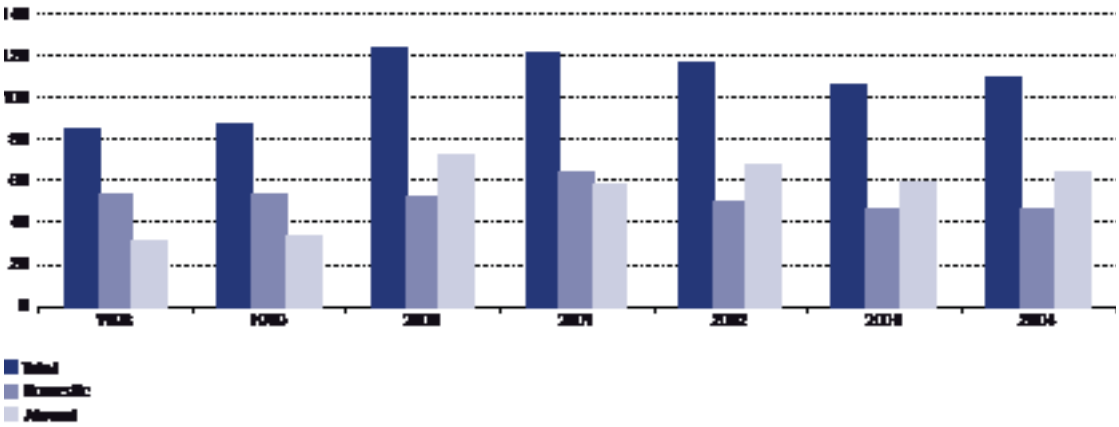


Figure 26 *SFCW Research*
Figure 27 *SFCW Research*

Taking into account the growth of the big banks through foreign subsidiaries by combining the SNB figures with the big banks' consolidated foreign figures, a much more international picture of Swiss banking emerges: The gross value added produced by Swiss banks abroad increases from 13 percent to 23 percent in 1998, and from 18 percent to 48 percent in 2004.

Figure 28: Gross value added SNB figures

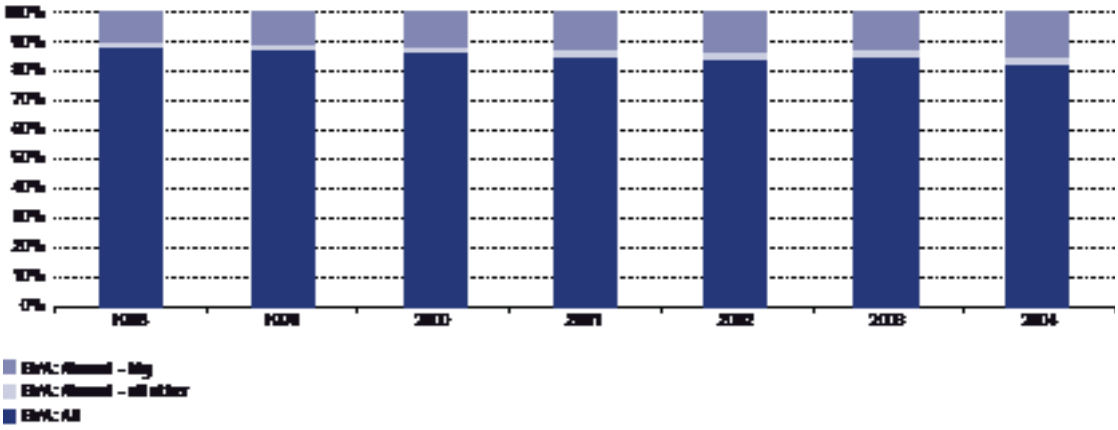


Figure 29: Gross Value Added Consolidated Figures

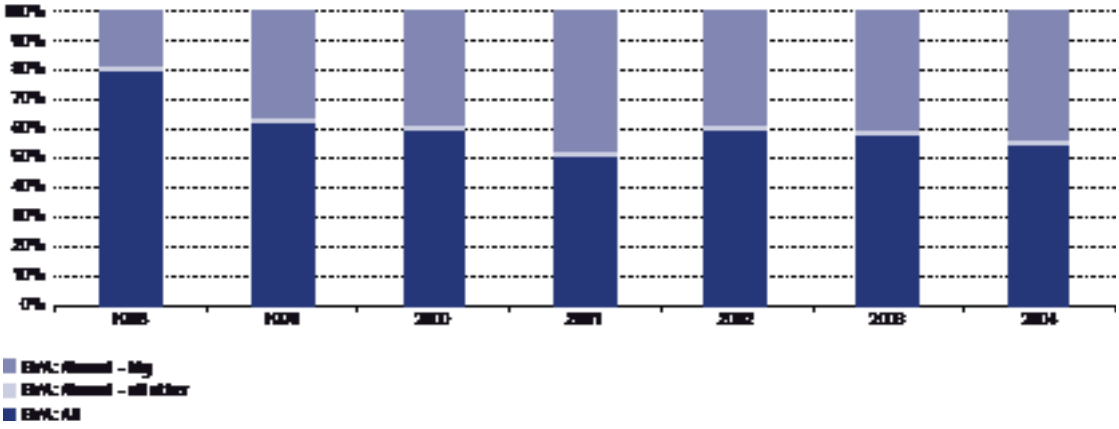


Figure 28 *SFCW Research*
Figure 29 *SFCW Research*

By using consolidated rather than SNB figures, the proportion of staff working outside Switzerland increases from 14 percent to 40 percent in 2004.

Figure 30: Number of staff consolidated

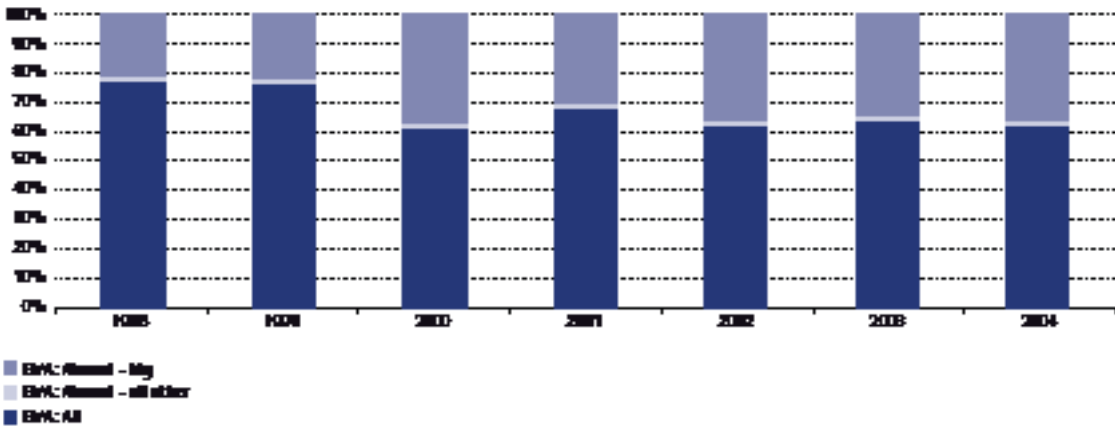


Figure 30 *SFCW Research*

7. The Industry Structure of the Foreign Banks in Switzerland

7.1. Foreign Banks Categorization by Country of Origin

Categorization by country of origin serves as a showcase window in which foreign banks can be readily classified. Germany accounts for the highest number of institutions with 19 banks in Switzerland, while Italy and France account for 16 institutions each. Two other strong contenders are the Anglo-Saxon nations - the United States has 19 banking institutions while the United Kingdom listed 11 institutions domiciled in Switzerland.

Countries like the Netherlands and Japan show a relative strong presence in the Swiss market with six institutions each. Whereas other neighboring nations such as Austria and Liechtenstein together with Middle Eastern countries form part of the lower tier. Figure 31 depicts the top 12 nations by number of foreign banks.

Figure 31: Top 12 - Number of institutions by country of origin (2005)

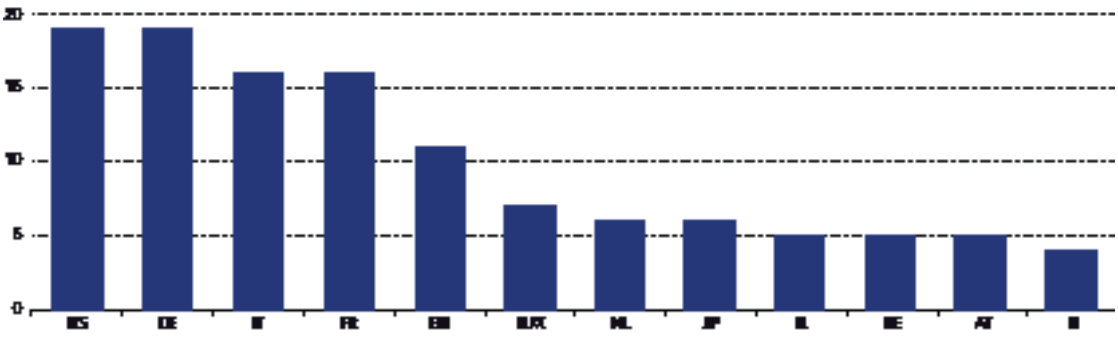


Figure 32: Number of institutions by regional area (2005)

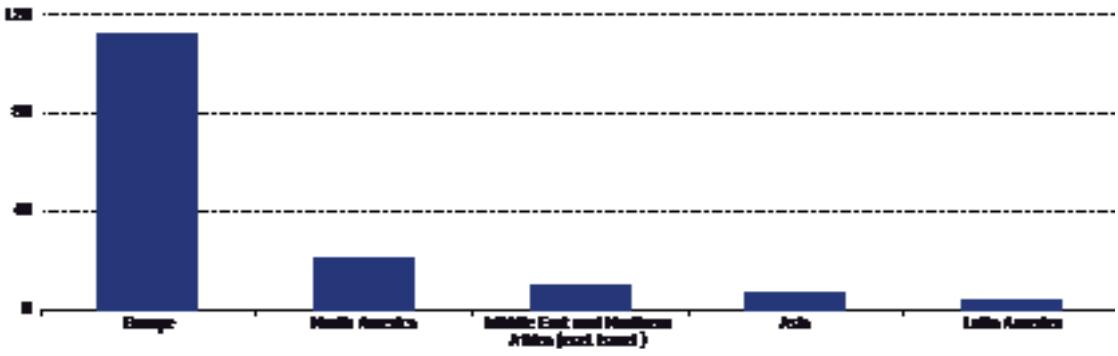


Figure 31 *SFCW Research, Association of Foreign Banks in Switzerland*
Figure 32 *SFCW Research, Association of Foreign Banks in Switzerland*

Institutions were furthermore classified by regional areas, by doing so a clearer geographical view was attained. As seen on Figure 32 European and North American presence can be clearly recognized. European banks represent 73 percent of the total foreign banks established in Switzerland and a less apparent 14 percent is constituted by North American banks. Banks belonging to Asian, Middle Eastern, African and Latin-American corporations make less than 15 percent all together.

Figure 33 shows a more didactical overview for the numbers depicted above. The darker colors represent the countries and regions with a higher concentration of foreign banks in Switzerland. As colors become lighter the number of institutions decreases accordingly.

Figure 33: National origin of foreign banks (2005)

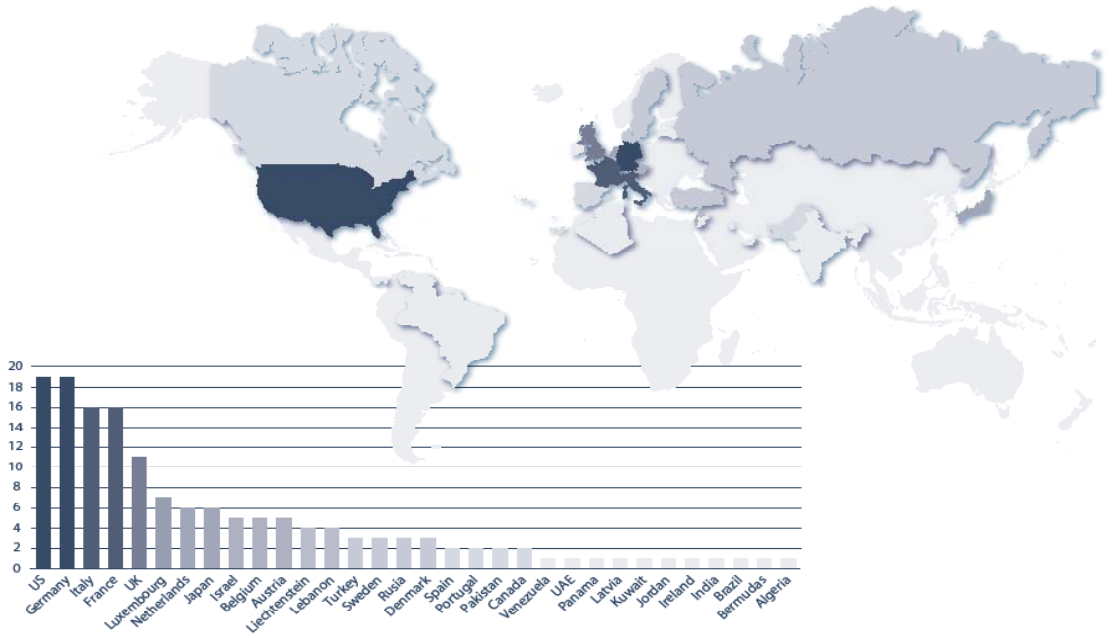


Figure 33 *SFCW Research, Association of Foreign Banks in Switzerland*

7.2. Foreign Banks Categorization by Type of Activities

In another attempt to analyze the data, foreign institutions were classified according to the type of services they provide to their clients.

As shown in Figure 34, the top five services offered by foreign banks include:

1. Activities aimed at individual investors - more than 15 percent (92 banks) of all foreign banks established in Switzerland consider advice to individual investors a priority.
2. Security trading services.
3. Fiduciary transactions. Almost one-fourth of the banking institutions perform both services, security trading services and fiduciary transactions alongside. Japanese, American and to a lower extent Russian banks specialize on security trading.
4. Another well established client activity is foreign exchange trade with 13 percent of foreign banks providing this service.
5. Finally services related to investment funds are activities favored by most European foreign banks with Danish institutions engaging 18 percent of their product palette to such activities.

We could also observe that the number of foreign institutions per country established in Switzerland contributes to the definition of the type of services which are provided.

Countries which report a minimum of five foreign banks in Switzerland tend to focus strongly on individual investors and security trading.

On the other hand, countries which are represented by four or less foreign banks show a completely different strategy regarding the availability of the services provided. Here we can refer to a clear trait geared towards specialization.

Figure 34: Foreign banks classified by type of services provided (2005)

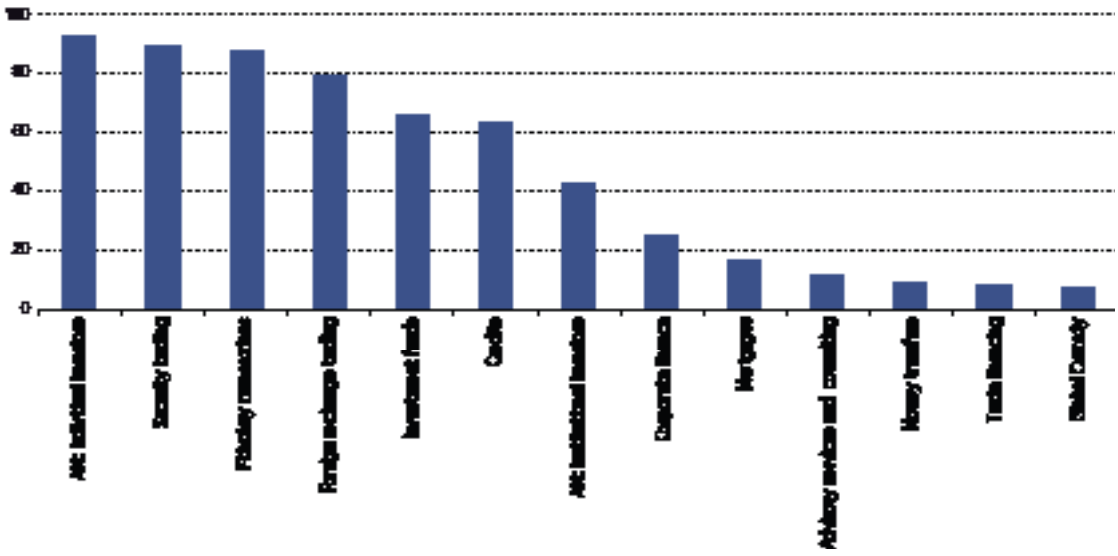
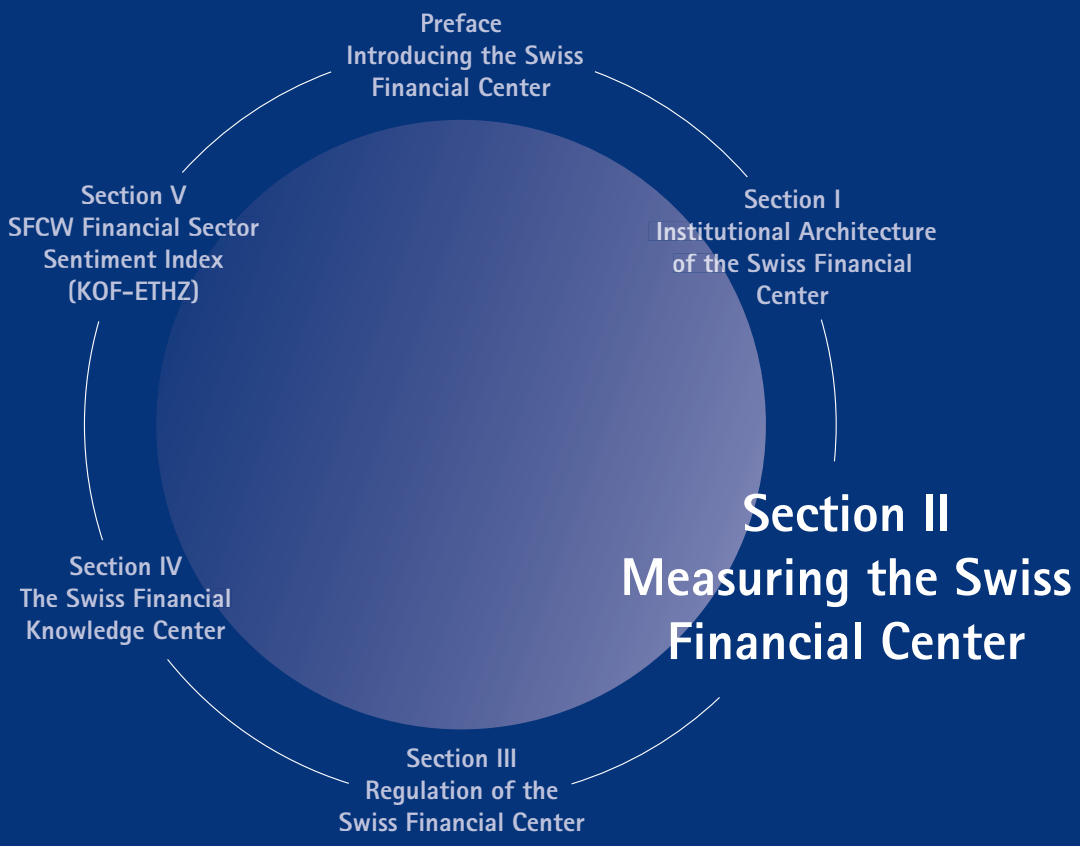


Figure 34 *SFCW Research, Association of Foreign Banks in Switzerland*


Preface
Introducing the Swiss
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Section II
Measuring the Swiss
Financial Center
Section III
Regulation of the
Swiss Financial Center
Section IV
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Knowledge Center
Section V
SFCW Financial Sector
Sentiment Index
(KOF-ETHZ)

Section II – Measuring the Swiss Financial Center

In this section, we demonstrate how the financial sector's net output can be measured by using gross value added. We focus on the one hand on the competitiveness of the Swiss banking and insurance industry compared to international competitors and on the other hand we analyze in particular the banking and insurance industry in Switzerland. Furthermore we try to find out the most significant determinants explaining these developments.

Key words	Key methods	Key data
gross value added	descriptive statistics	OECD Bank Profitability Statistics, OECD Insurance Statistics, OECD Economic Outlook
labor productivity	panel data analysis	World Bank World Development Indicators
output measure	generalized least squares	Financial Structure Database
banking	random effects model	CES-Ifo
insurance		University of British Columbia Pacific Exchange Rate Service
		Schweizer Nationalbank: Die Banken der Schweiz
		Bundesamt für Privatversicherungen: Zahlen und Fakten der Schweizer Privatversicherungen
		Bundesamt für Statistik.

Section Abstract

Comparing Financial Centers by Using Gross Value Added as Main Indicator

We demonstrate how the financial sector's net output and service production can be measured using aggregate financial statement data. We briefly examine current treatments of financial services in the national income accounts and introduce a conceptual framework for the construction of a financial firm's output measure consistent with the accounting approaches. Therefore, we focus in the one hand on the competitiveness of the Swiss banking and insurance industry compared to international competitors and on the other hand we analyze in particular the banking and insurance industry in Switzerland.

Determinants of Banks' Value Added – a Panel Analysis

So far, research on banking performance and its determinants has been limited to analyses of the return on equity and the return on assets. Several empirical studies have investigated the determinants of banks' performance and profitability, respectively. Most of the studies use two classes of explanatory variables, covering external and internal determinants. Internal determinants represent factors on a micro level, such as capital structure, cost and risk management. External determinants can be divided into control variables that describe the macroeconomic environment and variables which represent market characteristics, including market concentration or industry. Our analysis aims at enlarging the existing literature by a broader view on banking performance, focusing on three measures of competitiveness: labor productivity, capital productivity and the share of banking industries' value added in total value added (GDP).

Key Conclusions

Although Swiss banks generate in absolute terms less value added than some of their European competitors, their contribution to national economy is much higher in comparison to EU15 (13.3 percent of the GDP). In contrast, the Swiss insurance industry is only half as important as the banking industry.

Within the international comparison, the Swiss banking industry shows a high performance concerning labor productivity. Compared to the other countries, the value added per employee of the Swiss banking industry has an eye-catching performance. In contrast to this, the productivity of capital is only on the average. At national level, private banks and stock exchange banks have the highest labor and capital productivity.

Between the years 2000 and 2002 the Swiss insurance industry suffered a significant slump concerning their value added. In contrast to the Swiss banks the Swiss insurance companies perform worse: the Swiss insurance industry ranges in the middle field. Before 1996 their labor productivity was the highest within the EU15.

The cantonal banks, regional banks and saving banks as well as the Raiffeisen banks have a clearly higher portion of net interest income than the other banking groups. Regarding the private banks, stock exchange banks and foreign owned banks, the gross output consists mainly of the income from fees and commissions.

The two major banks generate on average 48.7 percent of the Swiss banking industry's total value added. The Raiffeisenkassen banks experienced the most significant increase within the considered period.

The contribution of the three insurance sectors to the insurance industry's total GVA remains constant during the analyzed period. Indemnity and life insurance companies generate about 80 to 85 percent of the insurance industry's total gross value added; the reinsurance companies make a contribution of 15-20 percent.

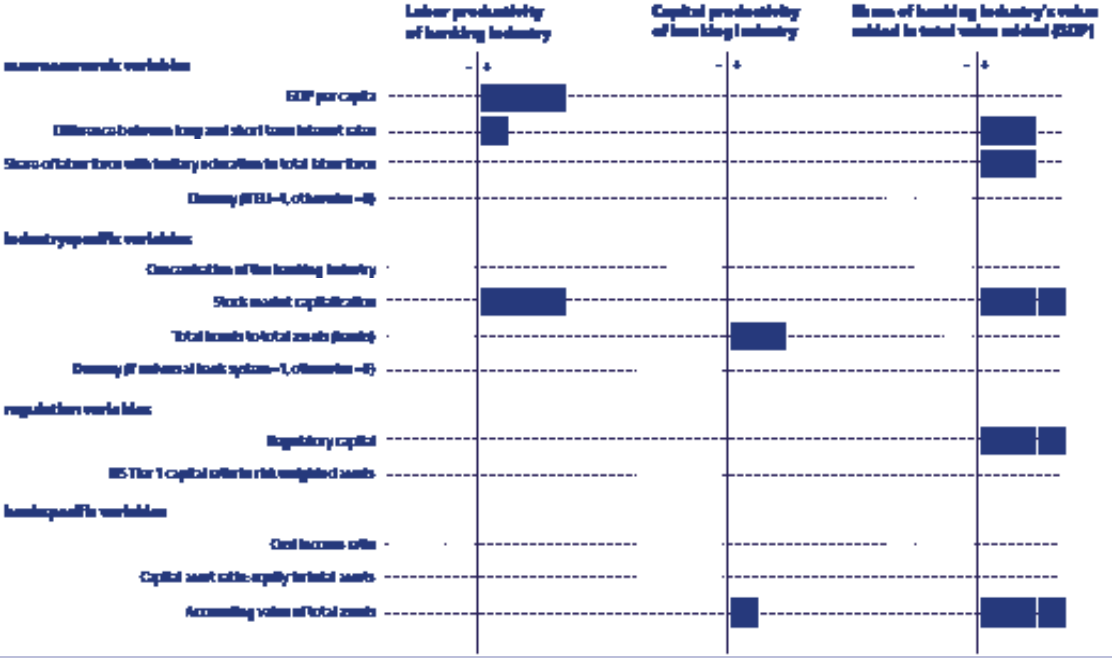
According to our estimations, the most significant factors belong to the class of variables describing the industrial environment. In line with our expectations, market concentration has an overall negative impact the banking industry's competitiveness. Competitiveness in terms of all three included variables systematically depends on the financial market system. The size of the stock market has significant positive effects on banks' value added and their labor productivity.

From the class of bank specific factors the cost management turns out to be the key determinant of banking industries' competitiveness.

Regulation – measured by the BIS Tier 1 capital ratio - has a negative and significant effect on the productivity of capital. Regulatory capital instead turns out to have a highly significant positive impact only in relative value added. Positive effects of regulation must be weighed up against its negative effects on capital productivity and value added.

Per capita income turns out to be significant only in the labor productivity estimation. We do not find any evidence for trade openness to positively affect the banking industry's competitiveness.

Figure 35: Most significant determinants explaining banks' gross value added



1. Objective

This study contributes to the discussion on the measurement of financial sector output. It also serves as a lead-in to discussing possible causes of productivity changes in banking and insurance companies and other financial services providers.

We demonstrate how the financial sector's net output and service production can be measured using aggregate financial statement data. We briefly examine current treatments of financial services in the national income accounts and introduce a conceptual framework for the construction of a financial firm's output measure consistent with the accounting approaches. Financial institutions in different countries do different things. While London, New York and Tokyo may be the primary places for certain products, other centers may be equally or more important for others. If one were looking for a metric for an one-dimensional ranking of financial centers by size, value-added in financial services would be most appropriate.[18] It can be compared from company to company and country to country. Therefore the concept of «value added» is adopted to circumvent some of the difficulties, like differences in accounting and reporting standards,[19] in making comparisons between banks and insurance companies in different countries.

Furthermore, we focus on the one hand on the competitiveness of the Swiss banking and insurance industry compared to international competitors and on the other hand we analyze in particular the banking and insurance industry in Switzerland over time considering the following dimensions:

- Contribution of the industry to national economy, respectively of the different groups to the industry,
- Productivity measures,
- Domestic gross value added and gross value added abroad,
- Outsourcing rate,
- Analysis of the creation and distribution of gross value added,
- Other profitability and efficiency measures.

18 *Tschoegl (2000), p. 8*
19 *Fixler (1991), p. 53*

2. The Economic Concept of Value Added

Value added refers to the additional value created at a particular stage of production. In modern neoclassical economics, especially in macroeconomics, it refers to the contribution of the factors of production, i.e., land, labor, and capital, to raising the value of a product and corresponds to the incomes received by the owners of these factors.

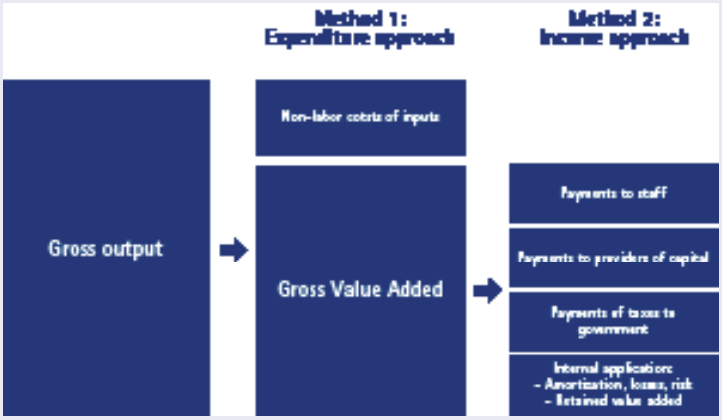
Economists use the value added method as a way to avoid double counting. The sum of the value added in each of the different stages of production equals the value of the final product, the product that drops out of the production process and is thus not incorporated in some new product. The total value added of resident producers in a national economy represents the economy's gross domestic product (GDP). Usually the term «net output» refers to the contribution of a particular economic sector to the total value added or GDP within a time period (quarter, year, etc.).[20] Value added is a measure of output which allows comparisons across countries and different economic structures.

There are two main ways of calculating value added: the expenditure approach (subtractive method) and the income approach (additive method) which may be linked or connected in different ways.[21] Since only «produced» things can be «distributed», first of all, the source of the value added has to be considered. These two approaches are illustrated in the Figure 36.

The two methods yield the same results because the total value of the goods and services produced must be by definition equal to the total income paid to the factors that produced these goods and services.

Using the value added as output measure has the following advantages: first, it is a simple theoretical concept. This measure considers the contribution and performance of actors in the wealth creation process. Second, the required information is almost always readily available and established. Third, value added is a useful economic parameter to measure and compare the financial sector with other sectors of the economy.

Figure 36: Expenditure and income approach of GVA



20 *Meyer-Merz (1985), S. 40*
Figure 36 *SFCW Research*

21 *Wenke (1987), p. 173*

2.1. Expenditure Approach: Creation of Value Added

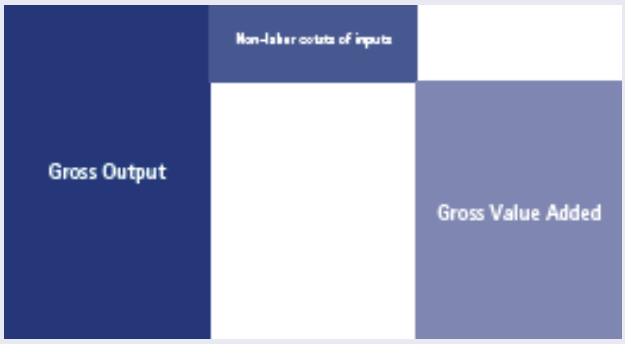
Gross value added (GVA)[22] is defined as gross output minus the value of intermediate goods and services. Gross output represents the total value of sales produced by enterprises in an accounting period. Deducting the value of intermediate goods used, or more specifically the non-labor costs of inputs, leads to the GVA. The expenditure approach can also be called «subtractive method» or «direct method».[23]

Value Added = Gross output (Sum of revenues) – Non-labor costs of inputs

2.2. Income Approach: Distribution of Value Added

Value added is a measure of the wealth generated by the collective effort of those who work in a company, industry or economy – the employees and ownermanagers – and those who provide the capital – the investors.[24] The value created by a company is used to reward the stakeholders and to sustain and develop the business. In most companies, the biggest share of the added value goes to the employees in the form of wages, salaries, bonuses, holiday pay, the employer's contribution to pensions and national insurance, and all other forms of staff cost. Another part is allocated to those who provide capital. This contribution is paid either in the

Figure 37: Creation of GVA



22 *Gross value added includes depreciation charges or consumption of fixed capital*
23 *Göckeler (1975), p.17*
Figure 37 *SFCW Research*
24 *Rütter (1986), pp. 7-11*

form of interests or dividends. However, before the shareholder receives a dividend, the government demands a share of value added in the form of taxes. The company is thus paying indirectly for services provided by the government. The final share of value added is retained in the company for depreciation or retained profit. In effect, depreciation can be regarded as a charge for the ownership and use of assets. Thus, as the next figure shows, there are four major shares:

1. Wages, salaries, and other employment costs → payments to staff
2. Dividends and interest on loans → payments to providers of capital
3. Taxes on profit → payments of taxes to government
4. Internal application: Amortization, losses, risks and retained value added (positive or negative)

Compared to the «subtractive method», one speaks of the «additive method».

Value Added = Payments to staff + payments to providers of capital + payments of taxes to government + Internal use for creating wealth, covering losing and risks or depreciation

Thus, both the expenditure and the income approach of value added result in the same value for GVA. The two approaches are the core of the macro-economic calculation of domestic product.[25]

Figure 38: Distribution of GVA

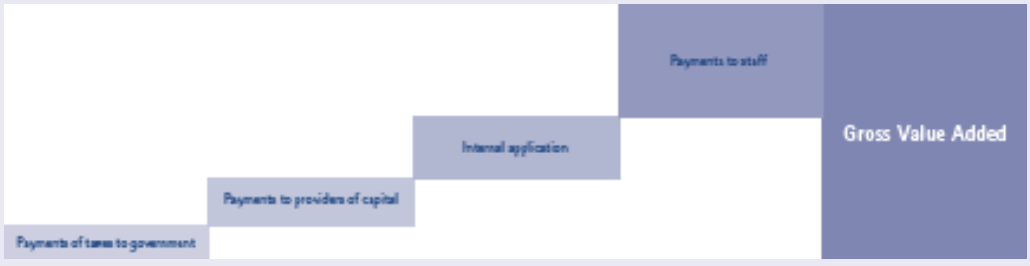


Figure 38 *SFCW Research*

25 *Ehmer (2002), p. 25*

2.3. Purpose of Value Added

Added value is mainly used for:[26]

1. measuring output:
   - basis of national accounting
   - measuring business performance
   - measuring the productivity of labor and capital
2. informing «stakeholders»:
   - explaining the business
   - presenting accounting information
   - basis for employee participation
3. public policy

2.4. Value Added and Productivity

The concept of value added is a broader concept than the concept of profit. Value added represents the value of the production process, whereas profit is the residual value that belongs to the provider of equity capital after the providers of labor, government services and debt capital have been rewarded. However, value added does not replace the profit measure, but is another form of measuring performance and could provide a better way of describing the performance.

Productivity is a ratio of output to input. Productivity ratios usually relate units of one single input, for example the value of labor cost, number of employees or worker days, to one single output, for example financial measures such as turnover or value added, or physical measures such as tonnes produced. Productivity measures are applied by using «net output per employee», respectively «net output per capital»:

Net output per employee = Value added p.a. / total number of employees

Net output per capital = Value added p.a. / total capital

Such productivity presentations can be useful for monitoring performance and making comparisons internally within the company, and externally with other companies in the same industry, or with other industries.

26 *Wood (1978), p. 19*

3. Applying the Concept of Value Added to the Financial Sector

Finding the correct definition of output is a major issue for research on the financial industry's productivity. As well known, measurement of output is problematic mainly in the service sector, due to problems such as aggregation and quality. But the output of financial institutions raises particular difficulties. One of the main difficulties regarding output measure in the financial service sector is the intangibility of its products.

At a practical level, the obvious starting point for measuring the sector's output is to look at the way it is treated in the national accounts. In national accounts such as the United Nations System of National Accounts (UNSNA),[27] GVA is obtained by deducting intermediate consumption from gross output. Thus GVA is equal to net output.[28]

Instead of using national accounts measures, most studies of productivity tend to adopt either the «production» or the «intermediation» approach. If one takes a look specifically at banks, according to the production approach, they are treated as firms using capital and labor to produce different categories of deposit, loan and other products. Output is measured by the number of these accounts or the number of transactions carried out on each type of product, while total costs are all operating costs to produce these outputs. In the intermediation approach, banks are treated as intermediaries of financial services rather than producers of loan and deposit account services. Furthermore, the values of loans and investments are used as output measures and labor and capital are inputs to this process, hence operating costs plus interest costs are the relevant cost measure. Deposits may be either inputs or outputs.[29]

The value added approach differs from these two approaches in that it considers all liability and asset categories to have some output characteristics rather than distinguishing inputs from outputs in a mutually exclusive way. According to this line of thinking, output is the production of the services to depositors and borrowers and other banking services.

27 Fixler/ Zieschang (1991), p. 55
28 Collwell/ Davis (1992)
29 Colwell/ Davis(1992), pp.112-113

3.1. The Banking Industry

A key difference between companies in the banking industry and the industrial sector lies in the definition of the output value. The revenues of banks consist for the most important part of net interest - the difference between interest[30] received (primarily from loans) and interest paid (primarily on deposit accounts). By implication, banks provide services for which there is no explicit charge, and the cost of these services must be partly or wholly offset by net interest. The difference between the GVA-calculation for a bank and for an industrial or trading company lies in the treatment of interest expense: for an industrial company, interest payments are an element of distribution of GVA. The bank is an intermediary between the savor and the investor. This intermediation is the raison d'être of a bank, the net interest income is thus part of value added. Interest expense is not a distribution of GVA; it is a kind of non-labor costs of inputs, respectively intercept income.

The output of banks equals the total revenue inclusive the fees and commissions receivable. The fees and commissions payable are part of the non-labor costs if inputs. The output consists of the following positions:[31]

- net interest income
- fees and commissions receivable
- net profit and loss on trading operations
- other net non-interest income

For evaluating the GVA, the non-labor costs of inputs have to be deducted from the gross output. In the banking industry, the non-labor costs of inputs consist of the following positions:

- fees and commissions payable (provisions and similar expenditures for services business: performances provided by other financial institutions)
- costs of material relating to banking business: i.e. occupancy costs, operational costs
- other expenditures

For detailed information about the subtractive and additive calculation methods of a bank's GVA see the Appendix 1.

30 *Fixler (1991), p. 54*
31 *Göckeler (1975)*

3.2. The Insurance Industry

The net output of an insurance company can be defined as the sum of GVA from insurance operations. Some of the «insurance operations» are linked to the investment of capital, primarily in the case of life insurance. The insurance function can be produced only by combining operations and investments. One major problem of determining GVA in the insurance industry is whether an item of the income statement belongs to the GVA from insurance (operations and necessary capital), or whether is it part of capital investments outside the insurance function. We calculate the output of the insurance operations by subtracting the payments to cover risks from the gross premiums, and we add the interest earned on the insurance funds. Realized capital gains and losses are part of the output of the insurance funds.

The key difference between the insurance and the banking industry is the following: in insurance, interest costs do not count as non-labor costs of inputs. In the insurance industry, the income from capital and the interest costs from non-insurance operations are neutralized.

Like for the banking industry, for evaluating the GVA, the non-labor costs of inputs have to be subtracted from the gross output. Concerning the non-labor costs of inputs, one has to distinguish between non-labor costs of inputs from the insurance operations, non-labor costs of inputs from capital investment and operational costs:[32]

- non-labor costs of inputs from insurance operations, such as expenditures for reinsurance «to cover risk» or provisions paid to freelance agents
- non-labor costs of inputs from capital investment of insurance function, such as custody fee or courtage paid to banks
- operational costs: costs of material relating to insurance business or capital investment of the insurance function, i.e. occupancy costs, other expenditures

For detailed information about the subtractive and additive calculation methods of an insurance company's GVA see Appendix 2.

32 *Weinstock (1986)*

4. International Comparison: How Switzerland Compares to its Peers

4.1. Data Information

4.1.1. Banking Data

Covering the period from 1991 to 2003, the sample includes the banking industries of Germany, Ireland, Luxembourg, Switzerland, United Kingdom and the United States.

We use annual data drawn from bank income statements aggregated at the country level. The data are taken from OECD Bank Profitability Data. The OECD Bank Profitability Statistics provides information of national banking data grouped and re-classified in common income and expenditure accounts of banks to fit, as far as possible, into a common framework that is comparable across countries. The data include the different banking groups from the various countries:

- Germany: all universal banks operating in Germany
- Luxembourg: all credit institutions in Luxembourg
- Ireland: all licensed banks and building societies
- Switzerland: Bank groups 1.00 to 5.00 (no data for subsidiaries of foreign-owned banks 7.00 and private banks 8.00)
- UK: nine major British banking groups (prior to 1996, the Standard Chartered Group was included)
- US: domestic commercial banks and federally insured savings institutions (savings banks and savings and loan association)

The time span of the available data varies somewhat from country to country: For Switzerland, the United Kingdom and the United States it is 12 years (1991-2003), for Germany it is 10 years (1993-2003), for Ireland it is 8 years (1995-2003) and for Luxembourg it is 2 years for data computing GVA indices, and 10 years (1993-2003) for the rest of the data.

4.1.2. Insurance Data

As in the banking industry comparison, the sample includes the insurance industries from Germany, Ireland, Luxembourg, Switzerland and the United Kingdom, covering the period from 1991 to 2001. There is no data available for US insurance companies. Here again, the annual data was gathered from the OECD Insurance Statistics. Unfortunately, the database does not include enough data for evaluating GVA. For this reason, the analyzis of the insurance sector is limited to net written premiums.[33] The data include the following insurance sectors from the various countries:

- Germany: Figures from small mutual societies excluded; from the life insurance companies, pension and death benefit schemes are included as well as specialized health insurance companies in non-life.
- Ireland: Data do not include professional reinsurers which do not need a license and are not supervised. Health insurance premiums are not included.
- Switzerland: Insurance entities not included in statistical data; recognized Health Funds subject to the supervisory authority of the Federal Social Insurance Office, Swiss National Accident Insurance Organisation (SUVA), Swiss Public Fires Insurances (SPFI).
- UK: Reinsurance companies are included in the number of non-life companies.

The time span of the available data varies somwhat from country to country: For Switzerland and the United Kingdom it is 10 years (1991-2001), for Germany and Ireland it is 8 years (1993-2001) and for Luxembourg it is 6 years for the data analyzed. The OECD banking and insurance data have been adjusted for inflation and currency.[34] For inflation adjustment, we used the data of CES-IFO,[35] for currency adjustments, data from the University of British Columbia.[36]

33 *Net written premiums are defined as gross written premiums minus ceded premiums*
34 *base year 2004; base currency US dollar*
35 *http://www.cesifo-group.de/pls/diceguest/search.create_simple_search_page*
36 *http://fx.sauder.ubc.ca/data.html*

4.2. International Comparison of the Banking Industry

Table 18 summarizes the most important GVA figures across the different countries considered for 2003.

Table 18: Summary of the most important GVA-figures across different banking industries

Country	CH	DE	IRE	LUX	UK	US
GVA Banking industry / GDP	12.5%	3.8%	5.9%	26.3%	6.7%	5.1%
Emplyoment Banking industry / Total Employment	3.3%	1.8%	2.0%	11.5%	1.6%	2.3%
GVA per Employee (in 1.000 USD)	300.5	136.3	264.6	232.6	272.4	176.1
GVA / Capital	0.34	0.27	0.25	0.22	0.77	0.43

Table 18 *SFCW Research, OECD*

4.2.1. Contribution to National Economy

In analyzing the banking industry's contribution to the GDP, the values remained relatively constant over the time period. As one can see in Figure 39, the values of the countries converge in the 4 to 5 percent bracket, except for Switzerland and Luxembourg. The Swiss banking industry accounts for 10 to 15 percent of the total GVA throughout; increasing between 1996 and 2000, and declining after 2000.

The banking industry's significance to a country's economy is reflected both, in its contribution to the GDP and its contribution to total employment. Like the banking industry's contribution to the GDP, generally speaking, the labor force of this sector maintains a constant level of contribution to the total national employment over time. However, independent of the time period, the banking industry's contribution to national employment has been remarkable in Luxembourg. With more than 10 percent, Luxembourg's banking industry is top class with respect to the share of labor force. The contribution is over three times larger compared to the other countries. According to the data during the 12-year period (1991-2003), British banks provided the lowest contribution of the banking industry to total employment. Their contribution has not changed significantly. The Swiss banks regularly employ about 4 percent of all employees.

Figure 39: International comparison of banking industry's GVA to the GDP

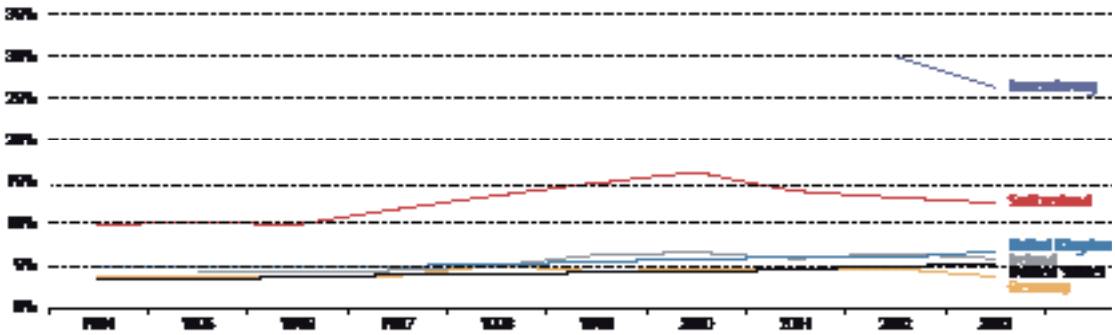


Figure 40: International comparison of banking industry's contribution to the country's total employment

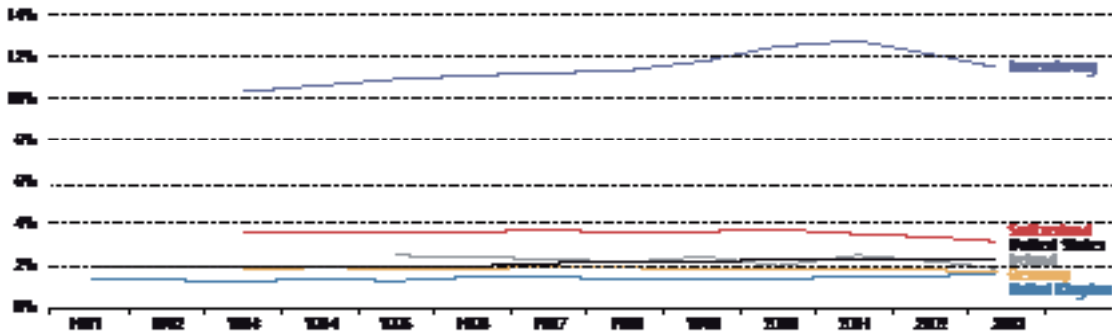


Figure 39 *SFCW Research, OECD*
Figure 40 *SFCW Research, OECD*

4.2.2. Productivity Measures

Comparing company data of net output in relation to the number of employees can give further insight – particular since human capital is one of the most important input factors of banks. GVA per employee can be interpreted as a key figure for measuring the productivity of the banking industry.

As expected, the GVA per employee is generally highest among banks from Luxembourg and Switzerland. Moreover, it is clearly observable that these two countries stand out from their peers, although the gap between other banking industries is narrowing. The United Kingdom and Ireland have notably increased their labor productivity since 2001.

Looking across countries, labor productivity is showing a regular upward trend. Banks have improved their GVA with respect to their employees, with the exception of Germany.

Comparing net output in relation to capital – the capital productivity can be interpreted as a second productivity measure. According to the data spanning from a 12 year period (1991-2003), the highest capital productivity was experienced by the United Kingdom. The other countries show a rather continuous capital productivity of around 0.3 to 0.5.

Figure 41: International comparison of labor productivity (USD, 1'000)

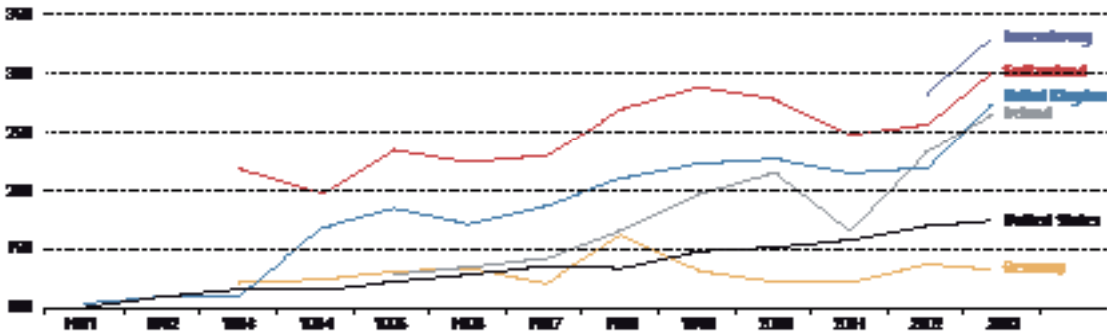


Figure 42: International comparison of capital productivity (GVA/Capital and Reserves)

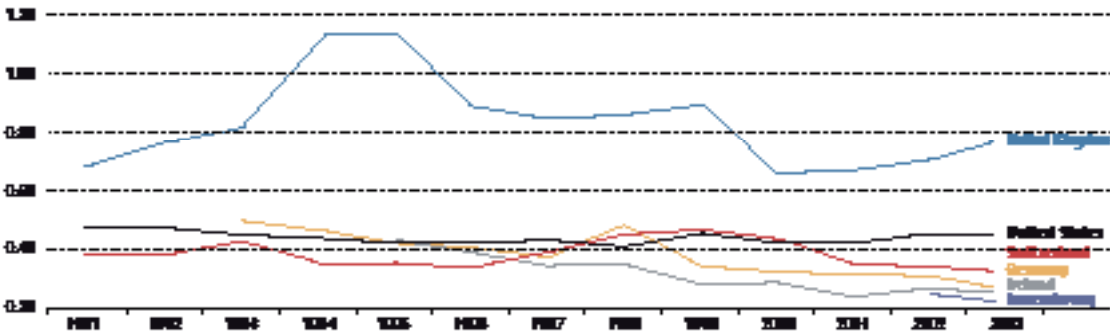


Figure 41 *SFCW Research, OECD. LUX: missing data before 2002; US: new calculation for gross output data before 2001*
Figure 42 *SFCW Research, OECD. LUX: missing data before 2002; US: new calculation for gross output data before 2001*

4.2.3. Outsourcing Rate

The «outsourcing rate» can be interpreted as total personnel costs to total costs. By outsourcing one understands the spin-off of company activities which were settled so far within the company, to other companies.

The total amount of personnel costs in the U.S. banking industry are impressively low in relation to total costs during the period covered. Switzerland, in comparison, displays the highest ratio of total personnel costs to total costs. This can be interpreted as a highly integrated value chain, i.e., a low outsourcing rate, and a high level of salaries.

4.2.4. Analyzing GVA

Creation of GVA:

Figure 44 and Figure 45 break down the GVA into its components. As mentioned before, GVA is defined as the difference between gross output and non-labor costs of inputs. Furthermore, in the banking industry, gross output can be subdivided into the following two parts:

1. net interest income.
2. non interest income (fees and commission receivable, net profit or loss on financial operations and other net non-interest income).

As seen in Figure 44, Swiss banks show the lowest interest income relative to gross output. The non-labor costs of inputs are the lowest for the United Kingdom.

Figure 43: International comparison of total personnel costs to total costs

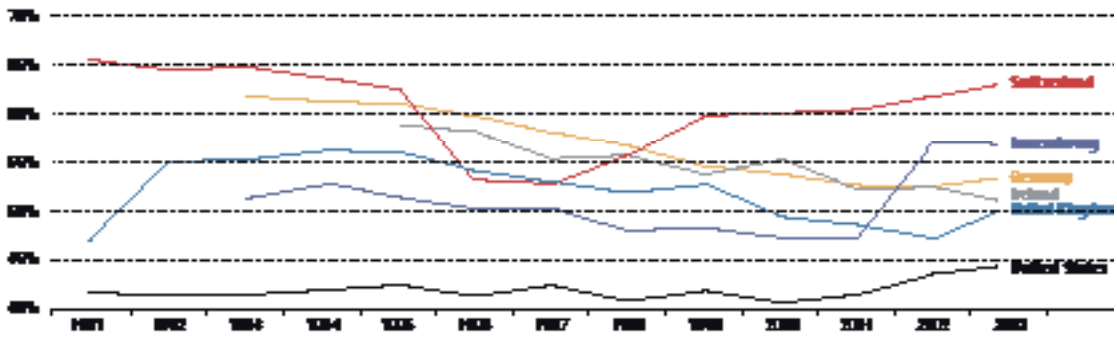


Figure 43 *SFCW Research, OECD*

Figure 45 shows further details of Swiss banks' gross output. The GVA is composed, in comparison to the other countries, of a comparatively small share of net interest income and a high share of fees and commissions receivable. This might be an indicator for a strong asset management industry.

Figure 44: International comparison of source of GVA (in % of gross output)

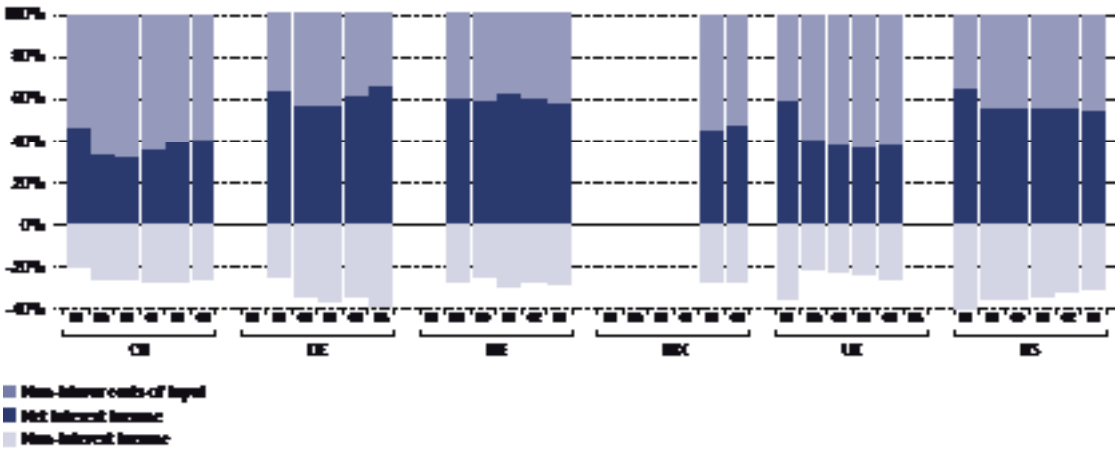


Figure 45: Segmentation of Gross Output – Switzerland (in % of gross output)

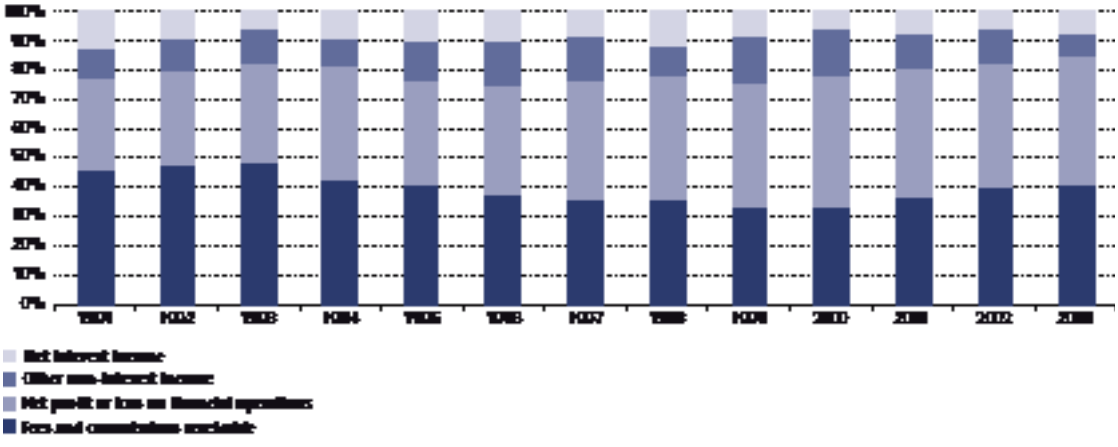


Figure 44 *SFCW Research, OECD. For detailed information about the calculation method see Appendix 1*
Figure 45 *SFCW Research, OECD. For detailed information about the calculation method see Appendix 1*

Distribution of GVA:

Overall, Figure 46 summarizes the average distribution of GVA over the period 2001-2003. It is obvious that at 50 percent, the share paid to staff is the highest in Switzerland, whereas the percentage of payments to government is less than in the other countries, with the exception of Germany. In Germany and the United Kingdom, there is a large amount of amortization, retained GVA and in-vestments. The U.S. banks show a large part of flows to government and to providers of equity.

Figure 46: International comparison of average distribution of GVA (2001-2003)

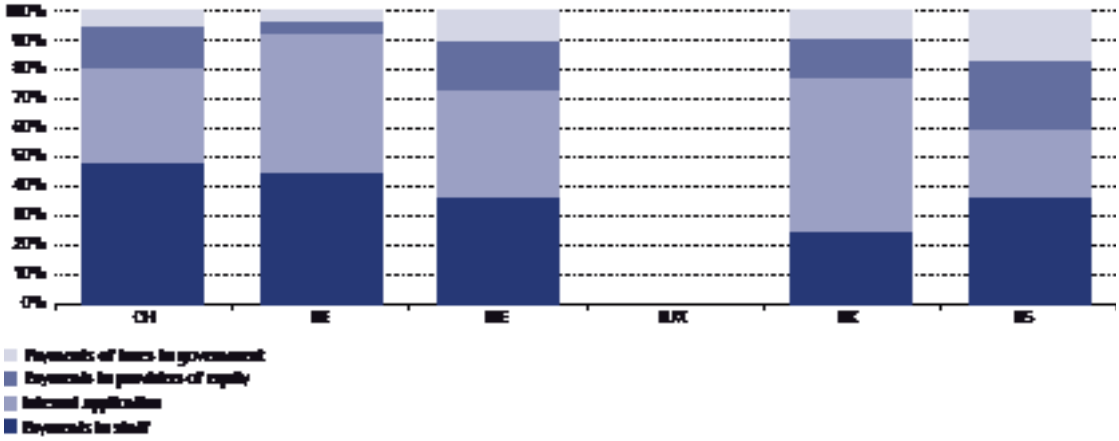


Figure 46 *SFCW Research, OECD. LUX: no available data*

As illustrated in Figure 47, the largest and growing part of the Swiss banks' GVA – around 50 percent - is paid to staff. In contrast, the share of internal application (amortization, retained GVA and investments) is comparatively high in the United Kingdom. In the United States, the payments to providers of capital are higher than in the other countries. In comparison to their peers, Swiss banks pay a small part of their GVA to government, whereas the United States show a larger share of payments in the form of taxes.

Figure 47: International comparison of distribution of GVA (in % of GVA)

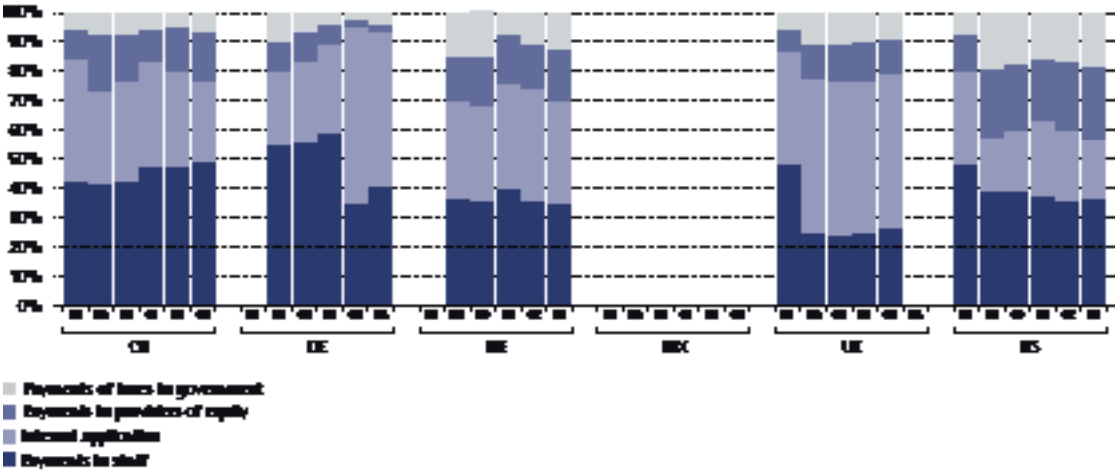


Figure 47 *SFCW Research, OECD. LUX: no available data. For detailed information about the calculation method see Appendix 1*

4.2.5. Other Profitability and Efficiency Measures

In analyzing financial firms, it is important to measure their performance in relation to other firms in the industry. Traditionally, this is done by using conventional financial ratios, such as the return on equity, cost-income ratio, level of capitalization, per employee data, etc.

Return on equity:

Return on equity values have generally displayed approximately the same development for all countries during the period.

Average return on equity is highest in the United Kingdom. German banks perform worst since 1999.

Figure 48: International comparison of return on equity

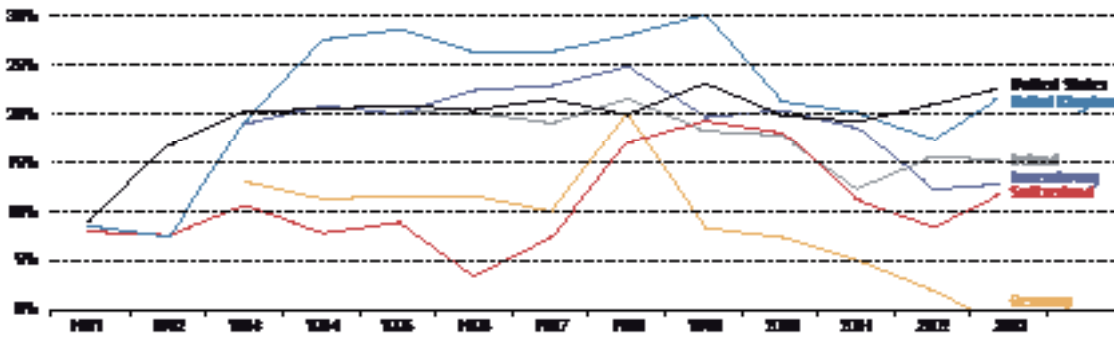


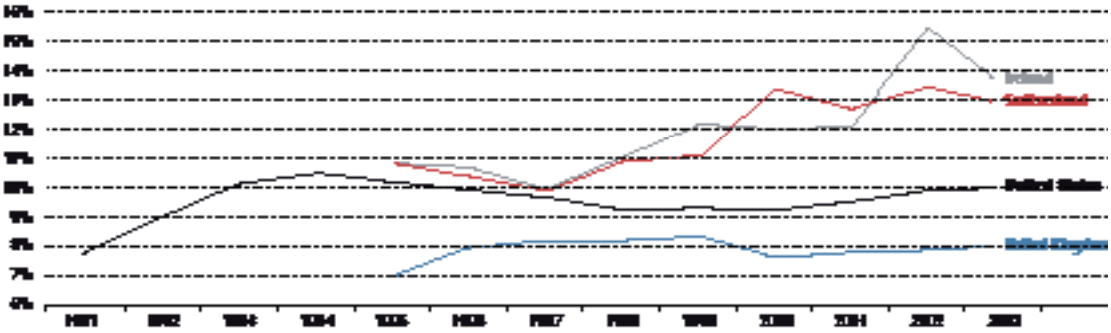
Figure 48 *SFCW Research, OECD*

BIS-tier-one capital ratio:

Return on equity diagrams cannot be assessed without taking into consideration the various levels of capitalization. It is therefore helpful to look at the BIS-tier-one capital ratio which measures the capital level in relation to the risk weighted assets. Tier one capital is the core measure of a bank's financial strength from a regulator's point of view.[37]

Swiss banks hold a larger amount of equity in comparison to their peers. This might explain the relatively poor performance of Swiss banks in terms of the return on equity. Swiss banks, like the banks from Ireland, have high costs of equity and are highly capitalized. Comparably, the British banking industry shows on average a small capitalization.

Figure 49: International comparison of BIS-Tier-One Capital Ratio



37 *Cocca (2005), p. 12*
Figure 49 *SFCW Research, OECD. Missing values for Germany and Luxembourg*

Equity per employee:

Switzerland's banks mainly rely upon advisory business. For this kind of business less equity is needed.

Figure 50 shows the development of equity per employee to be rather flat until the year 2000 for most countries. The only exceptions are the large jumps experienced by the banking industries of Luxembourg and Ireland after 2001.

Figure 50: International comparison of capital & reserves per employee (USD, 1'000)

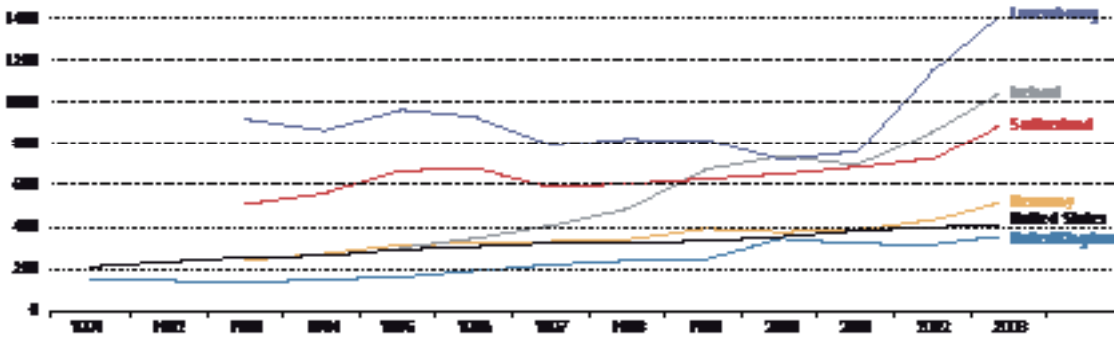


Figure 50 *SFCW Research, OECD*

Equity output-ratio:

The ratio shows the amount of units of equity needed to produce a certain level of output. It measures the average portion of employed equity to the amount of goods and services produced. A high equity output-ratio means a large amount of equity is needed for producing one unit of gross income. The equity output-ratio is the reciprocal value of equity productivity.

Figure 51 shows British banks requiring the smallest amount of equity to produce one unit of gross income.

Figure 51 : International comparison of equity output-ratio

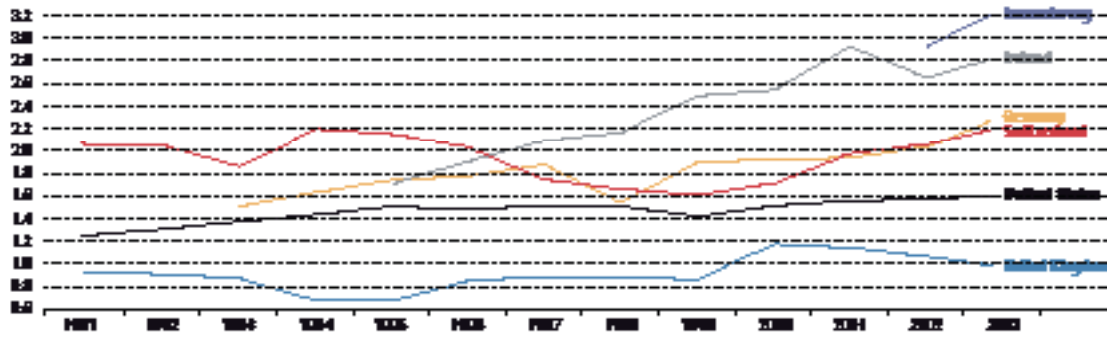


Figure 51 *SFCW Research, OECD. LUX: missing data before 2002*

Cost Income-ratio (before depreciation):

The cost income-ratio can be interpreted as a standard measure for assessing operational efficiency.

Overall, the development of the cost income-ratio over time is similar for all countries, although at different levels. Banks in Luxembourg have performed well. They seem to have a lower cost income-ratio than banks in other countries. Luxembourg is a small financial center. The banks operate essentially in the commission business.

Compared to their peers, they are operating very efficiently. Ireland's cost income-ratio improved constantly. Switzerland is positioned in the middle. Obviously, Switzerland is not always one of the best performers. German banks seem to have the highest cost income-ratio in comparison to the others, especially in the last years. The cost income-ratio for German banks was approximately 70 percent in the period from 1998 to 2001. This ratio is dramatically higher than in other banking industries following 1999.

Figure 52: International comparison of cost income-ration

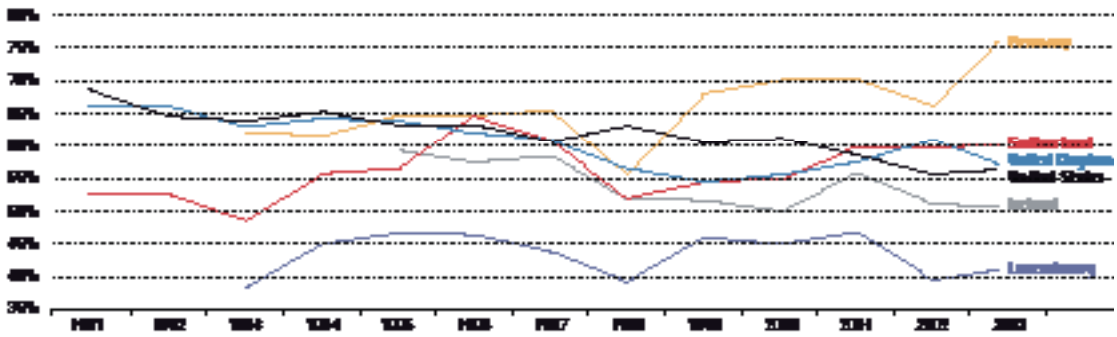


Figure 52 *SFCW Research, OECD*

Total costs per employee:

Obviously, Swiss banks have on average higher total costs per employee than their peers. The ratio has grown steadily and rather quickly in the past 12 years. In the international comparison, the United Kingdom and particular Luxembourg, show low total costs per employee.

Figure 53: International comparison of total costs per employee (USD, 1'000)

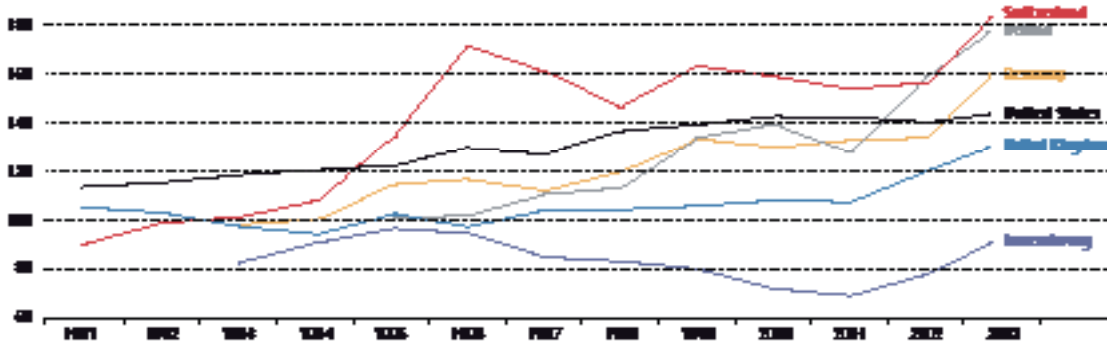


Figure 53 *SFCW Research, OECD*

Personnel costs per employee:

Like the total costs per employee, personnel costs per employee are by far the highest in Switzerland, whereas the United Kingdom and the United States show the lowest costs. Obviously, the banking industry in Luxembourg reduced their personnel costs per employee dramatically between 1996 and 2001. Following 2001, however, they increased again.

Figure 54: International comparison of personnel costs per employee (USD, 1'000)

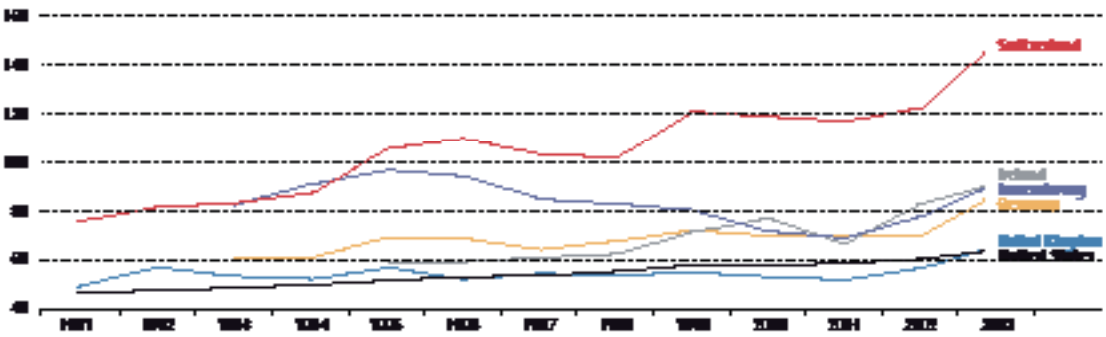


Figure 54 *SFCW Research, OECD*

Revenue per employee:

Switzerland and Luxembourg show higher revenues per employee than their peers. In Ireland the revenue per employee increased more than in the other countries.

Figure 55: International comparison of revenue per employee (USD, 1'000)

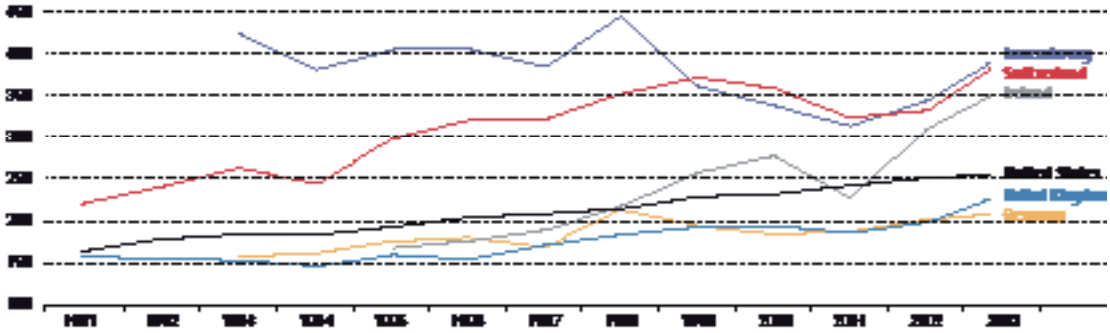


Figure 55 *SFCW Research, OECD*

Gross profit per employee:

Figure 56 combines results from the last two analyzes. By subtracting the total costs from the revenues, the ratio increases for Luxembourg. Due to the high revenue on the one hand, and the generally low costs on the other, banks in Luxembourg show a comparatively high gross profit per employee. Switzerland, which is indeed generating high revenues but at the same time high costs, ranges on average.

Figure 56: International comparison of gross profit per employee (USD, 1'000)

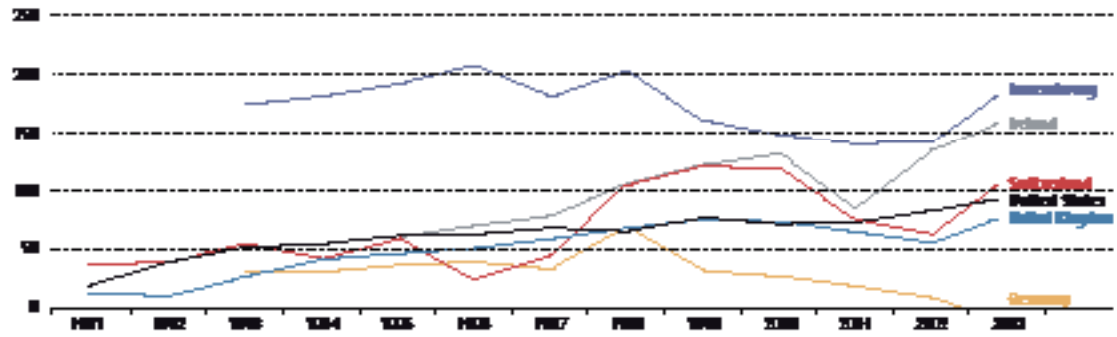
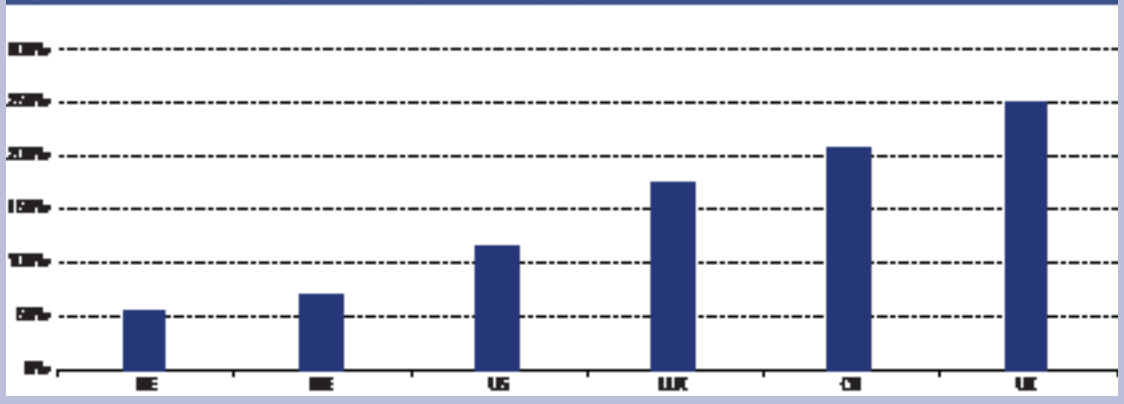


Figure 56 *SFCW Research, OECD*

◉ Financial Markets

The condition of financial market is important because of three aspects. First, the success of asset management business (revenues, net new money, etc.) is dependent on the situation in the equity and bond markets, as performing markets lead to client demand for brokerage and portfolio management services. In contrast, falling market conditions nearly instantly influence the demand for such services in a negative way. Secondly, not only banks and other financial services providers are subject to these effects. The revenue of financial infrastructure institutions like stock exchanges (SWX, NYSE, etc.), securities settlement (e.g. SIS Intersettle) and data providers (e.g. Bloomberg, Telekurs) is directly dependent on the market conditions. Finally, in Switzerland the market capitalisation compared to the Swiss Gross Domestic Product is very high, as depicted in the following graph. Thus, the financial market is of paramount importance for the Swiss economy as a whole.

Figure 57: Domestic Market Capitalization compared to GDP (2005)



The Figure 58 and 59 show the domestic market capitalisation as well as the bond market capitalisation. As one can see, all examined markets show a rising capitalisation at the end of the 1990s, the fall starting in 1999 and a recovery in 2003. It can be concluded that, from a relative point of view, the conditions of the analysed countries were similar.

Figure 58: Development Domestic Market Capitalization (1990 = 100%)

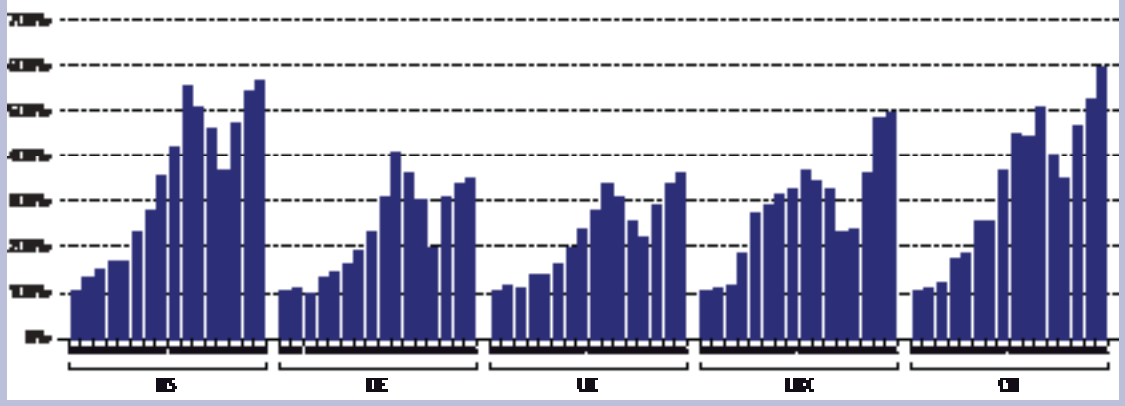
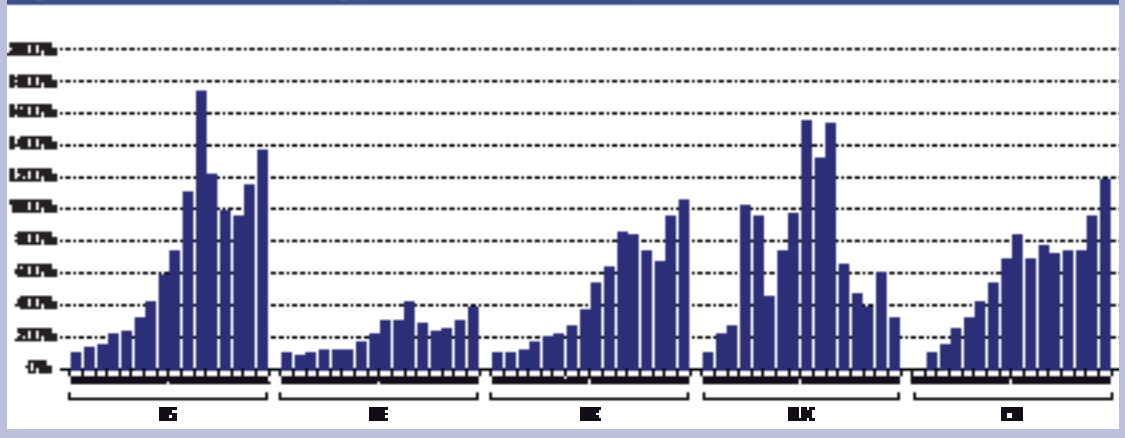


Figure 59: Total Value of Share Trading (1990 = 100%; CH: 1991 = 100%)



The same is true for the trading volume, with one exception: The volume of share trades in Switzerland did not fall at the end of the 1990s but remained nearly constant. In all countries with significant equity markets the upturn in 2004 and 2005 can be observed. This development continued in 2006.

For the bond markets as depicted in the following graph, it can be seen that Luxembourg has gained much importance for debt instruments during the last years. The Swiss bond market has underperformed, compared to Luxembourg and United Kingdom. The same is true for the United States and Germany.

Despite the strong development in the equity markets, the bond market did not grow just as robust.

Figure 60: Bond Market Capitalization (1990 = 100%; DE: 1991 = 100%)

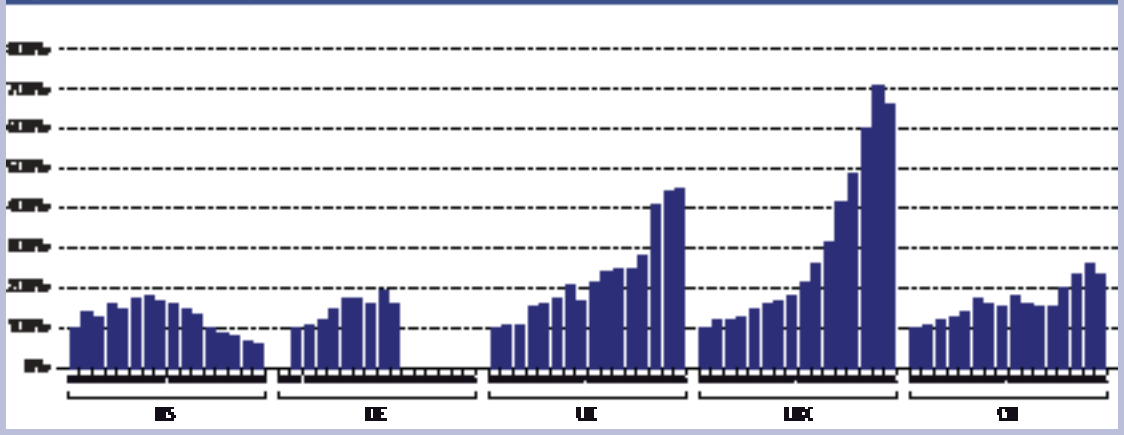
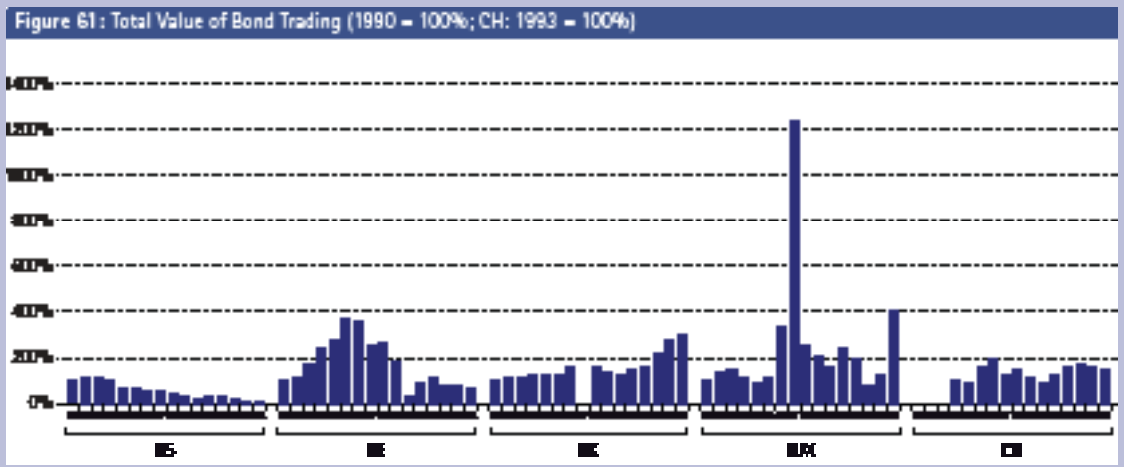


Figure 61: Total Value of Bond Trading (1990 = 100%; CH: 1993 = 100%)



◉ Foreign Exchange

The Society for Worldwide Interbank Financial Telecommunication (SWIFT) is an industry-owned service provider who supplies standardized messaging services. It was formed in 1973 to facilitate communication among banks and to replace the large post mail and fax traffic. Today about 8'000 financial institutions in more than 200 countries are SWIFT members and use SWIFT messages to send and receive instructions or confirmations regarding different kinds of financial transactions. SWIFT's core messaging service is called SWIFTNet FIN and is an interactive communication service, providing a request and response message exchange among the connected institutions. The messages are transferred on a secure IP network in standardized formats called Message Type (MT). To each different type of financial transaction a specific number is assigned. Today, the average total traffic of messages amounts to almost 13 million per day.

Looking at this traffic in detail may allow insights into the connectivity structure of the participating institutions. Depending on data availability, such an analysis could provide evidence for concentration or decentralization trends of financial flows and the relative importance of geographical areas or even specific institutions.

We analyze a unique data set provided by SWIFT. For that, we construct a network model. Network models are increasingly used by the banking and finance community to describe and analyze divers topics such as payment- and settlement systems, shareholder ownership structures, borrowing and lending relationships, or the importance of financial centers. Besides other things, the network properties allow for conclusions regarding resilience and contagion in case of systemic failure or attacks.

The data set consists of the aggregated MT300 message traffic from country to country between the years 2003 and 2006. The SWIFT message type MT300 includes all confirmations for foreign exchange trades. This means that each time a foreign exchange trade is entered and a trade confirmation is exchanged between a SWIFT member from one country with a SWIFT member from another country this traffic is recorded. The data set does not include the currency details nor the trade value of the underlying foreign exchange trades. It simply represents the number of foreign exchange deals that have been entered by SWIFT members during a particular year. We do not have any information regarding the dollar value of the trade volume. Furthermore it is unknown by how many institutions the message traffic of one country has been triggered.

To avoid over-interpretation we keep our analysis elementary. The degree of data aggregation does not allow for a detailed analysis in terms of single countries or institutions on a micro level. It merely provides insights into the general structure and large-scale shifts in the network. Considering these restrictions we are interested in the following questions:

- Who are the most important countries (big players) in the global network?
- Are there large-scale shifts in the big player network structure over time?
- Which countries act as gatekeepers for peripheral countries?

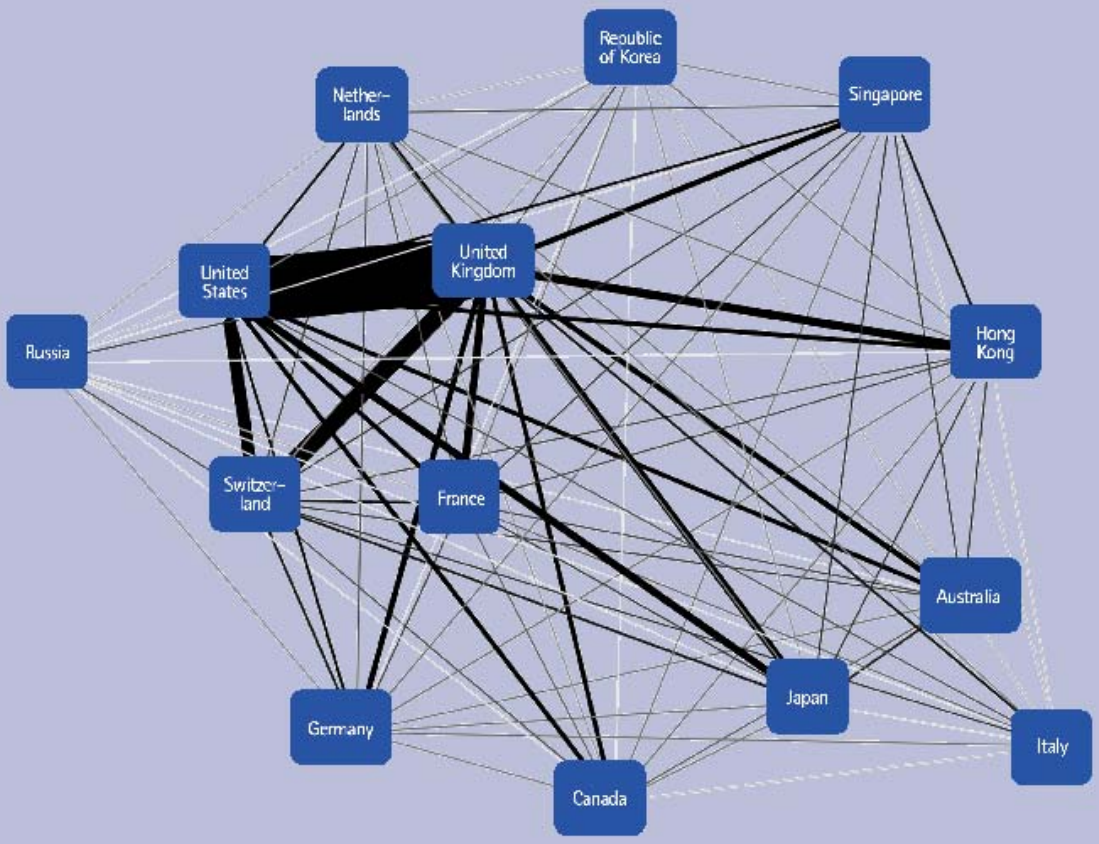
For the big player analysis we classify the countries according to their strength (appendix). As strength and connectivity are highly correlated we assume that strength is an adequate proxy for relative trading activity. For the observed time period of four years, we identify 14 countries with a strength larger than 10 million messages. GB is by far the most active node in the network. The exchanged messages sum up to almost 280 million in total. The second largest player is the US with around 220 million messages followed by Switzerland (CH) with roughly 70 million messages. The number of messages is gradually decreasing to 10 million representing Italy (IT). The ranking is illustrated in the figure below.

To account for possible contingencies in the data, we set the minimum number of messages for a link to 10'000. Weak relations with less than 10'000 messages are thus excluded from the big player subgraph. The resulting network, consisting of 14 nodes, is almost a complete network. The only link that is missing is the one between the Republic of Korea and Italy. There is a dominant relation between UK and US. Together with Switzerland they form the strongest triangle in this subgraph. UK seems to be the most important hub, followed by US that acts as a hub for all countries except for Italy and Russia. These two countries maintain strong relations only to UK and Switzerland.

Over the four year period from 2003 to 2006, UK, US, and the Republic of Korea show an overall average annual growth rate of more than 20 percent. Relatively high average growth rates can be reported for Switzerland, Japan and the Netherlands. All other big player countries show average growth rates below 10 percent, mostly with decreasing tendency. Germany's and Singapore's average growth rate is even negative.

The overall network structure of the SWIFT MT300 network between 2003 and 2006 can be described as a scale-free network with a few countries acting as hubs for most other countries. As could be expected GB, US, and Switzerland are the most important nodes in that respect. While the connectivity of the network was relatively constant during this time, the number of messages significantly increased. The triangle GB, US, and Switzerland acting as central hub for most other countries gradually enhanced its strength over time. The composition of the 14 big player countries is not a surprise. Each country includes a globally important financial center with strong presence of local banks and branches of global financial institutions. While most big players show an increase in message traffic, Germany and Singapore recorded a decrease. A particular eye-catcher is Russia's development among the big players. It shows a significant growth with all other big players, especially Italy. It furthermore acts as a gatekeeper for some of the CIS countries. The gatekeeper functions of France and South Africa can also be explained by their political background.

Network structure of the SWIFT MT300 network between 2003 and 2006



4.3. International Comparison of the Insurance Industry

Table 19 gives a short summary of the most important net written premium figures across the different national insurance industries for the year 2000.

Table 19: Summary of the most important net written premiums figures acr. different insurance industries (2000)

Country	CH	DE	IRE	LUX	UK
Total net written premiums / GDP	12.6%	7.3%	15.1%	25.6%	16.1%
Total net written premiums per employee (USD, 1'000)	764	543	1'398	535	712

Table 19 *SFCW Research, OECD*

4.3.1. Total Net Written Premiums to the GDP

Figure 62 shows the total net written premiums of the different national insurance industries to the GDP. The ratio has been remarkable in Luxembourg. The net written premiums make up around 27 percent of the GDP during the analyzed period. The German insurance industry shows the lowest performance with around six to seven percent. Except for Ireland, where the total net written premiums to the GDP increased constantly between 1993 and 2000 (from eight to 15 percent), the other insurance industries' ratio remained at a constant level.

Figure 62: International comparison of total net written premiums to the GDP

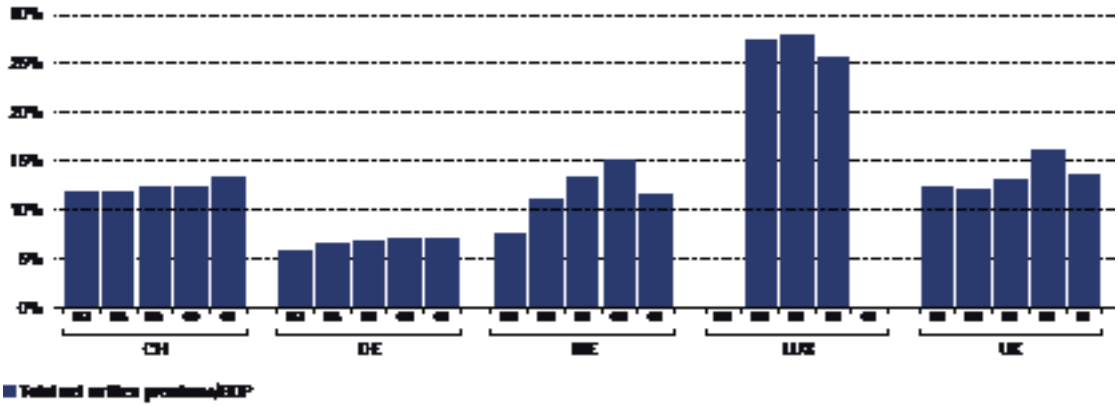


Figure 62 *SFCW Research, OECD. LUX: missing values for 1993 and 2001*

4.3.2. Contribution to Total Net Written Premiums

For international comparison, the total net written premiums of an insurance industry can be split into the net written premiums of the two insurance sectors: life and non-life. Switzerland, Ireland and the United Kingdom show approximately the same percentage: two thirds of the total net written premiums are earned by life insurance companies. For the German insurance industry, it's exactly the opposite. In Luxembourg, net written premiums of life insurance companies are the highest, making up 90 percent of the total net written premiums.

Figure 63: International comparison of net written premiums of life and non-life

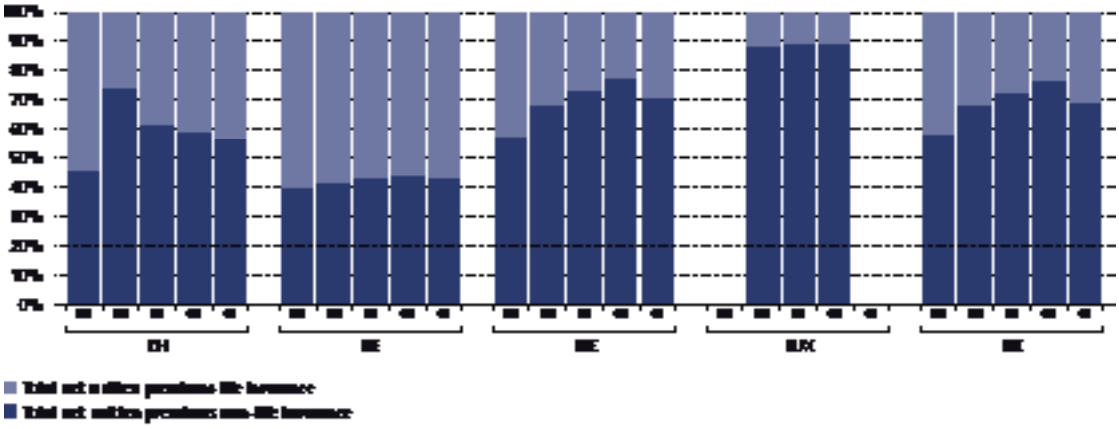


Figure 63 *SFCW Research, OECD. LUX: missing values for 1993 and 2001*

4.3.3. Total Net Written Premiums per Employee

Due to missing data, the GVA per employee cannot be computed. Instead, the total net written premiums per employee of the different national insurance industries are compared. Ireland, where the total net written premiums to the GDP increased constantly between 1993 and 2000 (from eight to 15 percent), the other insurance industries' ratio remained at a constant level.

Irish insurance companies were able to increase their total net written premiums per employee from 600'000 USD per year to 1'400'000 USD per year between 1993 and 2000, decreasing in 2001 to 1'000'000 USD per year. The Luxem-bourg insurance industry was also able to augment its average total net written premiums per employee: from 200'000 USD per year to 600'000 USD per year between 1994 and 2000. The other insurance industries show a similar development. They remained constant at around 600'000 USD to 800'000 USD per year for Swiss insurance companies, 500'000 USD to 700'000 USD per year for British insurance companies and an average of around 600'000 USD per year for German insurance companies.

Figure 64: International comparison of total net written premiums per employee (USD, 1'000)

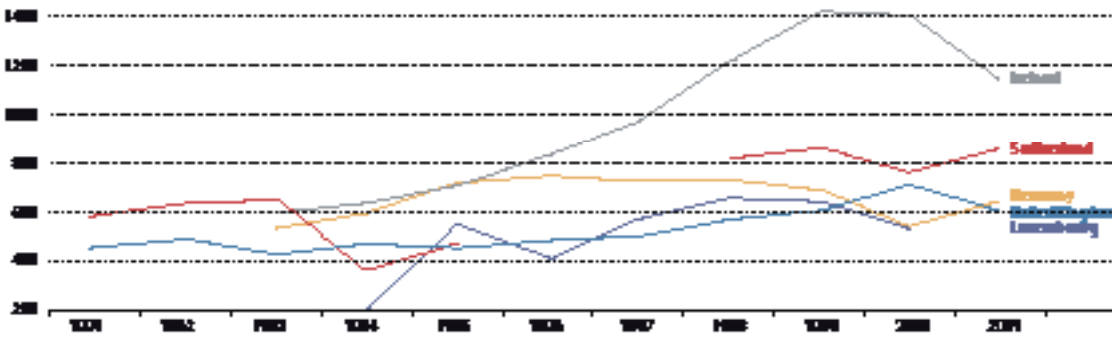


Figure 64 *SFCW Research, OECD. CH: missing values for 1996 and 1997*

5. Analysis of the Swiss Financial Sector

Figure 65 summarizes the significance of the banking and insurance industries for the Swiss economy. The importance of these two industries is reflected not only in the contribution to the GDP but also in terms of the number of jobs they provide to the economy.

The contribution of the banking and insurance industries to the Swiss GDP fluctuated between 12 and 17 percent in the last eight years. It increased continuously, reaching 17 percent in the year 2000 and then dropping in the year 2001 to 14 percent. In the last three years, the contribution of the two industries has remained constant at a level of around 12 to13 percent. The contribution of the banking industry is ap-proximately twice to three times larger than the contribution of the insurance industry.

Figure 65: Contribution of the banking and insurance industries to the GDP

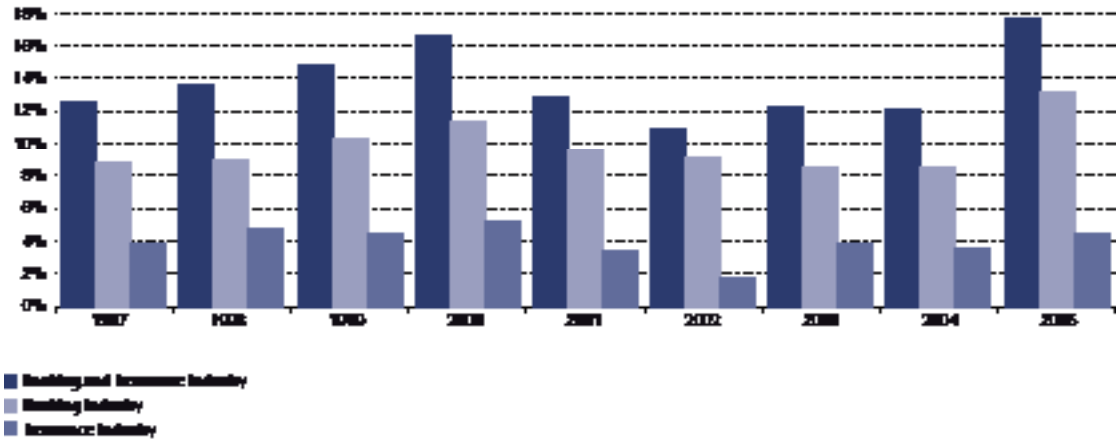


Figure 65 *SFCW Research, SNB*

In terms of the industries' contribution to total employment, figures decreased slightly between 1997 (3.6%) and 2004 (3.2%). Like the contribution to the GDP, the figures increased up to 2000, and then decreased again. This development is most notable in the Swiss banks.

Figure 66: Contribution of the banking and insurance industries to total employment (in %)

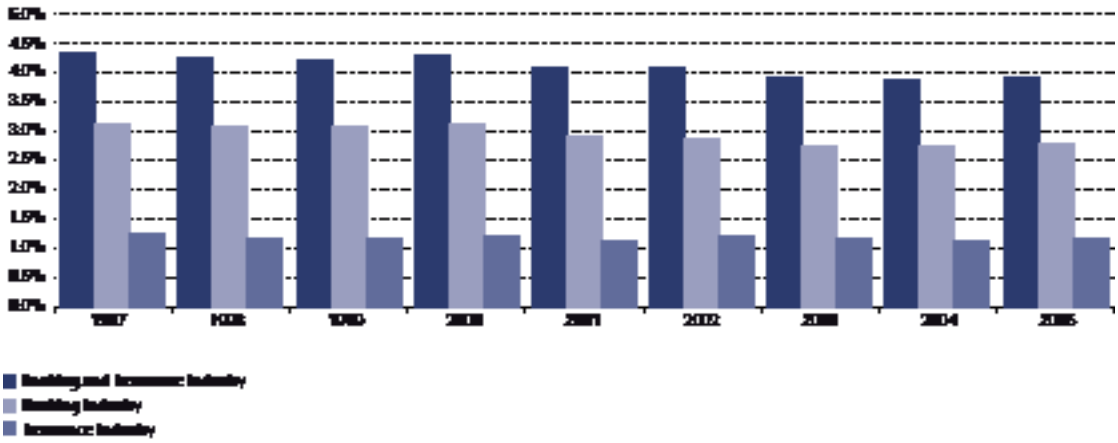


Figure 66 *SFCW Research, SNB*

We are not the first trying to evaluate the GVA of the banking and insurance industries. The Swiss Federal Statistical Office (Bundesamt für Statistik) has already published some data in their national accounts. In order to verify our calculation method, we show the results of the two different methods in the following table.

As one can see, the values of GVA do not match totally. Especially with regard to the insurance industry, the values of GVA differ for the years 2002 and 2003. The discrepancy in our values of GVA and the values of the Swiss Federal Statistical Office may be due to the different evaluation methods of GVA in the banking and insurance industries and/or to the different calculation methods of domestic GVA and GVA abroad of these two industries.

Table 20: Comparison of GVA data (CHF, millions)

Banking industry	1997	1998	1999	2000	2001	2002	2003
BFS: Banking Sector (NOGA 65)[38]	31.471	36.573	37.931	44.698	40.403	40.189	40.210
SFCW: Banking Sector	34.988	36.996	43.493	50.481	42.511	42.180	39.480

Insurance industry	1997	1998	1999	2000	2001	2002	2003
BFS: Insurance Sector (NOGA 66)[39]	16.680	16.883	16.187	17.067	14.337	19.240	22.646
SFCW: Insurance Sector	14.639	18.547	17.644	21.478	14.160	7.852	16.575

Table 20 *SFCW Research, SNB, BPV, BFS*
38 *http://www.bfs.admin.ch/bfs/portal/de/index/themen/volkswirtschaft/volkswirtschaftliche/blank/kennzahlen/produktionskonto/nach_branchen.html*
39 *http://www.bfs.admin.ch/bfs/portal/de/index/themen/volkswirtschaft/volkswirtschaftliche/blank/kennzahlen/produktionskonto/nach_branchen.html*

5.1. The Swiss Banking Industry

Covering the period from 1987 to 2005, the sample includes all banking groups of the Swiss banking industry. We use annual data of bank income statements aggregated at the bank group level. This analysis is based on the Swiss National Banks statistics: «Die Banken der Schweiz 2005», which only takes into account banks domiciled in Switzerland and their branches abroad.

5.1.1 Contribution of the different banking groups

Banking groups' contribution to the banking industry's GVA:

Table 21 gives a short summary of the banking groups' GVA.

Table 21: Domestic GVA per banking group (CHF, 1'000)

Banking group	1987	1990	1995	2000	2005
Grossbanken	8.494.231	9.148.889	14.046.695	23.319.652	21.353.805
Kantonalbanken	2.089.894	2.741.861	3.992.211	5.394.650	6.116.503
Börsenbanken und Privatbanken	1.778.317	1.890.927	2.821.799	6.859.145	9.253.523
Ausländisch beherrschte Banken / deren Filialen	3.289.799	3.556.058	3.708.864	7.494.273	6.186.368
Regionalbanken und Sparkassen	962.908	1.295.151	1.187.954	1.400.700	1.369.416
Raiffeisenbanken	208.229	318.501	539.846	1.285.487	1.648.888
Handelsbanken und Andere Banken	989.808	1.376.225	1.504.400	1.793.612	963.162

Table 21 *SFCW Research, SNB*

The two big banks generate about 40 percent of the total GVA in the Swiss banking industry. While the share of «Han-delsbanken und Andere Banken» decreased during the period covered, the contribution of the «Raiffeisen-ban-ken» to the banking industry's GVA has grown stea-dily and rather quickly, especially in the last six years. The share of «Börsen- und Privatbanken» has also been in-creasing; the contribution of the cantonal banks has remained constant. By comparison, the share of «Regio-nalbanken und Sparkassen» as well as of «Auslands-banken» decreased during the period.

Figure 67: Banking groups' contribution to banking industry's GVA

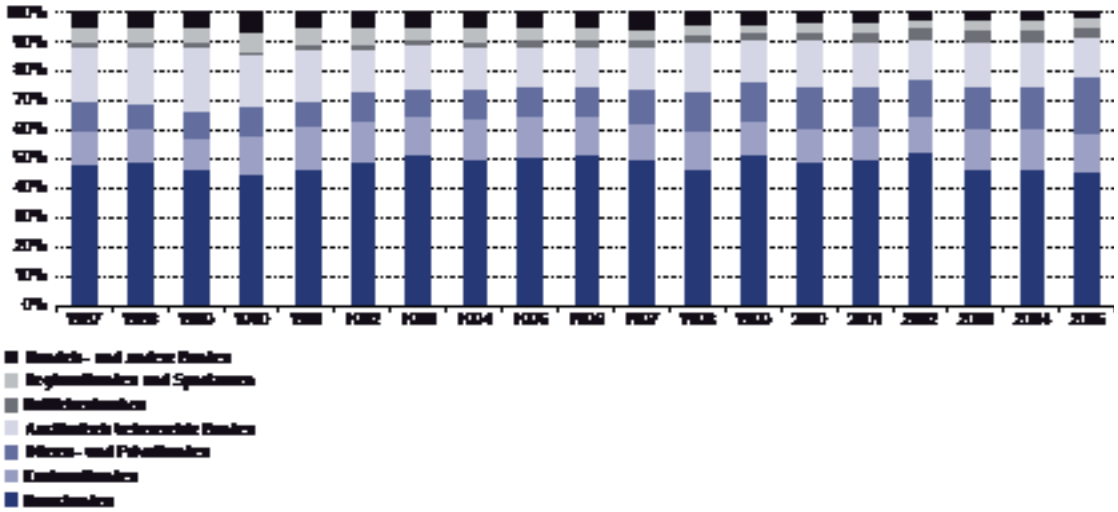


Figure 67 *SFCW Research, SNB*

Banking groups' contribution to the banking industry's employment: Table 22 gives a short summary of the banking groups' employment.

Table 22: Employment per banking group

Banking group	1987	1990	1995	2000	2005
Grossbanken	55.146	56.339	54.785	48.194	41.116
Kantonalbanken	16.949	18.823	18.861	19.185	16.324
Börsenbanken und Privatbanken	6.174	7.107	7.150	11.827	13.165
Ausländisch beherrschte Banken / deren Filialen	15.445	16.028	13.895	16.987	16.483
Regionalbanken und Sparkassen	7.990	8.518	5.224	5.443	4.141
Raiffeisenbanken	2.651	2.675	2.762	4.999	6.549
Handelsbanken und Andere Banken	5.673	7.477	6.189	5.285	2.787

Table 22 *SFCW Research, SNB*

The break down of employment in the different bank groups shows that the big banks have a continuously decreasing employment. While employment in cantonal and foreign owned banks has remained constant (at about 10%), the contribution of «Börsen- und Privatbanken» as well as of «Raiffeisenbanken» has almost doubled since 1987.

Figure 68: Banking groups' contribution to banking industry's employment

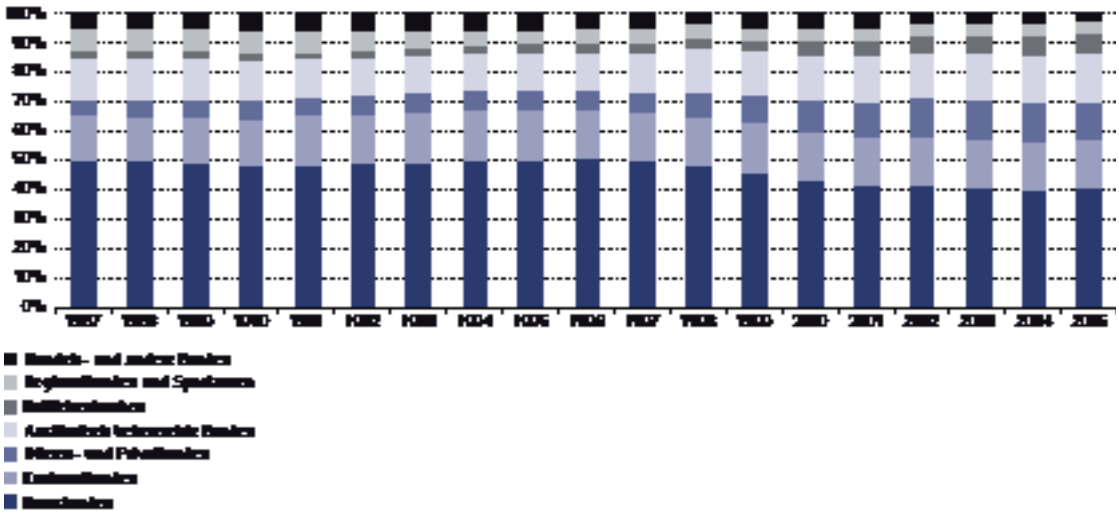


Figure 68 *SFCW Research, SNB*

5.1.2. Productivity Measures

Labor productivity:

The labor productivity of the different banking groups can be derived from Table 23 and Table 24. The «Börsen- und Privatbanken» obviously stand out in comparison to the rest of the banking industry. Following 1999, the average GVA per employee has grown faster for the big banks abroad than in Switzerland.

Capital productivity:

As for the labor productivity, the «Börsen- und Privatbanken» are top class with respect to the capital productivity. According to the data during the 18-year period (1987-2005), their capital productivity is over two times larger compared to the other banking groups.

Figure 69: Comparison of banking groups' GVA per employee (CHF, 1'000)

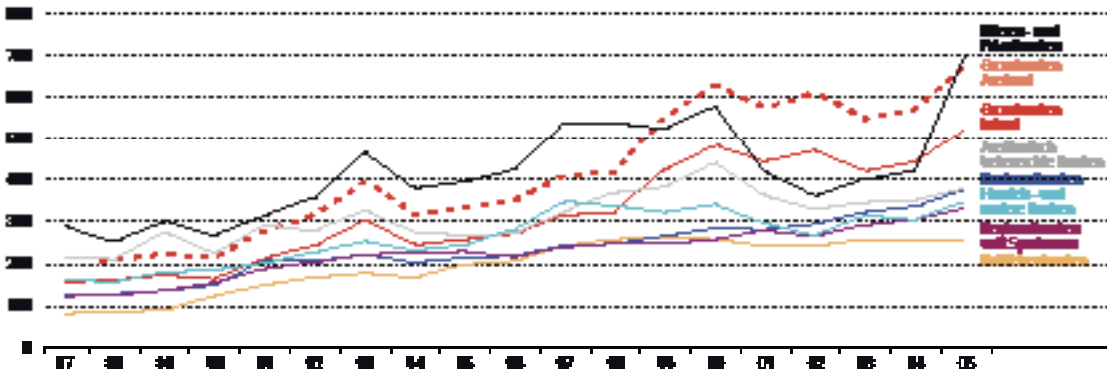


Figure 70: Comparison of banking groups' GVA per equity

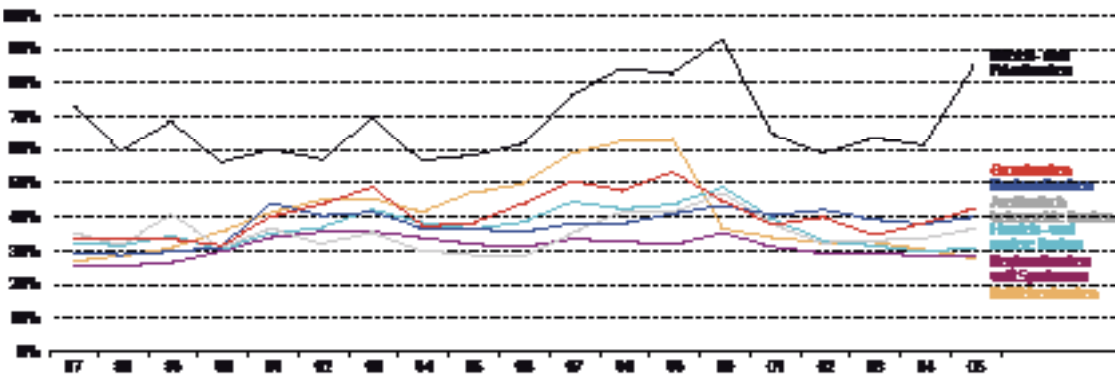


Figure 69 *SFCW Research, SNB*
Figure 70 *SFCW Research, SNB*

5.1.3. Outsourcing Rate

Here again, the ratio of total personnel costs to total costs remained highest at a level of about 70 percent in the case of the «Börsen- und Privatbanken» during the covered period. For the «Raiffeisenbanken», the ratio rested low until 1999; while from 1999 to 2000 the ratio increased and persisted at a constant level afterwards.

Figure 71: Comparison of banking groups' total personnel costs to total costs

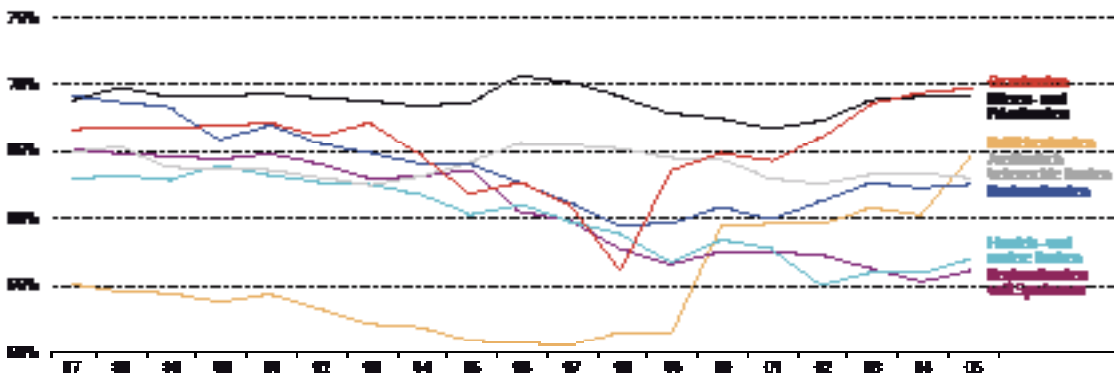


Figure 71 *SFCW Research, SNB*

5.1.4. Analyzing GVA

Domestic GVA and GVA abroad:

Figure 72 and Figure 73 show the split-up of the Swiss banking industry's total GVA into domestic GVA and GVA abroad. As one can see, «Swiss banking» is basically a business accomplished within the geographic boundaries of Switzerland. Only the big banks have branched out successfully into foreign territories.[40] In terms of the cantonal banks, «Regionalbanken und Sparkassen» and «Raiffeisenbanken», the total amount of GVA was produced in Switzerland. The GVA produced by the big banks abroad increased from 10 to 30 percent between 1987 and 2005. These figures include branches abroad, but not subsidiaries outside Switzerland.

Figure 72: Domestic GVA and GVA abroad of the banking industry (CHF, 1'000)

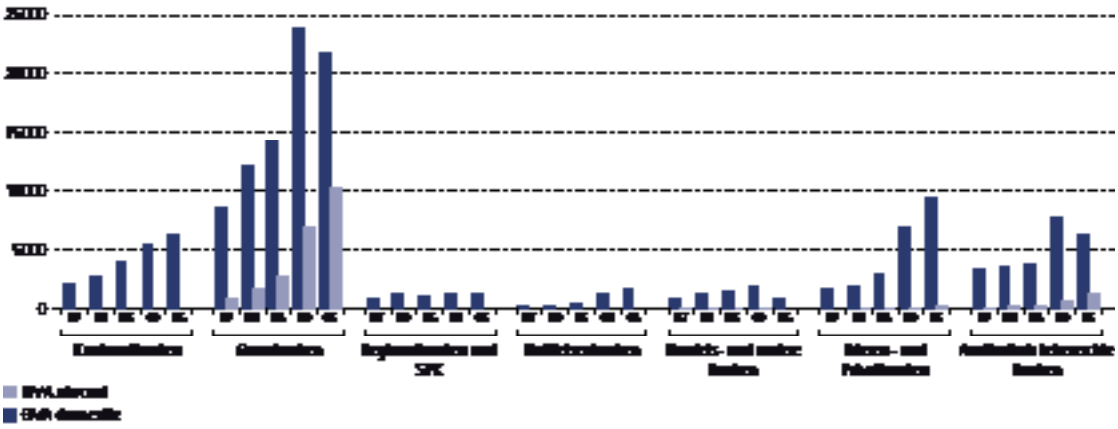


Figure 73: Banking groups' domestic GVA and GVA abroad

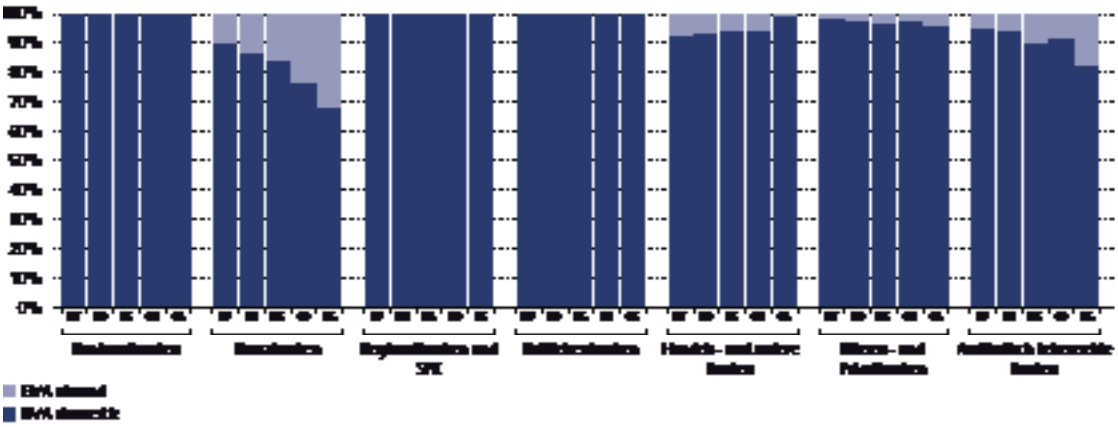


Figure 72 *SFCW Research, SNB*
Figure 73 *SFCW Research, SNB*

40 *For detailed information see SFCW (2006)*

Creation of GVA:

GVA is the difference between gross output and non-labor costs of inputs. Furthermore, gross output can be subdivided into the following four subdivisions: net interest income, fees and commission receivable, net profit or loss on financial operations and other net non-interest income.

The cantonal banks, «Regionalbanken und Sparkassen» as well as the «Raiffeisenbanken» have a clearly higher portion of net interest income than the other banking groups. Regarding the «Börsen- und Privatbanken», the «Handelsbanken und andere Banken» and foreign owned banks, the gross output consists mainly of the income from fees and commissions.

The non-labor costs of inputs account on average for 20 to 30 percent of gross output. The «Börsen- und Privatbanken» have less non-labor costs of inputs than the other ban-king groups.

Figure 74: Comparison of banking groups' creation of GVA (in % of gross output)

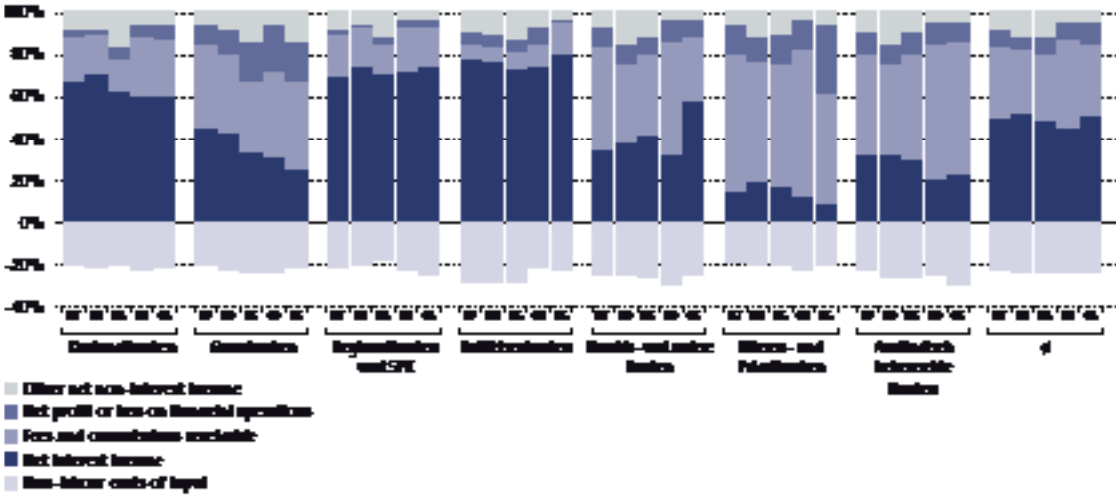


Figure 74 *SFCW Research, SNB. For detailed information about the calculation see Appendix 1*

Distribution of GVA:

In general, the entire Swiss banking industry shows a similar distribution of GVA, with some exceptions. In contrast to the other banking groups, the «Raiffeisenbanken» pay a smaller part of GVA (1 to 5%) to their providers to capital. The cantonal banks are mostly tax exempt. That is the reason why their share paid to the government is smaller than for the other banking groups.

Figure 75: Comparison of banking groups' distribution of GVA (in % of GVA)

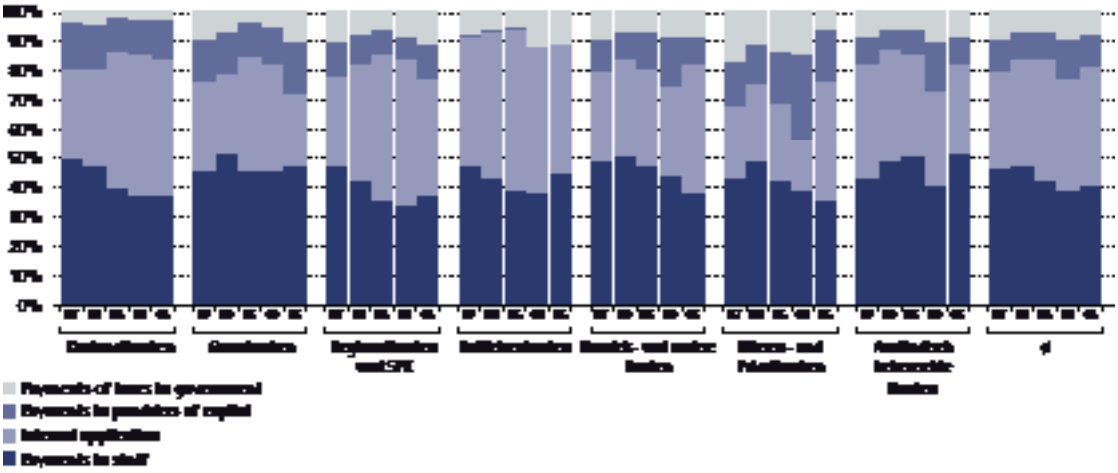


Figure 75 *SFCW Research, SNB. For detailed information about the calculation see Appendix 1*

5.2. The Swiss Insurance Industry

Covering the period from 1997 to 2005, the sample includes all three sectors (indemnity insurance, life insurance and reinsurance) of the Swiss insurance industry. We use annual data from the insurance income statements[41] at the insurance company level. The data are taken from the Federal Office of Private Insurance (BPV): «Zahlen und Fakten 2005».

5.2.1 Contribution of the Different Insurance Sectors

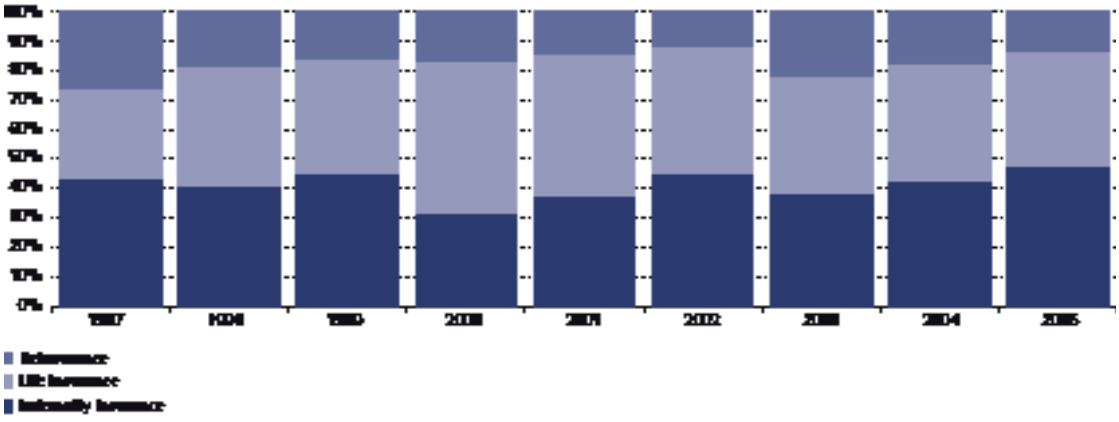
Insurance sector's contribution to the insurance industry's GVA:

Table 23 gives a short summary of the insurance industry's GVA. In general, the contribution of the three insurance sectors to the insurance industry's total GVA remains constant during the analyzed period. Indemnity and life insurance companies together generate about 80 to 85 percent of the insurance industry's total GVA; the reinsurance companies make a contribution of 15-20 percent.

Table 23: Domestic GVA per insurance sector (CHF, 1'000)

Insurance sector	1997	2000	2001	2002	2003	2004	2005
Indemnity insurance	6.320.931	6.828.972	5.254.179	3.555.612	6.325.756	6.722.706	10.302.797
Life insurance	4.546.954	11.078.664	6.903.447	3.377.190	6.647.803	6.383.807	7.259.816
Reinsurance	3.771.658	3.570.670	2.002.523	919.895	3.601.937	2.762.005	2.527.487

Figure 76: Insurance sectors' contribution to the insurance industry's GVA



41 *Due to missing values for personnel costs in the company's income statements, personnel costs are assumed to make up 70 percent of the total amount of operating expenses*
Table 23 *SFCW Research, BPV*
Figure 76 *SFCW Research, BPV*

Contribution to the insurance industry's employment:

Table 24 gives a short summary of the insurance industry's employment.

Similar to the contribution to the total GVA of this industry, the labor force of the different insurance sectors maintain on average a constant share between 1997 and 2005. The part of the labor intensive indemnity insurance companies makes up about 65-70 percent; the life insurance companies employ about 15-20 percent of the total labor force and the reinsurance about 5-10 percent.

Table 24: Domestic employment per insurance sector

Insurance sector	1997	2000	2001	2002	2003	2004	2005
Indemnity insurance	28.569	26.784	25.801	28.617	28.341	25.752	28.446
Life insurance	10.540	12.341	11.730	11.174	10.039	10.688	9.494
Reinsurance	2.782	3.344	3.515	3.806	3.866	3.688	3.601

Figure 77: Insurance sectors' contribution to the insurance industry's total employment

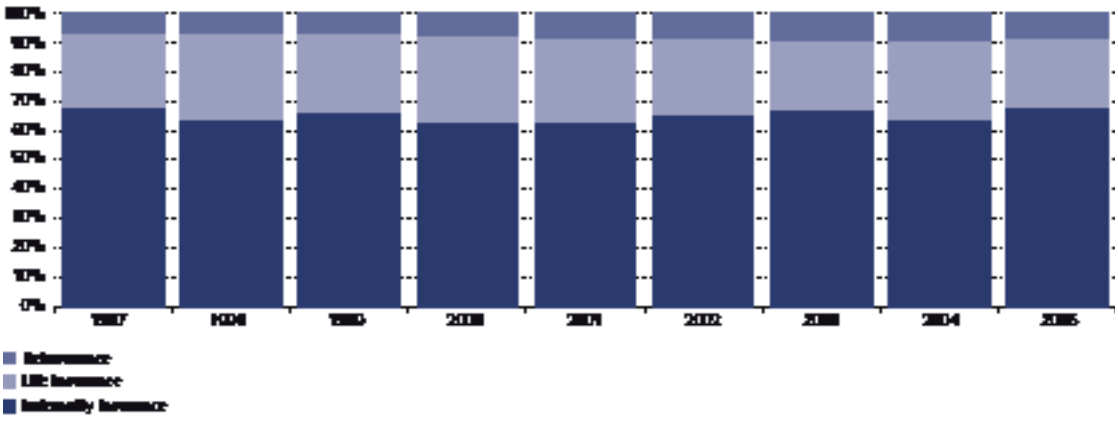


Figure 77 *SFCW Research, BPV*
Table 24 *SFCW Research, BPV*

5.2.2. Productivity Measures

Labor productivity:

As with the banking industry, the labor productivity - GVA per employee - of the three insurance sectors can be derived from Table 23 and Table 24. The three groups show different characteristics and developments. While the indemnity insurance companies show a rather continuous development, the life insurance companies and reinsurance companies started at a high level of labor productivity in 1997, but it continuously decreased until 2002. Subsequently, both were able to increase their productivity again, reaching level of CHF800.000 per employee for the reinsurance companies and CHF600.000 per employee for the life insurance companies in 2004. Obviously, the reinsurance companies have the highest GVA per employee over time in comparison to the other insurance sectors, while the indemnity insurance companies have the lowest productivity in Switzerland.

Figure 78: Comparison of insurance sectors' total (domestic and foreign) GVA per employee (iCHF, 1'000)

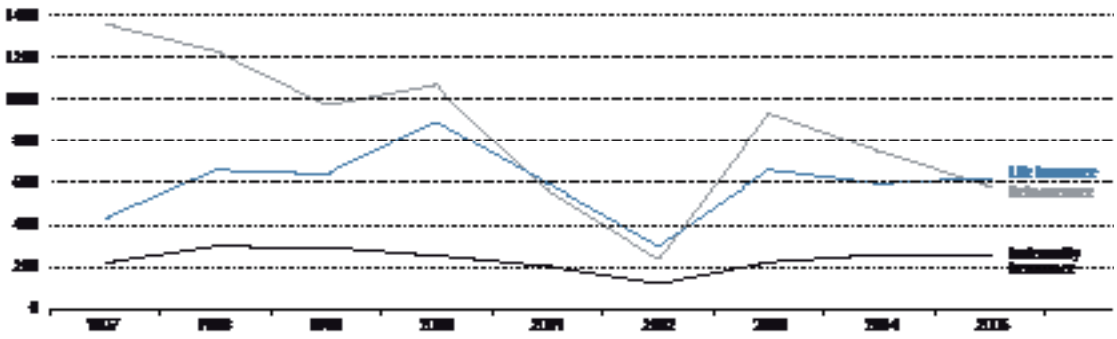


Figure 78 *SFCW Research, BPV*

Capital productivity:

In contrast to the labor productivity, the life insurance companies are top class in terms of capital productivity, although it decreased around half between 1997 and 2005. The capital productivity of the indemnity insurance and reinsurance sector remains at a constant level during the covered period.

Figure 79: Comparison of insurance sectors' total (domestic and foreign) GVA per capital

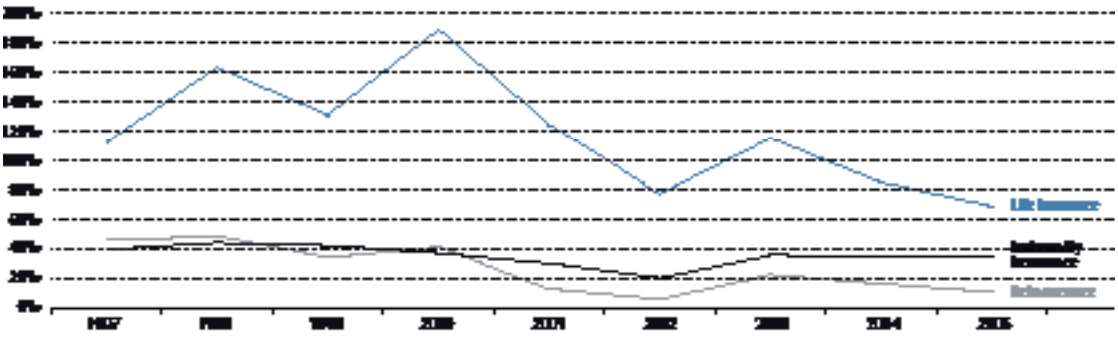


Figure 79 *SFCW Research, BPV*

5.2.3. Analyzing GVA

Domestic GVA and GVA abroad:

Figure 80 and Figure 81 exhibit the split-up of the Swiss insurance companies' total GVA into the domestic GVA and GVA abroad.

In terms of the indemnity and life insurance business, two thirds of total GVA were produced in Switzerland. The reinsurance companies mainly do their business in Switzerland. Approximately 5-10 percent of the reinsurance sector's GVA were produced abroad. Their foreign GVA shares grew from 5 to 15 percent during the period analyzed, while shares of the life insurance companies decreased from 35 to 20 percent.

Figure 80: Domestic GVA and GVA abroad of the insurance industry (CHF, millions)

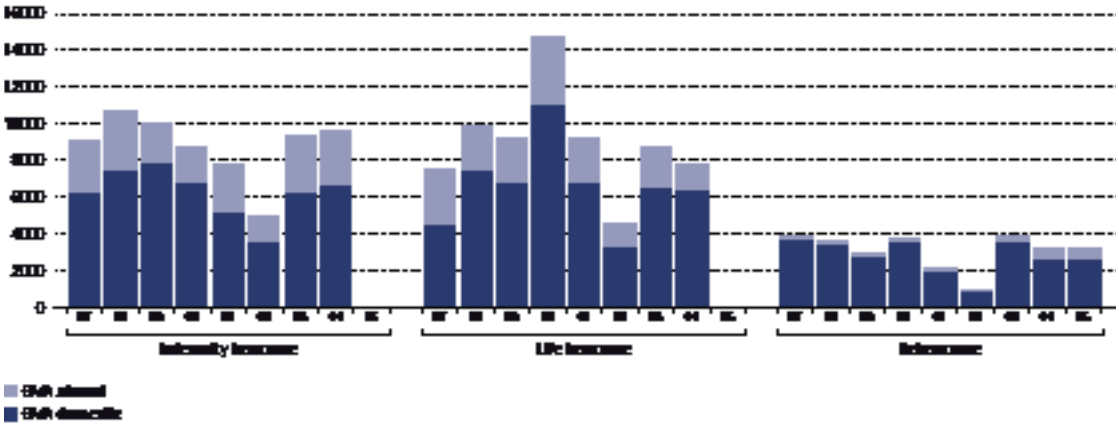


Figure 81 : Insurance sectors' domestic GVA and GVA abroad

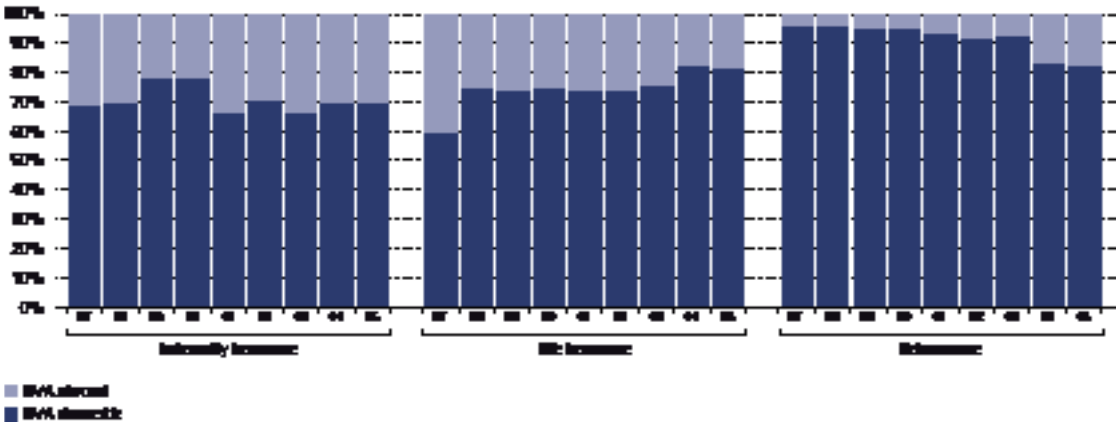


Figure 80 *SFCW Research, BPV*
Figure 81 *SFCW Research, BPV*

GVA from insurance operations and from capital investment of insurance function:

Another way to analyze the GVA in the insurance sector is to split it up into the GVA from insurance operations and from capital investment of the insurance funtion. The insurance function can only be produced by combining operations and investments. The analysis should not be interpreted as two different and separable business lines. It should rather help to explain the large fluctuation of GVA over time and should illustrate the difference in the underlying economic drives of the three sectors.

Figure 82 gives an overview of this subdivision of the three different insurance groups.

As one can see, the three insurance sectors show a different split. The indemnity insurance companies create GVA both – from insurance operations as well as from capital investments whereas the life and reinsurance companies mainly create GVA from capital investment of the insurance function. They show a negative GVA from insurance operations, except the reinsurance sector after 2002.

Figure 82: Creation of GVA (from insurance operations and capital investments; in % of total GVA)

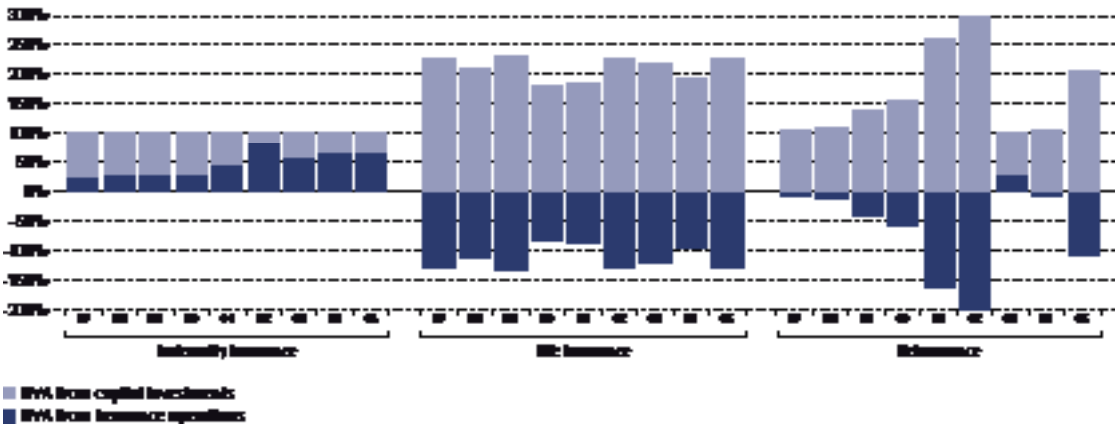


Figure 82 *SFCW Research, BPV. For detailed information about the calculation see Appendix 2*

Creation of GVA:

For insurance companies, the gross output can be divided into gross output from insurance business and from capital investment of the insurance function.

Figure 83 summarizes the characteristics of the creation of GVA for the insurance industry as a whole between 1997 and 2005.

Figure 83: Total insurance industry's creation of GVA

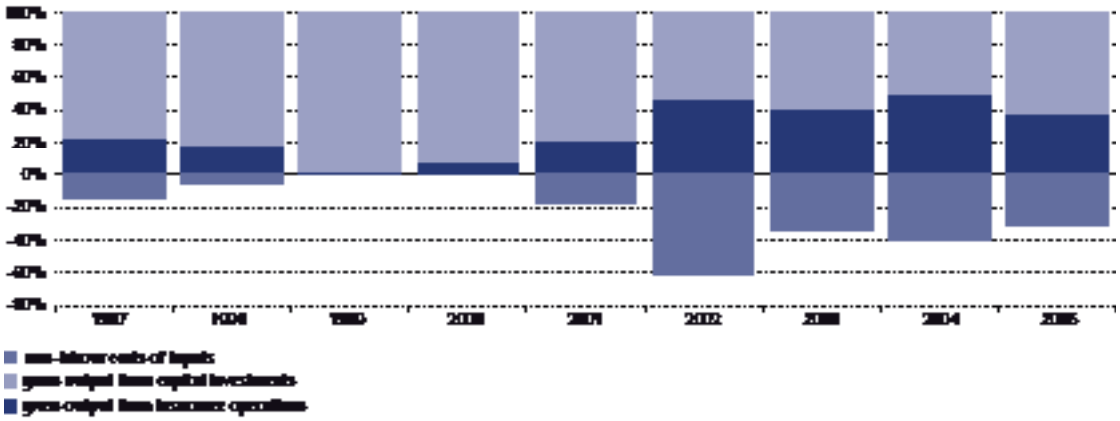


Figure 83 *SFCW Research, BPV*

In comparison to the indemnity insurance and reinsurance companies, the life insurance companies show a high negative gross output from insurance business between 1997 and 2005. Furthermore, from the development of the non-labor costs of inputs, one can see that the share of non-labor costs of inputs to gross output increased dramatically for indemnity insurance companies and notably for reinsurance companies following the year 2001. In 2002, the non-labor costs of inputs were the highest in the whole insurance industry: for the indemnity insurance sector they make up to 50 percent of the gross output, in the life insurance 30 percent and in the reinsurance sector more than 70 percent. An explanation for this considerable increase is the raise of the expenditures for reinsurance to cover risk.

Figure 84: Comparison of insurance industry's creation of GVA (in % of gross output)

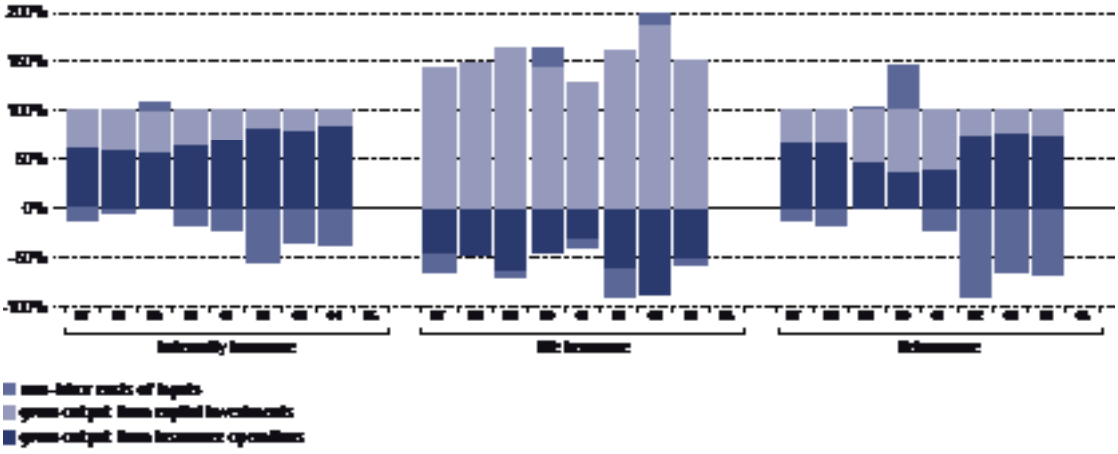


Figure 84 *SFCW Research, BPV. For detailed information about the calculation see Appendix 2*

Distribution of GVA:

In order to analyze the distribution of GVA in the insurance industry, the next two figures give some information about the segmentation into the four components:

- payments to staff
- payments to providers of capital
- corporation taxes paid to government
- value retained within the company

Figure 85 summarizes the characteristics of the distribution of GVA for the insurance industry as a whole between 1997 and 2005. Here again, the year 2002 stands out: the part of GVA paid to staff makes up more than the entire GVA. That is the reason why the payments to the providers of capital reveal a negative value in the insurance industry for that year.

Figur 85: Total insurance industry's distribution of GVA (in % of total GVA)

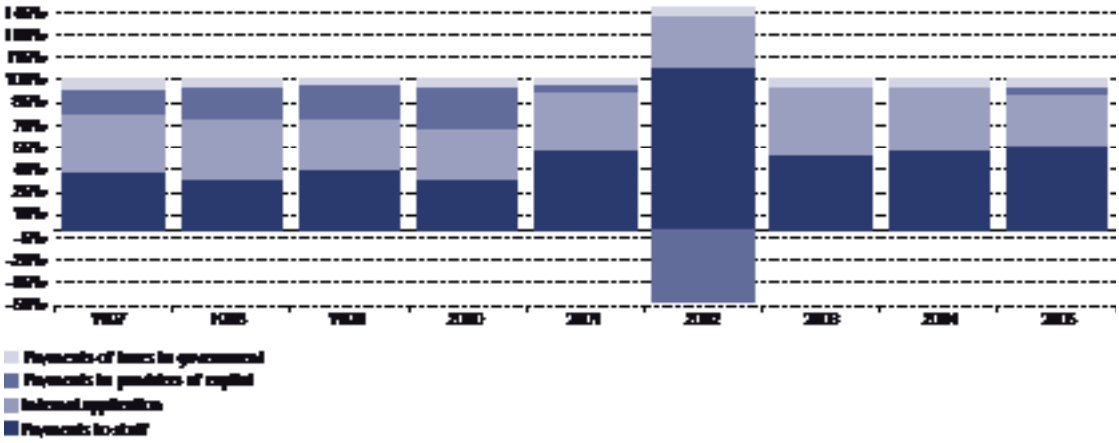


Figure 85 *SFCW Research, BPV*

On average, compared to the other insurance groups, indemnity insurance companies show the biggest share of payments to staff. The share paid to providers of capital is the highest in life insurance companies: It makes up about 20 to 30 percent of GVA, while in indemnity insurance companies and in reinsurance companies the fraction of payments to providers of capital shows a negative value with -3 percent and about -20 percent. Regarding the payments of taxes to government, we see a similar percentage across the three insurance groups. On average, Swiss insurance companies used about 3 to 5 percent of the GVA for payments to government.

Figure 86: Comparison of insurance sectors' distribution of GVA (in % of total GVA)

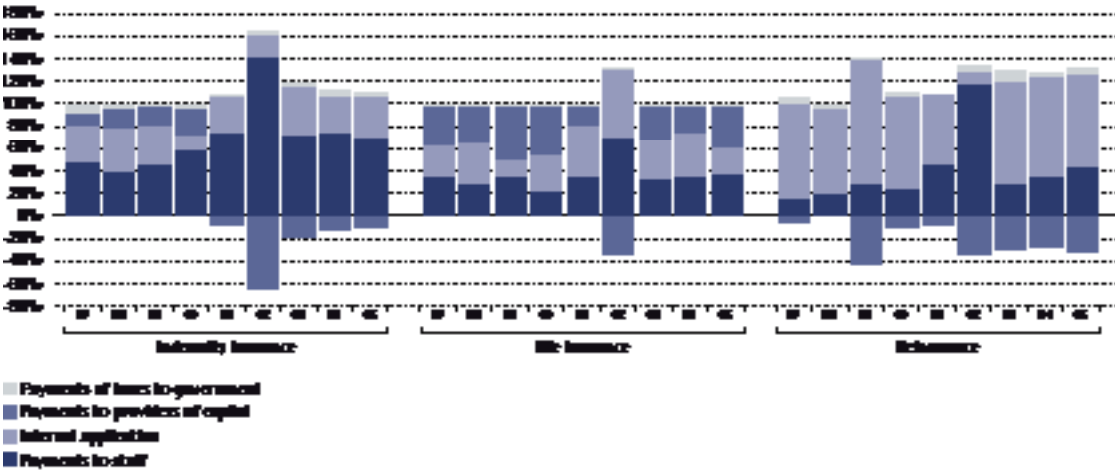


Figure 86 *SFCW Research, BPV. For detailed information about the calculation see Appendix 2*

6. Determinants of Banks' Value Added

6.1. Introduction

In recent years, the economic environment of the banking industry has experienced significant changes. Due to increasing globalization of markets and products, ongoing technological progress, deregulation activities as well as significant demographic changes, firms are continuously forced to adjust their business in order to sustain their competitiveness in the long run.

So far, academic literature has particularly investigated the determinants of banks' profitability. Bank profitability, usually measured by the return on equity (ROE) and the return on assets (ROA), is generally expressed as a function of internal and external factors. Internal determinants are based on bank accounts (balance sheets and/or profit and loss accounts) and also refer to as micro or bank-specific determinants. External determinants are not directly related to bank management, but instead reflect the economic and legal environment which affects the operational management and performance of financial institutions.

Internal determinants:

Internal determinants cover variables such as size, capital, expenses and risk management. Size is included to test for existing economies or diseconomies of scale. Akhavein, Berger, & Humphrey (1997) and Smirlock (1985) find a positive and significant relationship between size and bank profitability. Demirguc-Kunt & Maksimovic (1998) suggest that bank size is closely related to the degree to which various financial, legal and other factors (e.g. corruption) have an effect on bank profitability. Haslem (1968), Short (1979), Bourke (1989), Molyneux & Thornton (1992), Bikker & Hu (2002) and Goddard, Molyneux, & Wilson (2004) link bank size to capital ratios (most widely used is the equity-to-total-assets ratio). They predict a positive relationship between the capital ratio and firm size: larger size – particularly in the case of small and medium sized banks – increases profitability. However, other authors maintain that banks achieve only small cost savings by increasing their size (Berger, Hanweck, & Humphrey (1987)). Very large banks might probably face scale inefficiencies. Regarding the relationship between risk management and profitability, the literature does not provide homogeneous findings. Molyneux & Thornton (1992), among others, find a negative and significant relationship between the level of liquidity and profitability. In contrast, Bourke (1989) reports the opposite result.

According to the concept of efficient management, a bank's expenses is an important determinant of profitability. Bourke (1989) and Molyneux & Thornton (1992), for example, find a positive relationship between better-quality management and profitability.

External determinants:

External determinants of bank profitability can be divided into control variables that describe the macroeconomic environment and variables which represent market characteristics. Regarding market characteristics, previous research refers to market concentration, industry size and ownership status.[42]

An interesting issue for example is whether the ownership status of a bank is linked to its profitability. In the literature, there is only little support for the theory that privately-owned institutions will return relatively higher economic profits. Short (1979) is one of the few studies supporting a strong negative relationship between government ownership and bank profitability. In their recent work, Barth, Caprio, & Levine (2004) suggest government ownership of banks indeed negatively relate to bank efficiency. In contrast, Bourke (1989) and Molyneux & Thornton (1992) state that the role of ownership status is negligible for profitability.

Last, the group of macroeconomic control variables usually includes the inflation rate, the long-term interest rate and / or the growth rate of money supply. Revell (1979) was the first to include inflation. The relationship between inflation and bank profitability depends on whether banks' operating expenses increase at the same rate as inflation. According to Perry (1992), the extent to which inflation affects bank profitability is due to whether inflation expectations are fully anticipated. Most studies (including those by Bourke (1989) and Molyneux & Thornton (1992)) have shown a positive relationship between either inflation or long-term interest rate and profitability.

Demirguc-Kunt & Huizinga (2000) and Bikker & Hu (2002) try to identify the relationship between bank profits and the business cycle. Their results confirm the existence of such a relation, although the variables do not directly measure the business cycle. Demirguc-Kunt & Huizinga (2000) use the annual growth rate of GDP and GNP per capita, Bikker & Hu (2002) employ a number of macroeconomic variables (such as GDP, unemployment rate and interest rate differential).

42 *Recent literature on the influence of concentration and competition on the performance of banks is summarized in Berger & Hannan (2004)*

Studies limited to only one country include Berger (1995), Angbazo (1997), Guru, Staunton, & Balashanmugam (1999), S. B. Naceur (2003), Mamatzakis & Remoundos (2003), Kosmidou & Pasiouras (2005) and Kosmidou, Pasiouras, & Tsaklanganos (2006). Cross-country studies are found in Molyneux & Thornton (1992), Demirguc-Kunt & Huizinga (1999), Abreu & Mendes (2002), Staikouras & Wood (2003), Hassan & Bashir (2003), Goddard et al. (2004). The panel studies by Molyneux & Thornton (1992) and Abreu & Mendes (2002) focus on European countries, Bashir (2000) limits its analysis to MENA countries, Demirguc-Kunt & Huizinga (1999) and Demirguc-Kunt & Huizinga (2000) cover developed as well as several developing countries.

Molyneux & Thornton (1992) were one of the first who systematically examined the determinants of bank performance using panel data, covering 18 European countries over the period of 1986 to 1989. Their results conflict with earlier findings of Short (1979), but confirm results found by Bourke (1989). A study of Demirguc-Kunt & Huizinga (1999) examines the determinants of bank interest margins and profitability using bank level data for 80 countries during the 1988-1995 period. The set of explanatory variables includes several factors accounting for bank characteristics, macroeconomic conditions, taxation, regulation, financial structure and legal indicators. In a subsequent paper, Demirguc-Kunt & Huizinga (2000) present evidence for the impact of financial development and structure on bank profitability, using bank level data for a large number of developed and developing countries over the period of 1990-1997. They conclude that financial development has an important impact on bank performance.

So far, the academic literature has mainly investigated banks' performance, using common measures of profitability, such as the return to equity (ROE) and the return to assets (ROA). To our knowledge, a broader view on the economic performance of banks and its determinants is still missing. Our goal is to extend the literature by a more general economic analysis, investigating the determinants of banking industries' competitiveness. Specifically, we focus on three competitiveness factors: labor productivity, capital productivity, and the share of banking industries' value added in total value added (GDP).

6.2. Variable Selection and Hypotheses

Table 25: Variables selection

Dependent variables	Description	Source
l_gva	Labor productivity of banking industry	SFCW Reserach
e_gva	Capital productivity of banking industry	SFCW Reserach
gva_gdp	Share of banking industry's value added in total value added (GDP)	SFCW Reserach

Independent variables	Description	Source
Macroeconomic factors		
gdp_cap	GDP per capita	OECD Economic Outlook
cpi	Consumer Price Index	OECD Economic Outlook
diff_int	Term transformation: Difference between long and short term interest rates	OECD Economic Outlook
eximp_gdp	Trade openness: Sum of exports and imports to GDP	OECD Economic Outlook
lf_edu	Share of labor force with tertiary education to total labor force	World Bank: WDI
school_yrs	Average years of schooling (age: 15+)	World Bank: WDI
dum_eu	Dummy variable =1, if EU-country; =0, otherwise	SFCW Reserach
cpi_score	Corruption perceptions index	Transparency international
Industry-specific factors		
mcap_gdp	Stock market capitalization: value of listed shares to GDP	Financial Structure Database
bonds_to_assets	Financial system (market vs. bank based): Total bonds to total assets	Financial Structure Database
conc	Concentration index: Sum of the assets hold by the three largest banks to total assets of all commercial banks	Financial Structure Database
dum_banksys	Dummy variable =1,if universal bank system; =0, if separated bank system	SFCW Reserach
Bank specific factors		
car	Capital asset ratio: equity to total assets	OECD Bank profitability
cir	Cost income ratio	OECD Bank profitability
nim	Net interest margin	Financial Structure Database
overhd	Overhead costs to total assets	Financial Structure Database
banksize	Accounting value of total assets	OECD Bank profitability
inctax	Total income taxes paid on before tax profit	OECD Bank profitability
Regulatory conditions		
regcap	Regulatory capital	OECD Bank profitability
biscap	BIS Tier 1 capital ratio: BIS Tier 1 capital to risk weighted assets	OECD Bank profitability

Table 25 *SFCW Research*

6.2.1. Dependent Variables

As already mentioned in the introduction, we focus on three dependent variables representing banking industries' competitiveness: factor productivity, i.e. labor productivity and capital productivity, and the share of banking industry's value added in total value added (GDP) as a proxy for the importance of the banking industry for a country's economy.

6.2.2. Independent Variables

Following the literature, we include 4 classes of explanatory variables. The banking industry is embedded in the overall economy, which is affected by several factors, such as political guidelines, country-specific constraints as well as structural and legal singularities. It is thus necessary to control for particular macroeconomic determinants.

Macroeconomic factors:

Per capita income: First, we control for the effect of per capita income on the banking industries' competitiveness. Several studies, e.g. King & Levine (1993), Jayaratne & Strahan (1996), Levine (1998) and Levine (1999), Levine & Zervos (1998) have investigated the link between financial development and economic growth. Growth and high per capita income are expected to increase the demand of financial services, particularly regarding deposits and loans (Dietsch & Lozano-Vivas (2000)). Lozano-Vivas, Pastor, & Pastor (2002) argue that countries with higher per capita income have better developed financial systems, which reflect in more competitive interests and profit margins. We expect per capita income to have a positive effect on the competitiveness of the banking industry, including all three dependent variables.

Inflation: In a second step, we include a variable to control for the effect of inflation on banks' value added and productivity. However, the relation between inflation and the performance of banks is ambiguous (Pasiouras & Kosmidou (2006)). According to Perry (1992), it particularly depends on whether the inflation is anticipated or not. In the case of anticipated inflation, banks have enough time to adjust their interest rates, which results in a higher performance. If, in contrast, inflation is unanticipated, banks may be too slow in adjusting their interest rates. Consequently, costs grow faster than revenues, resulting in a negative impact on banks' performance.

Term transformation: The difference between long term and short term interest rates, also known as term transformation, allows banks to finance long term invesments with short term liabilities and vice versa. We thus expect term transformation to positively affect value added and the productivity of banks.

Trade openness: According to economic theory and numerous empirical studies, openness of economies is found to support and contribute to economic development. In order to control for the effect of trade openness on the competitiveness of the banking industry, we use the sum of exports and imports relative to GDP. We expect more open economies to have a higher demand after banking services, resulting in a higher value added of the banking industry. In addition, we expect more open economies to have more intensive exchange of resources, leading to higher productivity of resources.

Education level: One of the key success factors of the banking industry is its labor force. To account for potential effects of the education level on productivity (particularly labor productivity), we include the ratio of labor force with tertiary education to total labor force as well as the average years of schooling (adults: 15+).[43] Intuitively, we expect highly skilled labor to have a positive effect on labor productivity.

European Union: Due to the formation of the European Union, the structure of European financial markets has considerably changed. One crucial issue of the single European market considers the harmonization of regulation and the promotion of competition. Although our sample includes only two non-European member countries, we introduce a dummy variable to test for potential effects on the competitiveness of banking industries. In addition, we include several time dummies to test for effects of the introduction of the Euro on banks' value added and/or capital productivity.

Corruption: Reputation and trust are crucial issues associated with banking services. Economic and social corruption usually has negative effects on the reputation of a country. This reputation also harms inherent firms. We test whether there exists any significant effect of countries' corruption levels on the competitiveness of the banking industry. To test for this effect, we include the CPI (Corruption Perception Index), which is based on perceptions of business people and analysts and takes on values between 0 (high level of corruption) and 10 (no corruption). We expect overall corruption to have a negative impact on the performance of a country's banking industry.

While macroeconomic factors affect mostly all sectors of an economy, we now turn to the class of variables, which are particularly related to the financial (banking) industry.

43 *Note that data on education levels apply to the overall economy. Anyway, we expect countries with overall higher rates of highly skilled labor to also have more skilled labor in the financial sector*

Market and industry specific factors:

Size of stock market: The stock market represents an integral part of the financial system. In order to control for any effects of the (relative) size of the stock market on the banking industry's competitiveness, we include the ratio of stock market capitalization to GDP. It also serves as indicator for an economy's ability to provide capital and to diversify risk.[44] We expect a larger stock market to increase the performance of a bank, leading to higher value added and productivity.

Financial system: The financial system of an economy represents the instrument, which organizes supply of and the demand after capital, taking into account the institutional conditions. The differentiation between the bank and the market based system points at the relative weight of banks in financing firms. To test for potential effects of different financial systems, we introduce a variable which relates to the ratio of total bonds to total assets. While in the bank based system credits are typically transacted by banks, in the market based system credits are mainly financed on the capital market. Intuitively, we expect bank based systems to have a positive impact on the banking industry's value added and its productivity.

Market concentration: An important issue describing an industry is its degree of concentration. According to the Structure Conduct Performance (SCP) hypothesis, there exists a causality between market structure, behavior and performance. Market conditions, such as supplier concentration or price elasticity of demand, determine the firms' behavior, including their price setting or investment policy. Different studies have investigated the effect of market structure, particularly market concentration, on the profitability of banks. According to Gilbert (1984), only 27 of 45 compared studies have found evidence for the SCP paradigm.

Higher concentration, however, can yield two different effects: On the one hand, higher concentration leads to decreased competition. According to the assumption that in higher concentrated markets firms have less incentives to invest in innovative activities, higher concentration is expected to have a negative impact on overall productivity. On the other hand, higher concentration allows firms to benefit from potential economies of scale / scope, so that we might expect a positive impact of concentration on banks' value added and their productivity. The variable included (conc) represents the sum of assets hold by the three largest banks relative to total assets of all commercial banks.

Bank system: Last, we include an additional dummy variable to control for the effect of different bank systems on the banking industries' competitiveness. We distinguish between the universal bank and the separated bank system. The latter separates commercial banks from investment banks. In a universal bank system banks usually transact all kinds of banking business. This might lead to increased competition and higher value added. In a separated bank system, instead, banks are specializing in specific areas, which might have positive effects on their productivity. The net effect of a specific bank system on value added and productivity is thus ambiguous.

After controlling for macroeconomic and industry specific factors, we now turn to the regulatory environment, which plays an important role in the analysis of the banking industry.

44 *Other common stock market measures are liquidity, which relates to the ratio of domestic stocks traded to GDP (S.B. Naceur & Ghazouani (2006)), or the turnover ratio, which is defined as total value of domestically traded stocks relative to market capitalization (Bencivenga & Smith (1995)). We include both variables, but do not find any significant effects*

Regulatory conditions:

BIS Tier 1 capital ratio: Regulation is a continuously important issue in banking. One of the most common regulations in the banking sector is the equity requirement, which keeps a bank's capacity to absorb unexpected shocks. This regulatory condition can be measured approximately by the average capital ratio, which relates to the amount of equity to the amount of total assets. According to the 1988 Basel Convention, the Basel Committee on Banking Supervision, the minimum capital requirement is defined as the percentage of risk-weighted assets of a bank, either measured by the Tier 1 capital ratio or the total capital ratio (Kosmidou et al. (2006). In a first step, we thus introduce the BIS Tier 1 capital ratio in order to control for regulatory conditions on the competitiveness of banking industries. In a second step, we also include regulatory capital to control for potential effects.[45]

On the one hand, banks with a high capital asset ratio are usually assumed to be more flexible and safer in the case of unexpected losses. This might result in higher value added and productivity, in the long run. On the other hand, regulation raises costs, e.g. administrative, legal, staff costs etc. and binds resources. Regulation might therefore bare (particularly capital) resources from flowing to their most profitable allocation, leading to a decrease of productivity. The net effect of regulation on competitiveness is, a priori, ambiguous.

The variables included so far all represent factors of the macroeconomic, the industrial and the regulatory environment. In addition, we expect bank specific factors to significantly affect the competitiveness of the banking industry.

45 *Refers to a specific definition of capital developed by the BCBS and used as the numerator in the BCBS's capital adequacy ratio. The definition includes, beyond the traditional capital and reserve account items, several specified types of subordinated debt instruments that need not be repaid if the funds are needed to maintain minimum capital levels (OECD)*

Bank specific factors:

Cost management: In a first step, we include the cost-income ratio to determine the effect of an efficient cost-management within banks on the competitiveness of the banking industry. Intuitively, we expect a high cost-income ratio to have a negative effect on value added and productivity. In addition, we include the ratio of overhead costs to total assets to control for potential cost management effects on performance. It is obvious to expect a negative effect of higher relative overhead costs on the banking industry's competitiveness.

Profitability: The net interest margin represents a measure of bank profitability. According to Golin (2001), «since interest income and interest expense tend to rise and fall together, focusing on net interest income and interest allows the analyst to separate the quality of bank performance from changing economic conditions». We expect higher net interest margins to have a positive effect on banks' value added.

Economies of scale / scope: In a further step, we introduce a size variable, which controls for the effect of banks' size on their value added and productivity. As usual, we use the accounting value of total assets to control for this effect. Larger firms can benefit from potential economies of scale and scope. Cavallo & Rossi (2002), Vennet (1994) as well as Berger & Mester (1997) find significant evidence for economies of scale in the banking industry. Allen & Rai (1996) and Altunbas & Molyneux (1996) however, find only limited evidence. The expected effect of size is thus a priori ambiguous.

Taxation: In order to control for the effects of taxation on the banking industries' competitiveness, we include a variable, which relates to the total income taxes paid to before tax profit.

Capital structure: Last, we introduce the capital asset ratio, which represents the relation of equity to total assets. Although there certainly exists a relation between the capital asset ratio and the profitability of banks, theory does not predict an unambiguous sign of the effect of higher capital ratio on performance. The equity level affects the risk of banks as well as their financing costs.[46] On the one hand, banks with a high capital asset ratio are usually considered to be safer in case of losses or liquidation. In addition, low risk generally enhances banks' credit worthiness and hence decreases financing costs . According to the risk-return hypothesis, the relation between the capital asset ratio and performance is expected to be negative. On the other hand, banks with a high capital ratio require few outside capital, which results in higher profitability. The effect of a high capital asset ratio on value added and factor productivity is thus ambiguous.

46 *Higher solvability is associated with fewer «bad credits», leading to lower coverage costs*

6.3. Data and Methodology

We include data from 17 countries – the EU15[47] countries, Switzerland and USA – over the period of 1980-2003.[48] Data were extracted from the OECD Bank Profitability Statistics, the OECD Economic Outlook, the World Bank and the Financial Structure Database (Demirguc-Kunt & Levine (2001)). We face an unbalanced panel with time observations ranging from 9 to 24. For the descriptive statistics, including average, standard deviation, minimum and maximum values, see appendix.[49]

We estimate the following basic model by Generalized Least Squares (GLS):[50]

$$y_{it} = c + \sum_{k=1}^{K} \beta_k X_{it}^{k} + \varepsilon_{it}, \qquad i = 1,...,N \qquad t = 1,...,T \qquad (1)$$

where y_{it} refers to productivity or the share of value added in GDP. x_{it}s represent the included explanatory variables, ε_{it} is the normally distributed random variable.

6.4. Results

We run different estimation specifications for each dependent variable, i.e. labor productivity, capital productivity, and the share of value added generated by the banking industry in total GDP, which will also refer to as the relative weight of the banking industry for a country's economy. The results are summarized in the next tables.

A quick look over the results shows that, overall, industry and bank specific determinants describe the three dependent variables best. From the factors characterizing the industrial environment market concentration, the financial system and the size of the stock market result to have a significant effect – at least at the 1 percent significance level - on competitiveness with respect to all three de-pendent variables. According to our expectation, market concentration has an overall negative impact on the banking industry's competitiveness and thus supports the Structure Conduct Performance hypothesis.

The estimated coefficients of the financial system provide interesting insights: While the results imply that a bank based system positively affects labor productivity and value added, a market based system seems to have a positive impact on capital productivity.

Our findings suggest a positive and significant impact of the stock market size on labor productivity and value added. This finding is in accordance with the results found by S. B. Naceur (2003). However, the same effect cannot be found in the capital productivity estimation.

47 *Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, United Kingdom*
48 *All data are measured in US Dollars (base year 2004)*
49 *Appendix 4, p.232*
50 *The Hausman-Test checks, whether fixed or random effects are appropriate in the considered estimation. Here, it suggests random effects. For further details, see Appendix*

From the class of bank specific factors the cost management turns out to be the key determinant of banking industries' competitiveness, in terms of all three dependent variables. The estimated coefficient of the included cost-income ratio is highly significant in all specifications. The effect of overhead costs turns out to be negative, although not significant in our estimations. The results support the theoretical expectations and are in line with previous findings by Kosmidou & Pasiouras (2005) and Kosmidou et al. (2006) which suggest that a bad cost management is one of the key reasons of low profitability.

According to our estimations, regarding value added and capital productivity, there is – at least at the 1 percent significance level – evidence for economies of scale / scope.

Regulation, approximated by the BIS Tier 1 capital ratio and regulatory capital, respectively, shows significant effects on competitiveness, in terms of value added and capital productivity. Surprisingly, the estimated coefficient of regulatory capital turns out to be positive in the value added specification. The effect of regulation on capital productivity instead is negative and highly significant.

In the following, we provide a more detailed discussion about the different results and its implications.

Determinants of labor productivity

From the class of macroeconomic factors, the results provide significant evidence for the impact of per capita income and term transformation. As expected, we find a positive and highly significant effect of current per capita income on labor productivity. Economies with higher per capita income are therefore supposed to be more competitive with respect to a higher labor productivity in the banking sector. The same effect appears for value added, although below the significance level. Surprisingly, the same effect cannot be maintained in the specification for capital productivity.

According to specification (3) and (4), there is evidence for a positive and significant impact of term transformation on labor productivity. The same result is found in the specification for the banking industry's value added.

As already mentioned, a high degree of concentration significantly lowers the competitiveness of banking industries.

From the class of bank specific factors, we find only the cost management to be a significant determinant of labor productivity. Our findings do not provide the same negative impact of the included overhead ratio (overhead to total assets) on labor productivity, however. Surprisingly, the hypothesis regarding potential positive effects of trade openness on the competitiveness of the banking industry cannot be supported by our results in any of the specifications. Furthermore, our findings do not provide any evidence for a significant impact of education on labor productivity. Note however, that due to missing values, the estimation is run upon a sample of only 52 observations. The explanatory power of this specification is thus a priori restricted.

Regulation, here entering the estimation through the BIS Tier 1 capital ratio, turns out to have no significant impact on labor productivity.

Furthermore, we find no evidence for an effect of corruption on banking industries' competitiveness. Last, the coefficient of the EU dummy variable turns out not to be statistically significant, implying that there is no evidence for an effect of EU-membership on labor productivity in the banking sector.

Table 26: Determinants of labor productivity

Variables	1 l_gva	2 l_gva	3 l_gva	4 l_gva
gdpcap	3.32 (7.26)***	4.06 (11.69)***	3.41 (7.35)***	3.21 (6.73)***
diff_int real (in 1.000)	0.87 (1.53)	-0.21 (0.11)	0.95 (1.69)*	1.56 (2.03)**
conc	-5.64 (3.49)***	-3.25 (2.72)***	-5.67 (3.74)***	-3.50 (1.95)*
mcap_gdp (in 10)	2.44 (4.85)***	3.30 (7.68)***	2.53 (5.08)***	2.54 (4.74)***
cir (in 10)	-7.78 (14.43)***	-17.66 (8.08)***	-7.90 (14.67)***	-7.73 (14.19)***
overhd (in 10)	-4.58 (0.16)	-33.55 (1.51)	-1.50 (0.05)	-6.81 (0.21)
bonds_to_assets (in 10)	-7.12 (5.07)***	0.67 (0.6)	-7.17 (5.62)***	-7.29 (5.25)***
eximp_gdp	9.8 (0.66)			
lf_edu		0.02 (0.09)		
biscap		-10.324 (0.08)		
dumeu			10.85 (0.62)	
cpi				-0.28 (1.28)
Constant (in 100)	1.57 (7.02)***	1.67 (7.85)***	1.52 (5.39)***	1.74 (5.40)***
Observations	180	52	180	167
Number of country_code	15	9	15	14
R-sq: within	0.71	0.71	0.71	0.71
R-sq: between	0.85	1	0.87	0.82

Table 26 *SFCW Research. Absolute value of z statistics in parentheses*
* *significant at 10%;* ** *significant at 5%;* *** *significant at 1%;*

Determinants of capital productivity

The estimation for capital productivity shows a slightly different picture. None of the included variables from the class of macroeconomic factors turn out to have a significant effect on capital productivity.

As in the case of labor productivity, the industry specific conditions are the key determinants of capital productivity. However, while labor productivity – ceteris paribus – turned out to be higher in a bank based system, the estimated coefficient of the bonds to asset ratio now suggests a positive effect of the market based system on capital productivity in the banking industry.

Regarding the bank system, our results suggest capital productivity in a universal bank system, ceteris paribus, to be lower by 0.17 units, on average.

Compared to the labor productivity estimation, market concentration has a lower, but still negative impact on capital productivity.

As already mentioned, the direction of the effect of a high capital asset ratio on the performance of banks is ambiguous and could not be definitely determined by previous studies.[51] However, our results suggest a significant negative effect of the capital ratio of banks on the industry's overall capital productivity. This finding supports the risk-return hypothesis, according to which the performance of a bank depends on its risk. Higher risk is thus associated with higher performance. Hence, financing costs are affected to a lesser extent. Since this finding does not provide enough evidence, we include the capital asset ratio in the value added specification. Surprisingly, we find a positive, but statistically not significant effect. A positive and significant effect would imply that a bank's financing costs are more affected than its risk.

Regulation – approximated by the BIS Tier 1 capital ratio – turns out to have a significant negative impact on capital productivity. The estimated coefficient of regulatory capital instead is not significant.

51 *SBerger (1995), Demirguc-Kunt & Huizinga (1999), Staikouras & Wood (2003), Goddard et al. (2004), Kosmidou & Pasiouras (2005), Koutsomanoli-Fillipaki & Staikouras (2006)*

Table 27: Determinants of capital productivity

Variables	1 e_gva	2 e_gva	3 e_gva	4 e_gva	5 e_gva
cir	-0.746 (8.51)***	-1.068 (10.32)***	-1.14 (10.57)***	-0.932 (6.69)***	-0.279 (13.23)***
car	-6.164 (14.28)***	-6.567 (12.21)***	-6.396 (13.07)***	-6.69 (11.23)***	-2.815 (3.98)***
conc	-0.256 (4.46)***	-0.275 (4.29)***	-0.243 (3.82)***	-0.213 (3.51)***	-0.086 (1.44)
dum_banksys	-0.167 (6.23)***	-0.164 (5.23)***	-0.135 (4.18)***	-0.179 (5.87)***	-0.2 (3.05)***
bonds_to_assets	0 (0.58)	0 (0.33)	0 (0.99)	0 (0.95)	0 (0.1)
diff_int	0.007 (0.83)	0.023 (2.05)**	0.021 (2.04)**	0.012 (1)	-0.002 (1.1)
mcap_gdp	0.035 (1.96)**	0.032 (1.22)	0.043 (2.21)**		
gdpcap	0.3 (0.17)				
biscap	-2.582 (5.08)***	-3.228 (5.65)***	-3.455 (6.09)***	-3.244 (4.11)***	
dumeu		-0.034 (0.82)			
banksize			0 (2.10)**		
regcap				0 (0.67)	
lf_edu				0 (0.08)	
Constant	1.778 (17.03)***	2.099 (14.48)***	2.015 (18.09)***	2.017 (14.92)***	0.944 (10.86)***
Observations	86	97	97	59	196
Number of country_code	10	11	11	10	16
R-sq: within	0.34	0.4	0.43	0.25	0.47
R-sq: between	0.99	0.98	0.99	0.96	0.69

Table 27 *SFCW Research. Absolute value of z statistics in parentheses*
* *significant at 10%;* ** *significant at 5%;* *** *significant at 1%;*

Determinants of the relative weight of the banking industry

In the last step, we turn to the estimation regarding the share of value added generated by the banking industry in total value added (GDP), which also refers to as the importance of the banking industry for the overall economy in terms of value added.

From the class of macroeconomic factors, we now find 3 determinants which significantly affect the relative value added. The coefficient of the difference between long and short term interest rates, also referred to as term transformation, turns out to be positive and significant over all specifications. The estimated coefficient is low but positive, implying that a larger difference between long and short term interest rates enhances term transformation and thus leads to higher value added. In addition, the results state that the share of value added generated by the banking industry in total GDP is, ceteris paribus, lower by 0.04 units for members of the European Union.[52] Although the formation of a single financial market within the European Union has increased market liquidity and trading volumes, our results suggest that it did not lead to similar developments in the banking industries, regarding their value added. One reason might be the harmonization of regulatory conditions throughout the EU, which restrict the competitiveness in member-countries and thus lead, ceteris paribus, to lower value added.

Finally, we also find positive evidence for an effect of high level education on the competitiveness.[53]

As before, higher market concentration negatively affects the competitiveness of the banking industry, also with respect to the share of value added. Both, market capitalization and size turn out to have a positive effect on the banking industry's value added. And, as before, a high cost income ratio as well as high regulatory capital both have a decreasing effect on the competitiveness of the banking industry.

Against our expectations of a positive impact of higher net interest margins on banks' value added, the estimated coefficient is not significant. One reason might be that only a small part of the banks in our sample generate a substantial part of their total revenue by interest margin business.

52 *Note that our panel includes only 2 non-EU member countries, i.e. Switzerland and USA*

53 *Remember that due to missing values, the estimation is run over 58 observations only*

Table 28: Determinants of banking industries' relative value added

Variables	1 gva_gdp	2 gva_gdp	3 gva_gdp	4 gva_gdp	5 gva_gdp
cir	-0.10 (9.51)***	-0.08 (6.49)***	-0.01 (6.38)***	-0.01 (6.98)***	-0.01 (6.88)***
dumeu	-0.04 (6.78)***	-0.07 (6.10)***	-0.04 (2.91)***	-0.03 (2.58)***	-0.03 (2.69)***
bonds_to_assets	-0.02 (1.90)*		-0.01 (1.84)*	-0.01 (1.89)*	-0.01 -1.55
mcap_gdp	0.02 (10.72)***	0.02 (4.50)***	0.01 (8.12)***	0.02 (8.64)***	0.02 (8.58)***
diff_int real (in 1/10)	0.00 (1.82)*	0.00 (0.01)	0.01 (3.60)***	0.01 (3.44)***	0.01 (3.40)***
gdpcap	0.24 (1.36)				
banksize	0.00 (2.80)***				
regcap	0.00 (3.56)***	0.00 (3.37)***			
biscap		0.07 (0.84)			
lf_edu		0.00 (2.08)**			
car			0.07 (0.97)		
conc				-0.01 (2.36)**	-0.02 (2.53)**
nim			0.10 (0.76)		0.01 (0.07)
dum_banksys			0.01 (1.36)		0.02 (1.52)
Constant	0.14 (12.75)***	0.16 (8.59)***	0.06 (4.09)***	0.08 (7.30)***	0.07 (5.44)***
Observations	105	58	189	192	192
Number of country_code	11	10	16	16	16
R-sq: within	0.82	0.74	0.59	0.6	0.6
R-sq: between	0.91	0.95	0.59	0.53	0.57

Table 28 *SFCW Research. Absolute value of z statistics in parentheses*
* *significant at 10%;* ** *significant at 5%;* *** *significant at 1%;*

Conclusion

So far, research on banking performance and its determinants has been limited to analyses of the return on equity (ROE) and the return on assets (ROA). Several empirical studies have investigated the determinants of banks' performance and profitability, respectively. Most studies use two classes of explanatory variables, covering external and internal determinants. Internal determinants represent factors on a micro level, such as capital structure, cost and risk management. External determinants can be divided into control variables that describe the macroeconomic environment, such as inflation, interest rates and cyclical output, and variables which represent market characteristics, including market concentration, industry size or ownership status. Following the existing literature, we define the following 4 classes of explanatory variables:

- macroeconomic conditions
- industrial environment
- regulatory conditions and
- banks specific characteristics

Although the existing literature provides interesting insight in the determinants of banks' profitability, it does not say anything about the competitiveness of banks and banking industries. Due to significant changes in the economic environment of the banking industry, firms are continuously forced to adjust their business in order to sustain their competitiveness in the long run. Our analysis thus aims at enlarging the existing literature by a broader view on banking performance, focusing on three measures of competitiveness:

- labor productivity
- capital productivity and
- the share of banking industries' value added in total value added (GDP)

According to our estimations, overall, the most significant factors belong to the class of variables describing the industrial environment. Table 29 summarizes the results, in terms of the significance of the estimated coefficients.

Table 29: Summary statistics

Variables	l_gva	e_gva	gva_gdp
Macroeconomic variables			
gdpcap	+++		
diff_int	+		++
lf_edu			++
dum_eu			---
cpi			
eximport_gdp			
cpi_score			
industryspecific variables			
conc	---	--	--
mcap_gdp	+++		+++
bonds_to_assets	---	++	-
dum_banksys		---	
regulation			
recap			+++
biscap		---	
bankspecific variables			
cir	---	---	---
car		---	
size		+	+++
nim			

Table 29 *SFCW Research*

In line with our expectations, market concentration has an overall negative impact on the banking industry's competitiveness and thus supports the Structure Conduct Performance hypothesis. Regarding mergers, government should therefore consider the trade off between benefits of potential economies of scale and scope and decreasing productivity most probably due to missing competition.

Furthermore, competitiveness in terms of all three included variables systematically depends on the financial market system. While value added and labor productivity turn out to be higher, ceteris paribus, in a bank based system, capital productivity is supported by a market based system. The stock market represents an integral part of the financial system. Its size and thus its ability to provide capital and diversify risk has significant positive effects on banks' value added and their labor productivity.

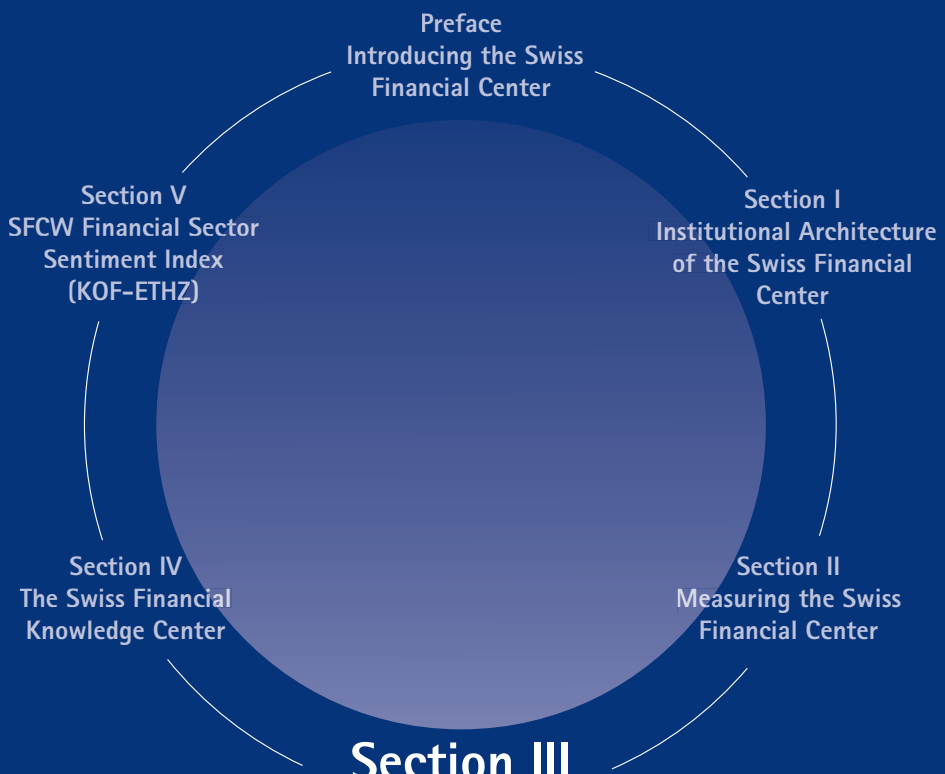
From the class of bank specific factors the cost management turns out to be the key determinant of banking industries' competitiveness, in terms of all three dependent variables. The results support the intuitive expectations and are in line with previous findings by Kosmidou & Pasiouras (2005) and Kosmidou et al. (2006) which suggest that a bad cost management is one of the key reasons of low profitability. Furthermore, we find evidence for economies of scale in the banking industry, regarding the estimations on capital productivity and value added.

According to our expectations, regulation – measured by the BIS Tier 1 capital ratio – has a negative and significant effect on the productivity of capital. Regulatory capital instead turns out to have a highly significant positive impact only on relative value added. Positive effects of regulation on the quality of services and the reputation of the banking sector, however, must be weighed up against its negative effects on capital productivity and value added, suggested by our findings.

Our estimations also provide some puzzling results. Against our expectations and findings of previous studies, per capita income turns out to be significant only in the labor productivity estimation. Nevertheless, a good economic development seems to boost the banking industry automatically. Appropriate economic conditions for prospering and ongoing economic growth thus represent good instruments for the promotion of the banking industry. Surprisingly, we do not find any evidence for trade openness to positively affect the banking industry's competitiveness.

Although we find a significant positive effect of highly skilled labor (approximated by tertiary education) on value added, due to missing values, the estimation on labor productivity, including education, is run on a sample of only 52 observations. In addition, tertiary education might not be key for labor productivity in banking. Based on apprenticeships, executive training probably plays a far more important role.

Although regulation represents a key issue in the banking business, only few regulations are measurable. In addition, data on banking regulation is rare. Based on more precise regulatory data, we certainly would find better results, supporting the significance of regulatory conditions for the competitiveness of the banking industry.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Section III – Regulation of the Swiss Financial Center

The Swiss financial industry faces a competitive and mostly advantageous regulatory environment. This situation, however, is challenged by national and international developments.

Key words	Key methods	Key data
Regulatory Burden Anti-Money Laundering and Fight against Terrorism Financing Banking Secrecy International Cooperation in Regulatory Issues Tax	Questionnaire-based surveys in Switzerland, Singapore and Germany	Statistcal data about banking regulators worldwide

Section Abstract

To assess the regulatory environment of the Swiss financial center, we concentrated on two aspects. First, the supervision structure was analyzed by looking at the efficiency of the supervisory bodies. For that, we performed an international comparison of the supervisory structure in selected countries. Secondly, we studied the impact of Anti-Money Laundering (AML) measures on the competitiveness of the Swiss financial center. The subject area of AML was chosen as it is the single most expensive aspect of regulation. Furthermore, the AML regime is continuously broadened and deepened. For the analysis, a survey was done in Switzerland, Singapore and Germany.

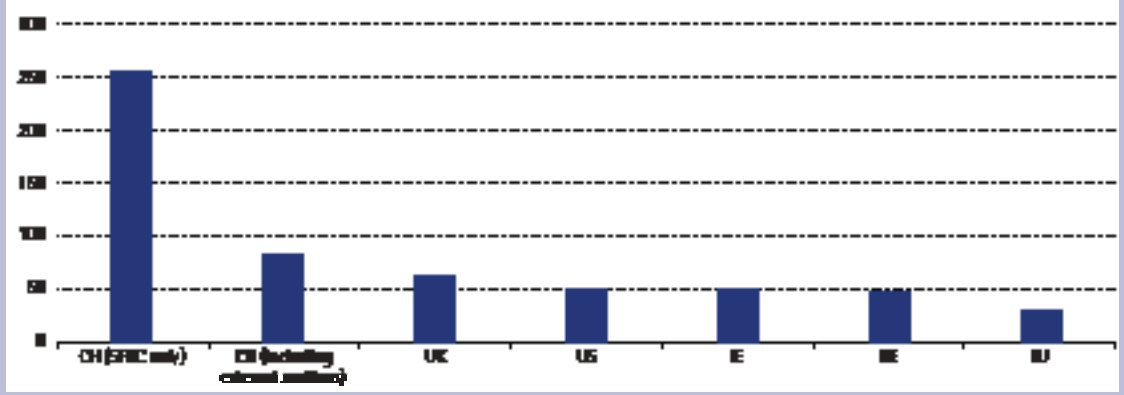
Key Conclusions

The regulatory environment is of great importance for the development of a financial center. With today's mobility of capital and business processes, it is possible to quickly move value generation and jobs from one country to another, if there is the opportunity to get better regulatory, legal and tax treatment at another place in the world. Switzerland has been hurt by this more than one, i.e. it lost the funds trading business to a competitor financial center, which provided a better regulatory and tax environment.

At least in the regulatory area, Switzerland has learned from this incidents. Today, the Swiss Federal Banking Commission is cautious in imposing new regulatory rules on the banking sector and prudently takes into account costs and benefits of banking regulation. Switzerland, however, is not free in its regulatory efforts. Most of the financial market regulation is developed and driven by international bodies. Member states are virtually obliged to implement these developments, and there often is not much room for a «Swiss finish». This is most obvious in the area of AML regulation, where diverting from international best practice convenes a huge reputation risk. In other subjects of financial market regulation, i.e. capital adequacy and especially the costly compliance sector, leeway for national regulators is also sub-sequently reduced. The advantageous environment of Switzerland, but also other small financial centers, is therefore under pressure. Switzerland must therefore take care to use its opportunities in the regulatory area wherever it can. It also has to articulate its positions in the international area.

Even when including the involvement of external auditors in Swiss banking supervision, the value added per supervisor employee in Switzerland outperforms the peer countries.

Figure 87: Value Added per Supervision Employee (Banking, USD, millions, 2004)



1. Regulation and Supervision

By the end of 2004, the Swiss supervisors (banking, insurance, anti-money laundering offices) employed 261 people, almost 50 percent more than at the end of 2000. Neither in theory nor in practice is there any doubt regarding the economic rationale and the necessity for regulation in the financial industry.[54] In spite of this general agreement, regulation and supervision is receiving a great deal of attention in the financial industry, both domestically and internationally. «The remorseless rise in regulation has become the greatest risk facing the banking sector» according to the 2005 'Banana Skins' survey conducted by the CSFI, an independent City of London think tank. The report finds that regultory overkill consumes bank resources, reduces risk diversification and creates a false sense of security. This finding is based on responses from 440 bankers and close observers of the banking scene in 54 countries.

It is not easy to answer the crucial questions of regulation and supervision for the Swiss financial center. Effectiveness («to do the right thing») is often more important than efficiency («to do the thing right»), and even overall efficiency of supervision is not easily measurable. One of the reasons is that the majority of the costs of supervision do not accrue at the supervisor's office, but within the financial intermediaries' firms in the form of «compliance costs». The direct costs of supervision, i.e. the costs of the EBK, amount to less than five percent of the total regulatory burden in the case of the Swiss private banking sector (→Table 32).

54 *See Weber et al. (2006)*

We have examined the direct costs of supervision of the financial system (banks, insurance, capital markets) for a few countries with different supervisory regimes: From fully integrated supervisors (UK, Singapore, Germany) to fully disintegrated bodies (France). We have measured overall efficiency by the ratio «Staff in the supervisors' office per 1'000 staff in the supervised industries» (ratio K1) for the year 2000 (→ Figure 88). The ratio indicates the most costly system for Singapore, the most efficient for Switzerland. If we take into consideration the Swiss «dual supervisory system» and include the incremental regulatory costs of the external auditors in the ratio, Switzerland would achieve about the median result of the ten countries.

On average, the countries with fully integrated supervisory systems are less efficient than the less integrated ones. Countries that have recently changed to the fully integrated system show higher growth in their K1 ratio than other countries.

Figure 88: Ratio K1 - Staff Supervisor per 1000 staff in industry 2004

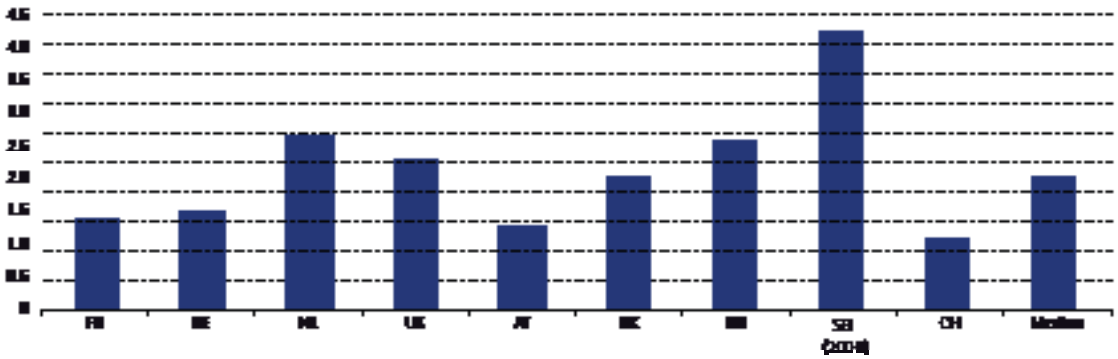


Figure 88 *SFCW Research, Weber/Geiger/Breining/Kaufmann/Schmitz/Trott 2006*

We have also analyzed the regulatory efficiency for banking and the insurance industry separately by the analysis of the number of regulatory staff in relation to total assets and total insurance premium earned. Figure 89 and Figure 90 show the resulting ratios K2 and K3.

The growth of staff in the supervisor's offices was highest in Austria (from a low level) and Netherlands, which both changed their organizational structure from disintegrated models into fully (Austria) or partially (Netherlands) integrated organizations. With 46 percent between 2000 and 2004, Switzerland's growth rate was above the average of the countries analyzed (banking, insurance and anti-money laundering supervisors).

Figure 89: Ratio K2 - Banking supervision: staff supervisors to Assets Banks 2004

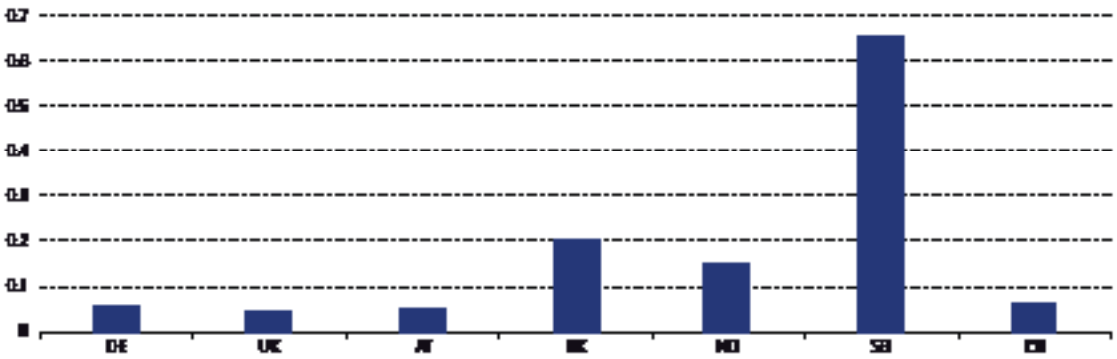


Figure 90: Ratio K3 - Insurance supervision: Staff supervisor to total premium 2004

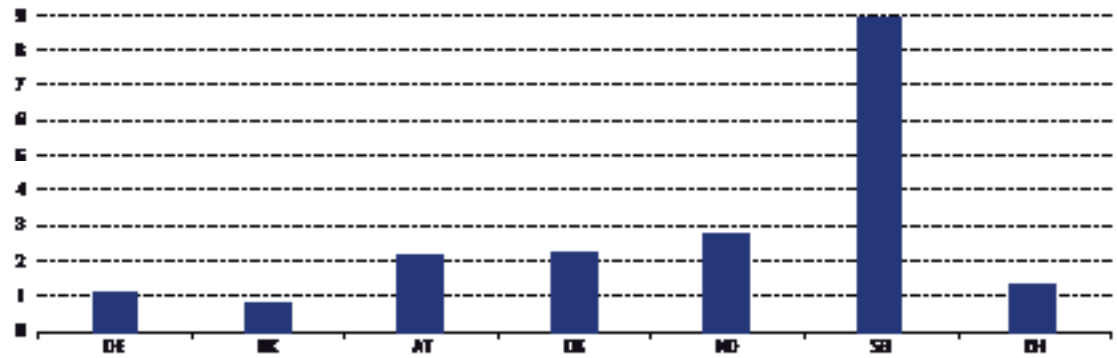


Figure 89 *SFCW Research, Weber/Geiger/Breining/Kaufmann/Schmitz/Trott 2006*
Figure 90 *SFCW Research, Weber/Geiger/Breining/Kaufmann/Schmitz/Trott 2006*

Two recent surveys in the Swiss private banking sector showed that the isolated analysis of the resources in the supervisors' office is of limited relevance. The direct costs of supervision, i.e. the costs of the EBK, amount to less than five percent of the total regulatory burden. The surveys revealed strong economies of scale that put smaller competitors at a significant disadvantage. By far the highest costs are caused by the prevention of money laundering.

Table 30: The Regulatory Burden in Swiss Private Banking 2002

Regulatory Burden 2002 [CHF per capita]	ASCB Banks: large	ASCB Banks: small	Private Bankers	Securities Dealer: Wealth Management	Securities Dealer: Securities Trading
Regulatory Burden	12.154	28.734	6.938	18.580	14.161
Compliance Costs	10.935	24.270	6.412	15.255	11.568
Prevention of Money Laundering	5.059	8.374	2.746	4.936	145
Risk Management	2.472	3.458	1.002	2.372	4.825
Equity/ Liquidity/ Accounting	1.561	5.400	829	2.107	4.508
Others	1.843	7.038	1.835	5.840	2.090
Incremental Auditing Costs	1.157	4.327	440	3.039	1.979
External Auditing Costs	357	1.600	145	2.174	1.057
Internal Auditing Costs	800	2.727	295	865	922
Direct Costs	62	137	86	286	614

Table 30 *Hubli 2004, Marti 2004*

2. Anti-Money Laundering

2.1. Introduction

In recent years, banks and the whole financial industry have become depreciative to new or extended regulation. The regulators started to recognize the complexity of the regulatory framework the banks have to operate in and the costs involved with fulfilling the various requirements. Thus, regulators and supervisors are increasingly assessing cost and effectiveness of regulatory provisions. In the area of Anti-Money Laundering (AML), this is not the case. Facing the volume of organized crime and the alleged high danger of terrorist acts, the legal framework aimed to prevent money laundering and terrorism financing is constantly evolving. In the area of regulation of the financial system, Anti-Money Laundering rules have a special role. While most regulatory provisions are intended to protect the smooth operation of the financial system, Anti-Money Laundering provisions have been established to prevent the use of the financial system for illicit purposes, but primarily to counter the illegitimate acts themselves. Therefore, arguments like costs or lack of effectiveness are hardly heard.

The Association of Swiss Commercial and Investment Banks (VHV) commissioned the Swiss Banking Institute to conduct a study on the impact of Swiss and foreign Anti-Money Laundering (AML) regulation on the competitive position of banks with private banking business in Switzerland.[55]

In an earlier study of the Swiss Banking Institute,[56] Anti-Money Laundering was already identified as both the single most important and expensive area of banking regulation. While previous AML studies concentrated on the framework from a legal point of view, the current project aims to analyze the actual implementation issues and impact of AML regulation on the private banking business.

55 *See Wünsch and Geiger (2006)*
56 *See Wünsch and Geiger (2005)*

2.2. Key Findings

- The Swiss Anti-Money Laundering ordinance is considered as effective in preventing money laundering in Switzerland.
- Swiss Anti-Money Laundering provisions are regarded as very burdensome. However, the results do not indicate that they are more burdensome than the Singaporean or German framework.
- Most banks do not see a negative influence of Anti-Money Laundering regulation and processes on the banks' legitimate business.
- Banks in Switzerland see international organizations (i.e. FATF,[57] OECD, UN, EU) as well as the Swiss government as the main drivers of Anti-Money Laundering regulation.
- Efforts and costs in a bank's back office (compliance, IT, logistics) do not significantly depend on the size of the bank. Therefore, economies of scale exist, which penalize small and mid-sized competitors.

2.3. Method

The Swiss Banking Institute conducted a questonnaire-based survey among:

- all members of the Association of Swiss Commercial and Investment Banks (VHV);
- all members of the Swiss Private Bankers Association;
- members of the Association of Foreign Banks in Switzerland with private banking activities;
- the two Swiss big banks;
- selected cantonal banks.

The questionnaire was circulated in February and March 2005. 35 percent of the banks invited took part in the survey. The answers give a representative sample of the groups of banks and include players of all relevant sizes.

The foreign part of the study was performed by partners at the Singapore Management University and the University of Frankfurt (Germany). In all countries the same questionnaire was used.

57 *FATF: Financial Action Task Force*

2.4. Findings and Interpretation

2.4.1. Effectiveness and Burden of Anti-Money Laundering Regulation

Banks in Switzerland assess the Swiss Anti-Money Laundering ordinance as very effective to prevent money laundering in Switzerland. Both Swiss banks as well as foreign banks in Switzerland share this view. Banks with significant private banking business in Germany and Singapore rank the German and Singapore rules as effective as well. The effectiveness does not come without a downside, though. AML processes influence all client relationships and most of the organizational units of a bank. This places a significant burden on many parts of a bank. The study results indicate that banks in Switzerland rank this burden as very high. Banks in Singapore and Germany, however, say the same about their regulatory environment.

2.4.2. Industry Involvement in the Policy Setting Process

While the banks rate the relationship with the Swiss regulator (Swiss Federal Banking Commission) and associated authorities as good, they are not satisfied with their influencing capabilities during the development process of AML regulation. Especially foreign banks in Switzerland, albeit also pointing out good and constructive relationships with the regulating bodies, regard their involvement and consultation during the legislation process as insufficient. Small and medium-sized banks face the same representation of their concerns in the legislation process as large industry players.

Banks in Germany regard the relationship to the regulator in Anti-Money Laundering matters as reserved. In Germany however, the regulator (Bundesanstalt für Finanzdienstleistungsaufsicht; BAFin) is only distantly involved in the policy setting process. In Singapore, banks appreciate a very good relationship to their regulator (Monetary Authority of Singapore; MAS). The contact between regulator and banks is close and seen as an exchange between both sides. Accordingly, banks in Singapore say that their opinions influence the regulation process, which in turn leads to more reasonable rules.

2.4.3. Driver of Anti-Money Laundering Regulation

The lack of awareness of industry concerns is staggering, especially as 38 percent of the banks in Switzerland belive that the Swiss government and regulatory bodies themselves are one of the main drivers of AML regulation. Foreign banks in Switzerland weight the influence of the Swiss bodies as slightly higher than the pressure from abroad. However, it has to be acknowledged that 40 percent of the banks interviewed also consider international committees and regulatory bodies such as FATF and BIS to be the drivers of AML regulation. In addition, 20 percent see a significant influence of foreign governments, either directly or indirectly through international bodies, on the Swiss AML ordinance. Sometimes it is held up that Swiss banks are driving AML regulation themselves. Yet, only 10 percent of the respondents agree with this opinion.

Singapore and German banks have a similar opinion in this regard. German banks additionally emphasize on the influence of the European Union institutions.

2.4.4. AML as Competitive Factor

AML regulation does not only impact illegitimate money. Since legitimate customers are also subject to certain procedures like «Client Due Diligence» and clarifications of doubtful transactions, it has an impact on legitimate business as well. Although the majority regards the negative impact as low, the opinions vary between the respondents.

As all Swiss banks have to apply Swiss AML rules even for their business outside Switzerland, Swiss AML regulation affects the competitive situation abroad. For their business in Singapore, Germany and the United Kingdom, Swiss banks see a slight competitive disadvantage to their local competitors, although the answers show no distinct opinion. The same is true in the US. There, larger Swiss players rate their situation as better than smaller banks. In Luxembourg, Swiss banks assess their AML related competitive position as equal to domestic banks.

Disadvantages arise out of three facts: First, Swiss banks face higher compliance costs. 33 percent of the respondents stress this issue. Some banks also point out that Swiss rules bar them from offering certain services. Finally, 30 percent
of the Swiss banks with international operations argue that the clients are not appreciative of the efforts and processes caused by Swiss AML rules.

The banks regard the positive effect of AML regulation for marketing purposes as negligible, although some respondents stress the importance of AML efforts for the Swiss financial center as whole.[58]

2.4.5. Cost Aspects of Anti-Money Laundering Measures

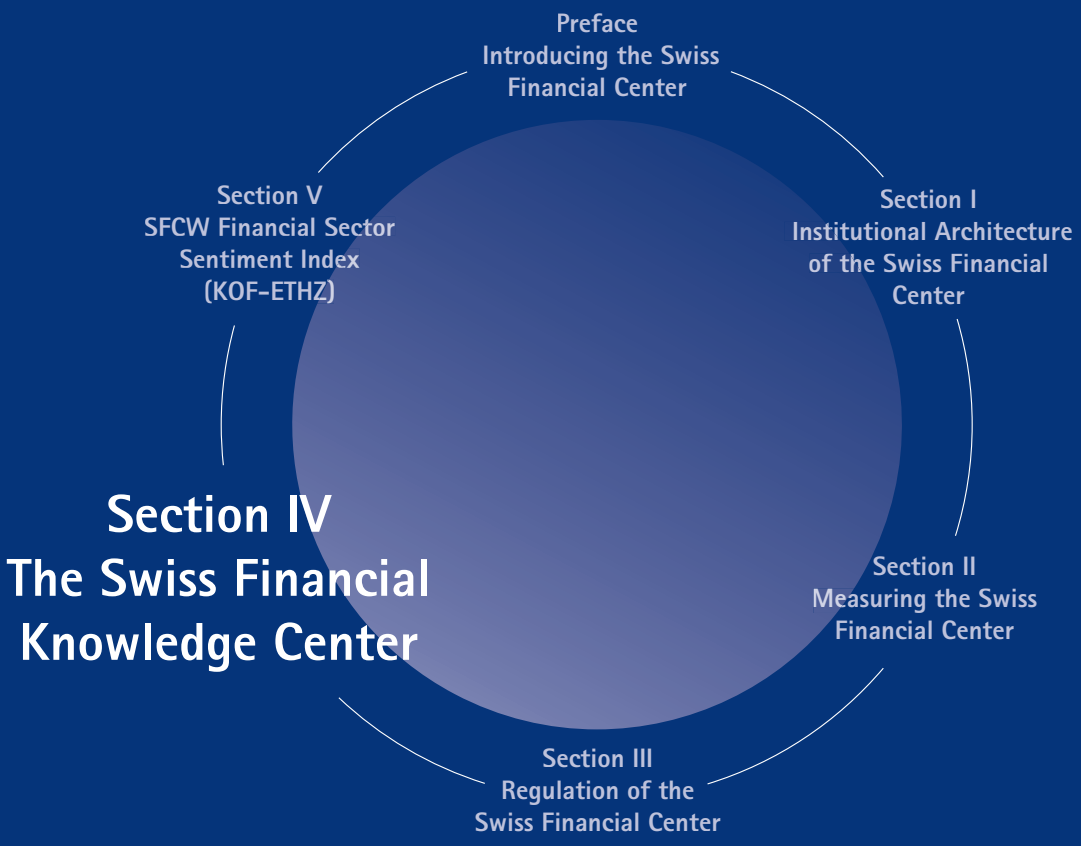
Banks face substantial costs in applying the Anti-Money Laundering ordinance in their daily operation. The costs can be split up in direct costs, which arise from the fact that resources are directly used for development and implementation of AML rules and processes within a bank. In addition, there are indirect costs, such as the opportunity costs due to lost or waived business.

Within a bank, direct costs are mainly generated in the client advising divisions through AML related work of advisors, in specialized AML and Compliance units, and in the internal audit department.

The analysis shows that for banks with 500 employees or less, there is no correlation between the headcount of the AML unit and the size of the bank. Thus, small banks face the same absolute personnel costs in their AML unit as medium-sized banks. It can be concluded that the same is true for other, non-personnel related costs at the AML units. The reason for this may be the high proportion of upfront work at the AML offices, like setting up directives and AML processes. The effort in this area is independent from the actual business volume and is mainly determined by the regulatory framework. This is the same for all banks, regardless of their size. For banks with 500 employees and more, a dependency between AML related headcount and bank size can be identified. We reason that this is mainly driven by client specific efforts, like case investigation, reporting, etc.

The results confirm a competitive advantage of medium-sized to large banks over small competitors.

58 *See Geiger and Wünsch (2007)*


Preface
Introducing the Swiss Financial Center
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Section IV – The Swiss Financial Knowledge Center

Skills and competencies as well as financial innovations are key factors for the international competitiveness of the Swiss financial center. Which competences are important for the banking sector? Are they available and how is the quality of the available competencies? What languages are playing a crucial role in future? As it cannot be measured directly, how is the financial innovation at the Swiss financial center? Which are the drivers for product innovation and which are the barriers for innovation?

Key words	Key methods	Key data
financial knowledge center knowledge economy social and methodological competencies professional competencies Swiss Finance Institute education management of competencies innovation	The research of the importance and availability of social, methodological and professional competencies has been carried out using an online survey. The questionnaire was sent to the heads of human resources of all Swiss banks. The analysis of financial innovation has been carried out using a series of personal interviews with executives of different financial service providers.	Swiss Federal Statistical Office Swiss Financial Center Watch Center of Economic Research at the ETH Zurich.

Section Abstract

The generation, transfer and the application of knowledge is a core process of knowledge-based economies. In chapter 2 we discuss how knowledge can be created, the competitive power of knowledge and how knowledge creates value. The section concludes focusing on the knowledge intensive economies as drivers of the financial center. Chapter 3 addresses to the foundation of the Swiss Finance Institute (SFI) and its central issues.

Chapter 4 deals with the importance and the availability of selected social, methodological and professional competencies. We demonstrate what competencies are and how they are being managed. Our analysis shows that expert knowledge, market knowledge and outstanding language skills are the most important professional competencies while customer orientation and good communication skills are the most important social and methodological competencies for the banking industry. A further investigation of the language skills as an important factor for Swiss Financial Center shows that there is an increase in demand for Russian and Arabic speaking employees at the Swiss Financial Center.

In chapter 5 we present a study based on a series of personal interviews with executives of different financial service providers. The study had two goals: Firstly, it should provide insights into innovation in the financial sector as a whole and discover relevant fields of financial innovation for further investigation. Secondly, it should help to establish a basis for systematic surveys on financial innovation in the future.

Key Conclusions

Competencies are the decisive success factor for the positioning of financial institutions in a competitive environment. The importance of competencies tends to be rather underestimated though, especially on the board level of financial institutions.

The term «competence» owns no consistency. Financial institutions possess different definitions and interpretations. The management of competencies is not focusing on standardized norms, but is an expression of an individual corporate culture. The consequence is that financial institutions operate with different competence-management-systems. They agree though that skills, knowledge and communicative abilities belong to the core competencies and that their optimal cross-linking within the financial institution is crucial.

The availability of a high quality of competencies has a strong influence on the potential of development, growth and innovation, which sustain the competitive advantages of the Swiss financial center.

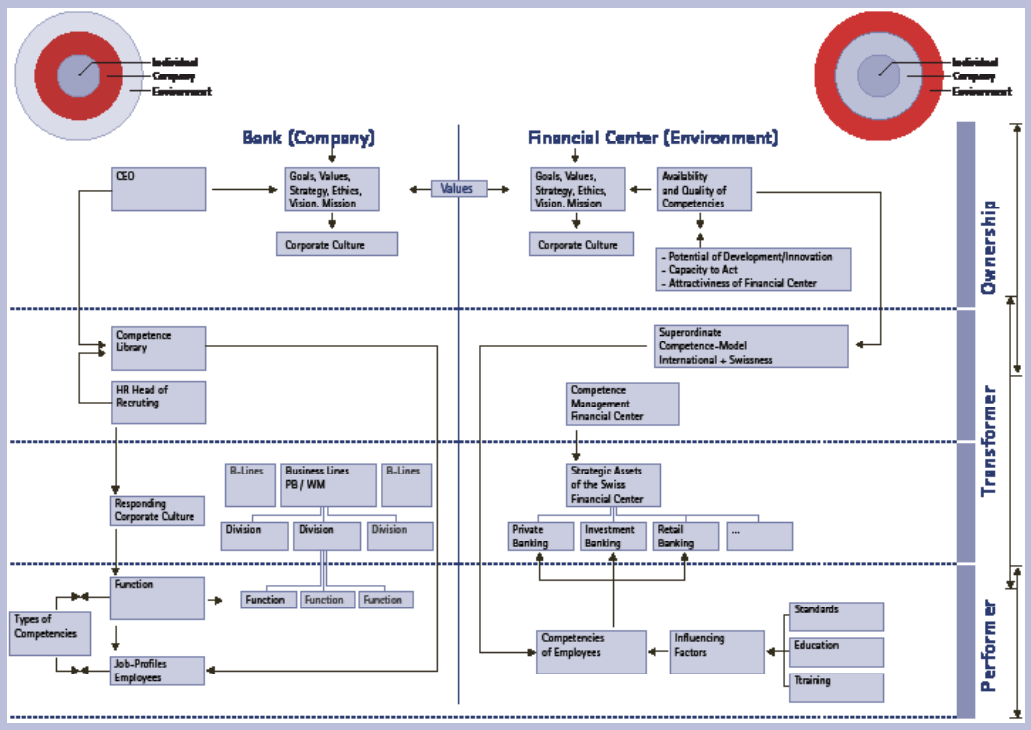
Expert knowledge as well as market knowledge and language skills are the most important professional competencies for the banking sector. All these competencies are quite easy to recruit at the Swiss financial center.

The social and methodological competencies that are of high importance are customer orientation and communications skills. While customer orientation is easy to recruit, the effort to increase communication skills shall be intensified.

Beside the national languages, English is the most important language for the Swiss financial center. Upcoming languages are Russian and Arabic.

The dynamics of financial innovation – regarding both products and processes – is high due to the high degree of substitution of products and services.

Figure 91: Conceptual model of a competence-management-system of the Swiss financial center



1. Introduction

A core process of knowledge-based economies is the generation, the transfer and the application of knowledge. As one of the global leading financial centers, the Swiss financial system is strongly bounded to the knowledge-creation-process. The competencies, experiences and skills of the interacting institutions, companies and individuals represent a strategic asset of the most important Swiss economic sector. The quality of the education system in the field of finance and banking is a core factor of international competition.

After a theoretical introduction in chapter 2, we concentrate in this section on three central issues concerning the role of human capital and knowledge in a financial center:

- Education in banking and finance (chapter 3)
- Skills and competencies (chapter 4)
- Innovation (chapter 5)

2. Knowledge

2.1. Knowledge Creation

In today's corporate organizations financial performance and value added is a key focus. The economic success is the output gain from the organizations most valuable asset: human resources. Hence, the economy's roots are strongly embedded within the production, the distribution and the application of knowledge. In contrast to the production of physical goods, the value chain of knowledge based services is not easy to understand and hence rather difficult to manage. Focusing on knowledge necessarily means to take a multi-level view on individual employees, teams, institutions and a financial center as a whole. Yet, hardly reflectable in classical metrics, productivity and efficiency demand corporations to concentrate on knowledge creation, knowledge flows, personal skills and competencies and their conversion into innovation. In other words, knowledge intensive processes are key strategic assets and competitive factors for e.g. financial institutions and related services as well as for an economic region, specifically for a financial center.

Knowledge is basically defined through the following distinction:

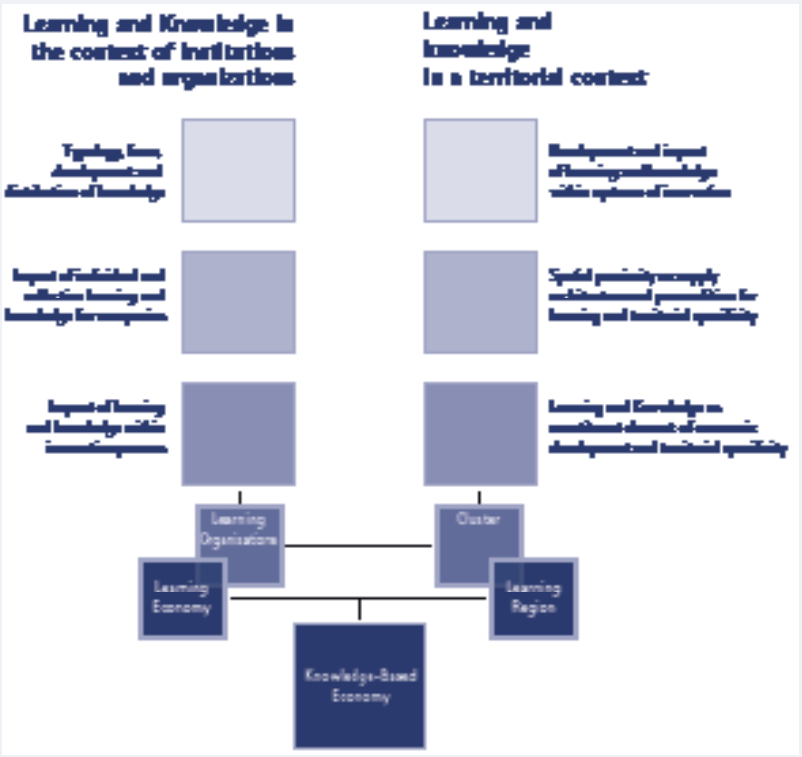
- Non-codified, non-standardized, implicit, tacit knowledge
- Codified, standardized, technological, explicit knowledge

2.2. The Competitive Power of Knowledge

Why is this distinction important in this context? There are some answers to this question:[59]

1. Explicit knowledge is characterized by being cognitively applicable, it is systemic and formal describable and transformable into standardized processes. Hence, explicit knowledge is not primarily personal, individual experience, but rather represents a collective good, which can be used and distributed through time and space. However, implicit knowledge is on the contrary an individual skill, which is based on personal experience and interaction which can't be standardized and communicated.
2. This distinction has consequences for the consideration of the role of knowledge within knowledge based economies and therefore also for financial institutions and centers. Knowledge cannot be viewed solely as an input-variable, but should be handled rather as an important non-financial asset. Nelson and Winter[60] concentrate within their evolutionary theory of economic change on the competencies of corporations, which are primarily seen as a reservoir of skill, experience and specific knowledge of its employees. Hence, knowledge and individual as well as collective competencies are from the perspective of corporations not purely input-variables, but clearly a strategic asset of its capacity to act and perform.
3. It reveals an institutional (financial service company) and territorial (financial center as an economic region) aspect of knowledge. As one can see on the left hand side of Figure 92 knowledge intensive learning and development processes result within corporations in expanding core competencies, which maintains or even strengthens their market position. On the right hand side of Figure 92 it becomes clear that the spatial concentration of knowledge and learning leads towards a territorial specificity of learning regions.

Figure 92: Knowledge and Learning within institutional and territorial context



59 *see Thierstein et al. (2006)*
Figure 92 *Kruse (2005), Thierstein et al. (2006)*

60 *Nelson and Winter (1982)*

2.3. How Knowledge Creates Value

In the case and perspective of the Swiss Financial Center, the argument of Storper[61] shows the evidence of knowledge as an important asset to the Swiss financial industry.

«Those firms, sectors, regions, and nations which can learn faster or better (...) become competitive because their knowledge is scarce and therefore cannot be immediately imitated by new entrants or transferred, via codified and formal channels, to competitor firms, regions or nations.»[62]

From an economic perspective, an efficient knowledge value-chain is one of the fundamental goals for a competitive financial center. However, different forms of knowledge must be distinguished, as this has been done in the previous paragraph, since this can affect the results and organizational aspects of knowledge production. Implicit knowledge reflects the potential and capabilities of human capital in an economic area. It is difficult to imitate, but can migrate in the long-term into other economic areas (Brain Drain), in which specific abilities are more sought after and competence centers grow. This development also applies, for example, to the area of investment banking, where competence centers have developed mainly in New York and London.

61 *see Storper (1997)*
62 *see Storper (1997), p. 3*

Figure 93 shows schematically the process of the knowledge value chain at a financial center. Explicit knowledge is the basis for modeling, theories and empirical as well as standardized processes. It is imitable and globally transferable. However, it needs to be systematically researched, further developed and implemented in applied research and in practical experience. Its quality is rooted in the implicit knowledge of the different providers of science, education and practical experience. How should an education system contribute to the implementation of implicit knowledge? The conversion of knowledge into value does not end with the transmission of the relevant educational offerings. Just as the educational offerings are the source for the continued processing of knowledge, the transformed and applied knowledge simultaneously are the resource for its further developments. Through reflexive learning processes, which are based on the individual and collective competencies of employees or teams, explicit and implicit knowledge form the basis for institutional research and development out of which the corresponding institutional educational offers emerge. However, for the future-oriented development of the Swiss financial center – it is of high relevance that the knowledge transfer takes place both through the organized schooling as well as through the direct path of knowledge transfer in the practical experience through research and consulting commissions mandate. These preconditions lay the foundation from which innovation can emerge.

Figure 93: Financial Center Knowledge Value Chain

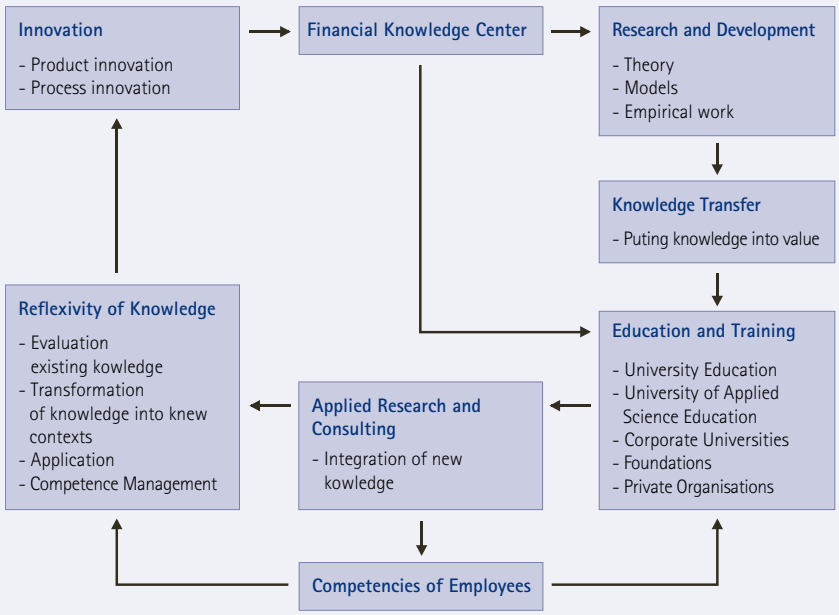


Figure 93 *SFCW, based on Kruse and Wüthrich, 2004, FirstTuesday Zurich, 2004*

2.4. Knowledge Intensive Economies as Drivers of the Financial Center

For the understanding of the international competitiveness of financial centers the interaction of institutional and territorial aspects of knowledge and learning becomes crucial. The connection and interaction between the different levels of embeddedness of knowledge – from the employee, the team, the organization to the concentration of collective competencies within value added intensive economic regions – knowledge becomes an important competitive factor of financial centers.

«If knowledge is not found everywhere, then where it is located becomes a particularly significant issue. While codified knowledge is easily replicated, assembled and aggregated (...) other knowledge is dependent on context and is difficult to communicate to others. Tacit knowledge is localized in particular places and contexts.»[63]

Thierstein et al.[64] argue that the knowledge intensive economy is the key driver for functional structured economic regions. They define it as being based on three major pillars:

1. knowledge intensive corporate services as so called Advanced Producer Services (APS)
2. the High-Tech and Life Science industry
3. the institutions of the tertiary education system (universities, universities of applied sciences, etc.)

Those industries determine the economic development in Switzerland. Table 31 gives an overview of the total employment and its dynamics within the different sections of knowledge intensive industries in Switzerland.

According to the calculations every 6th work place is within the defined knowledge intensive economy. More than 68 percent of these jobs are incorporated within the financial service, the financial related service and the service industry itself. With an overall dynamic growth of 18.7 percent in comparison to 3.8 percent growth of total employment in Switzerland, this sector can be seen as one of the major drivers of the Swiss economy.

This numbers underline the growing importance of analyzing the role of knowledge, learning, competencies and innovation within the Swiss economy but in particular within the financial center of Switzerland.

Table 31: Knowledge intensive economies in Switzerland

Insurance sector	1995	2001	Dynamic 1995 – 2001
Total Employment Switzerland	3 548 815	3 668 468	3.8%
Total Employment Knowledge intensive economies Switzerland	560 671	665 736	18.7%
Total Employment Advanced Producer Services	381 036	453 691	19.1%
Total Employment High-Tech and Life Science	140 481	164 996	17.5%
Total Employment Tertiary Education	39 154	47 049	20.2%

63 *Malecki (2001), p. 110*
64 *Thierstein, Kruse, Gabi, Glanzmann, Grillon (2006)*
Table 31 *Thierstein et al. 2006, SFCW, Swiss Federal Statistical Office 2003*

3. Education

Human capital is one of the key factors of success regarding (financial) service providers. The quality of the human capital crucially depends upon its education. Although the labor force of the financial sector does not solely have a banking or finance background in terms of education, but has been educated in different fields (e.g. technology, physics, information technology, etc.), it seems obvious that a sophisticated education in banking and finance represents one of the core premises for the continued availability of skilled labor. Switzerland does have a comparably sophisticated education system, in general.

In the last years several significant changes in the Swiss education system have occurred. The main changes include:

1. The fast development and the ongoing extension of universities of applied sciences.

The emergence of the universities of applied sciences has already given rise to changes in the education environment and will certainly lead to further changes in the future.

2. The introduction of the Bachelor-Master system at different universities and universities of applied sciences.

The Bologna reform, particularly the introduction of the Bachelor-Master system at different universities and universities of applied sciences will supposedly have effects on the education system in Switzerland. How the entire environment will be affected remains to be investigated in the near future.

3.1. The Formation of the Swiss Finance Institute (SFI)

In order to improve finance education in Switzerland, the Swiss banks, the government as well as leading universities have formed the Swiss Finance Institute (SFI). Its goal is to ensure a sustainable strengthening of the education and research in banking and finance at Swiss universities and to guarantee the competitiveness of the Swiss financial center in the long run.

The SFI mainly focuses on the following two central issues:

1. Research
2. Executive Education

The promotion of research in banking and finance mainly occurs through the continued support of the structural development of the universities, the specific support of research projects and the introduction of a coordinated and harmonized PhD program. FAME and FINRISK provide a good basis for this undertaking. The admission to the PhD program is based on clearly defined criteria.

The SFI intends to co-finance professorships/chairs in order to provide an incentive for universities to create new chairs and to fill it with internationally top ranked researchers/professors. This support is likely to contribute to an increased international cooperation and sustainable research and education.

The allocation of funds to particular research projects occurs through a simple competition mechanism: All universities and universities of applied sciences have access to particular financial support. The submitted applications are then evaluated according to scientific criteria.

To strengthen executive education the Swiss Banking School and FAME merged. A specifically created advisory board – consisting of competent specialists and practitioners - is in charge of supervising and providing for the continued improvement and extension of the executive education.

With a total funding of 75 millions CHF the SFI is financed through contributions of the government and the Swiss National Foundation, private foundations, universities and banks.

Summing up, the main goal of SFI is to merge forces in education and research in order to strengthen the Swiss financial center in the long run.

4. Competence Factors of the Swiss Financial Center

4.1. Introduction

This subsection deals with the role of competencies for the competitiveness of financial centers. This chapter is based on the analysis of a series of interviews, which have been conducted with selected Human Resource Managers of leading Swiss and Foreign Banks in Switzerland, followed by an empirical investigation. The interviews aimed to pre-structure the important issue of competencies within financial institutions at the Swiss Financial Center and to build up a network of practitioners to gain their expertise. The results served as a starting point for the development of a systematic empirical investigation of the role and management of competencies at the financial center of Switzerland. The empirical investigation was conducted in the form of an online survey, which was sent to the Heads of HR of all Swiss banks. The research approach aims to answer the following questions:

1. What are competencies and how are they being managed?
2. How important are different kinds of competencies for the Swiss Financial Center and to which extent are they available at the Swiss Financial Center?
3. What are the future perspectives for the development of competencies, what are the demands of the financial institutions on the creation of competencies, what are the requirements of education and training as well as research at the Swiss Financial Center?

Competencies are crucial factors of success for an effective and competitive positioning of financial service providers in the market. For the Swiss Financial Center the evolving super-ordinate question tackles the «Swissness» of competencies:

- What is the profile of competencies, for which the Swiss financial center earns international reputation?
- Can the financial center in Switzerland provide the needed competencies?
- Does the education and training system in Switzerland offer the adequate programs to serve the demands of the financial service industry?
- Or is Switzerland going to increase the import of competencies from abroad?

4.2. What are competencies and how are they being managed?

A careful investigation of this question is essential, as the availability and quality of these competencies has great impact on the potential of development and innovation, on the capacity to act within the international competitive environment and on the attractiveness of the location.

To answer these questions, it is important to understand the characteristics of competencies. Basically they can be analyzed mainly on three different levels: the individual level, the level of the companies and the level of the financial center as a whole. To understand the profile of competencies of the Swiss financial center, which focuses on the level of the financial center, a prior analysis of the first two levels is essential, which will be done in the following chapter.

Competencies are crucial factors of success for an effective and competitive positioning of financial service providers in the market. Nevertheless the interviews have shown that financial service providers define and interpret the concept of «competencies» in many different ways. Two main areas of competencies were identified though (→ Figure 94).

Figure 94: Structure of competencies

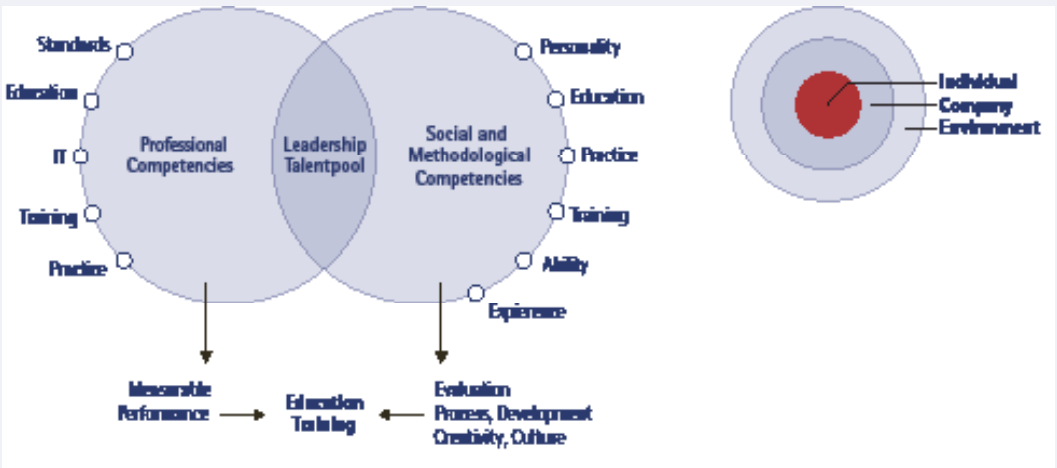


Figure 94 *Hankova and Kruse 2006*

1. Professional competencies: These explicit competencies can be cognitively applied, systematically and formally described and transferred into collective knowledge. They can be measured. Examples are expert knowledge, knowledge about markets, language and IT-skills.
2. Social and methodological competencies: These implicit competencies are based on experience and interaction and cannot be learned easily and measured directly. The integration of social and methodological competencies of employees into the acting capacity of a team is a process of development, whose value for the corporation becomes visible and can be evaluated only after some time. They are crucial for the success like organization of knowledge and flow of information and communication. Examples are customer orientation, capability of problem solving, leadership, teamwork, and communication, willingness of learning, creativity and methodological skills.

According to the results of the interviews the following competencies had been defined to be investigated in the further research, which was carried out in the form of an online survey:

1. Professional competencies:
   - expert knowledge
   - market knowledge
   - language skills
   - IT knowledge
2. Social and methodological competencies:
   - customer orientation
   - problem solving skills
   - learning aptitude
   - intercultural sensitivity
   - leadership skills
   - teamwork skills
   - creativity skills
   - communication skills

Another part of the interviews, which investigated the management of competencies, has revealed, that the economic success of a financial service provider depends on the quantity and quality of these two areas of competencies, on its ability to integrate and complement the competencies of individuals to collective competencies, which are not solely input variables, but the (non-financial) strategic asset of a corporation.

The financial service providers react with competence-management-systems on these processes: The top-management defines targets, values and strategies and the competence-manager transfers these guidelines on a systematic definition of employee's competencies («competence-library»), which are necessary for the achievement of the corporation's objectives. The competence-management is usually the task of the head of human resources.

As already mentioned, the financial service providers define and interpret the concept of «competencies» in many different ways. A specific definition expresses the individual culture of a corporation. As a consequence, the financial service providers operate with different kinds of competence-management-systems. These systems try to take account of the competencies of the individuals on one hand and of the overall objectives of the corporation on the other hand.

Well-structured competence-management-systems, which focus on systematization and measurability of social and methodological competencies, are not elaborated to a satisfying extent yet. In consequence, many corporate top-managers underestimate the strategic importance of social and methodological competencies, which are one of their most valuable (non-financial) assets. As long as top-managers do not regard competence-management as a main management-task, human resource-managers have difficulties in practically implementing their competence-management systems, because the top-managers have turned out to have the biggest influence on the development of employee's competencies. This leads to weaknesses in terms of insufficient communication and understanding between employees. Therefore, one of the main challenges is to advance the measurability of social and methodological competencies and improve their significance for top-managers.

Figure 95: Organizational structure of competence-management-systems in Swiss financial institutions

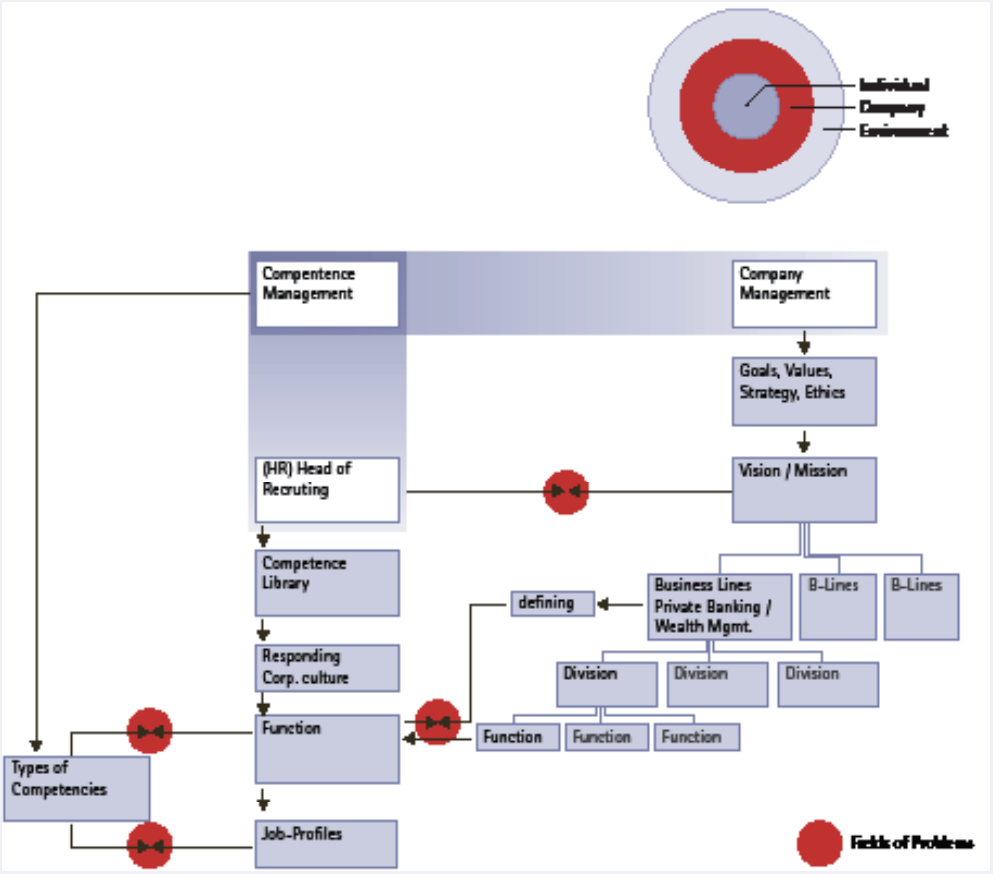


Figure 95 *Hankova and Kruse 2005*

4.3. Reasons for Working at the Swiss Financial Center

There are many reasons and motives that encourage employees to start to work at or to leave the Swiss financial center. The most important reason for an employee to start to work at the Swiss financial center is the good reputation of the financial center. Another one, not necessarily less important, is the competitive financial compensation. The high standard of living in Switzerland and its safe political and social environment contribute to the recruitment of well-educated foreign employees. The good reputation of the Swiss financial center seems to have a spillover effect. An employee has the opportunity to step ahead in the career if he works or has worked in the banking industry in Switzerland. The decision to work in Switzerland is neither motivated by good education and training opportunities nor the possibility to do networking at the Swiss financial center.

The most observed reasons why employees leave the Swiss financial center are the opportunity for further education and training abroad and the possibility to start an international career at another financial center.

4.4. The Importance and Availability of Competencies at the Swiss Financial Center

This subsection tackles the Swiss financial center evolving super ordinate question of the «Swissness» of competencies: What is the profile of competencies, for which the Swiss financial center earns international reputation?

This profile of competencies has a great impact on:

1. the potential of development and innovation
2. the ability to act within the international competitive environment
3. the attractiveness of location of the Swiss financial center.

Professional competencies: Indispensable expert knowledge easy to recruit at the Swiss financial center.

Professional competencies contribute to a great extent to a good quality of advisory services in the banking sector. Hence, it is of great convenience to understand which professional competencies are the most important and how easy it is to recruit them at the Swiss financial center. In the following, quality of advisory services is defined as the core process of the client/bank interaction (business to business, business to private).

Expert knowledge is indispensable for a good quality of advisory services. Without a very well-grounded expertise, a good advisory service is almost impossible. Therefore, this is stated as the most important professional competence for a good quality of advisory services. Nevertheless, there is more than one competence that contributes to a successful advisory service. Market knowledge and good language skills are important too. Less important than the three competencies above is IT knowledge in the context of the banking sector.

Figure 96 shows the percentage of given answers that classify the selected professional competencies as very important for a good quality of advisory services. The different colors of the bars indicate the class which contains the modus of the given answers. The dark blue bars denote that the modus is in the class «very important», the light blue the class «important» and the grey bars the class «more or less important».

The recruitment of employees with outstanding professional competencies is quite easy for the banking sector at the Swiss financial center. Especially employees with good language skills are very easy to recruit while the most important professional competence for a good quality of advisory services – the expert knowledge – is easy to recruit. Other important professional competencies as market knowledge and IT knowledge are relatively easy to recruit for the banking sector at the Swiss financial center.

Social and methodological competencies: Customer orientation and communication skills as key factors for a competitive advantage.

The analysis of the online survey shows that the most important social and methodological competencies are customer orientation as well as communication skills, followed by problem solving skills, learning aptitude and intercultural sensitivity. Surprisingly, creativity, leadership as well as teamwork skills play a subordinated role.

Figure 96: Importance of selected professional competencies for a good quality of advisory services

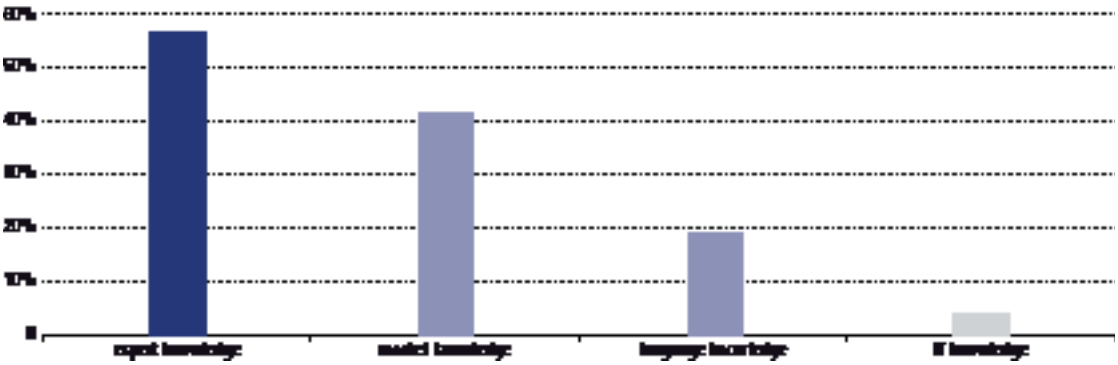


Figure 96 *SFCW Research*

4.5. Languages: Upcoming Demand for Russian and Arabic

Customer orientation as well as communication skills are very important competencies for the quality of advisory services. Therefore, an easy recruitment of employees that satisfy these two criteria is a key factor for an international competitive advantage for the banking sector at the Swiss financial center. Fortunately, good customer orientation, problem solving skills, learning aptitude, intercultural sensitivity and leadership skills are quite easy to recruit at the Swiss financial center. More difficult is the recruitment of labor force with outstanding communication skills. As it is an important expertise, the employees should be trained more in communication skills. Further, the education should intensify the effort to increase the leadership skills as well as the creativity skills.

Figure 97 shows the percentage of given answers that classify the selected social and methodological competencies as very important for a good quality of advisory services as well as the class of the modus.

The internationalization of the financial markets leads to daily interactions between people with different cultural backgrounds. This increases the need for employees with intercultural sensitivity as well as outstanding language skills.

For the Swiss financial center, English is doubtless the most important language beside the Swiss national languages as German, French and Italian. Further, very important foreign languages are Spanish, Russian and Arabic. The increasing demand for Russian speaking employees can be explained by the rising focus on rich Russians within the private banking. Another language that experienced increased attention is Arabic. Surprisingly, Chinese is not stated as an important language as it might be expected. This could change with the proceeding growth of the Chinese economy.

Figure 97: Importance of selected social and methodological competencies for a good quality of advisory services

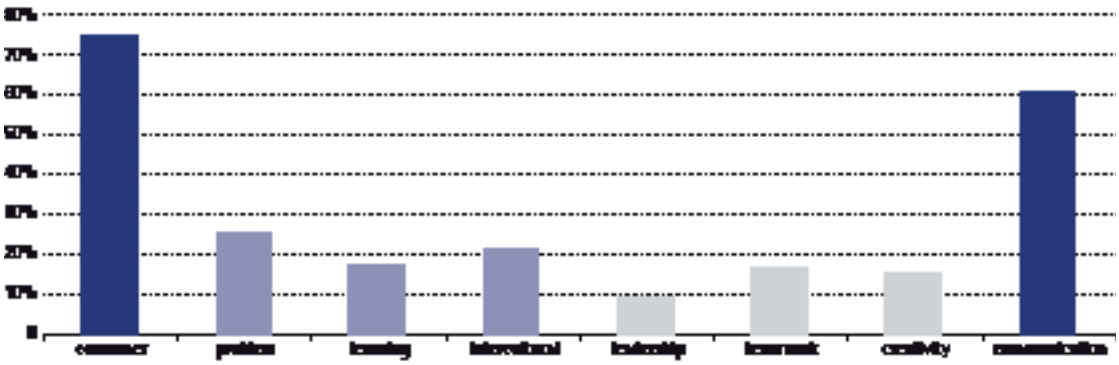


Figure 97 *SFCW Research*

4.6. Challenges and Future Perspectives

This subsection deals with the challenges which influence the competencies at the Swiss financial center. Furthermore, it is interesting to investigate how the challenges are met strategically by the banks.

Measures to improve the future quality of competencies

The establishment of a competence management within the corporate culture has high priority for the banks. In addition, the introduction and development of competence management systems as well as the development of performance evaluation systems for employees are of high priority for the banking sector at the Swiss financial center. Contrariwise, the foundation of corporate universities / academies has no priority at all.

Figure 98 describes a conceptual model of a competence management system of the Swiss financial center.

Figure 98: Conceptual model of a competence-management-system of the Swiss financial center

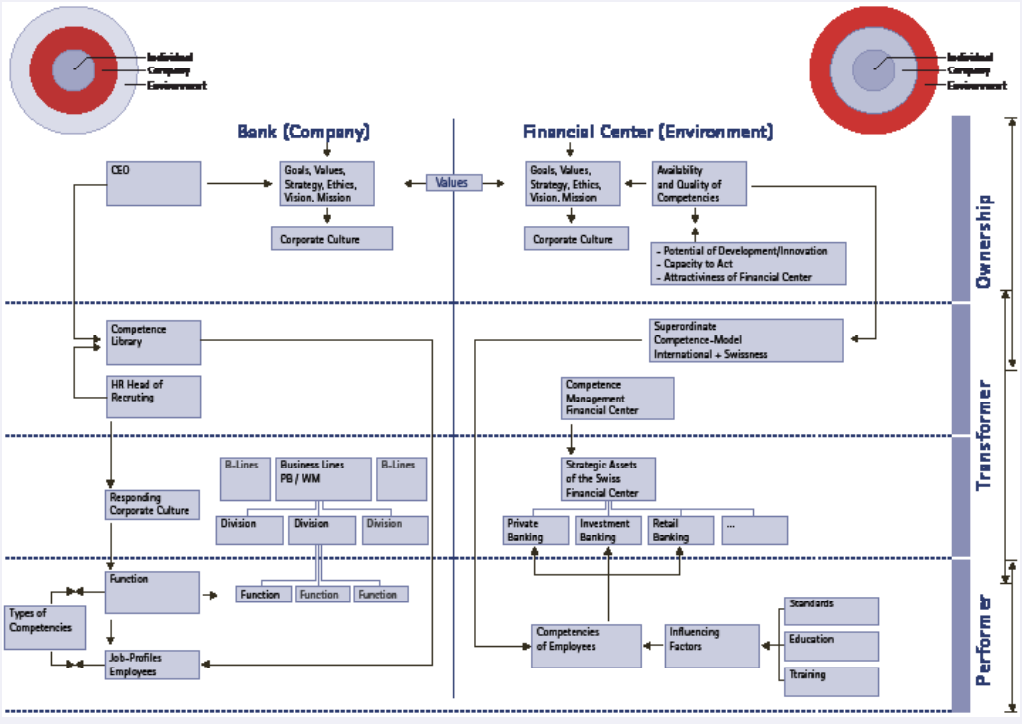


Figure 98 *Hankova and Kruse 2006*

The demand on educational and political institutions

Social and methodological competencies are, as mentioned before, very important factors for a competitive advantage. How can these competencies be improved? There are different demands of the Swiss banking landscape on educational and political institutions. The analysis of the online questionnaire elicits the following needs.

The highest priority in the context of improving the competencies of the employees was to increase the focus on measurements for the development of social and methodological competencies in trainings. Furthermore, the competitive supply and demand of education and further education as well as the creation of a superior coordination center for banking and finance education at the Swiss financial center is required. For the banking sector it is important that the interests between practical experience and theory are harmonized. In contrast, the integration of the Swiss education in the international education systems seems to have a low priority. The more important harmonization shall be conducted in a gradual transition between the different education levels primary school, secondary school, grammar school and university.

For the future of the Swiss financial center it is important that there are educational institutions which enable employees, which are not trained in business administration, to succeed in career changes.

5. Innovation

The dynamics of the financial markets force financial service providers to continuously innovate their products, services and processes. So far, innovation cannot be measured directly in the financial sector. Established industrial parameters such as the number of patents cannot be applied to the financial industry.

In order to establish a basis for the future analyses on financial innovation, we carried out a series of personal interviews with executives of different financial service providers. The survey was undertaken by the Swiss Banking Institute, in the context of Swiss Financial Center Watch. It was initiated and sponsored by AKW (Arbeitskreis Kapital und Wirtschaft).

The study had two goals: Firstly, it should provide insights into innovation in the financial sector as a whole and discover relevant fields of financial innovation for further investigation. Secondly, it should help to establish a basis for systematic surveys on financial innovation in the future. The interviews were coordinated with the Konjunkturforschungsstelle (KOF) of ETH Zurich which periodically surveys the state of innovation. KOF conducted a similar series of interviews of the financial industry.

On the following pages the main results of the survey are presented. The interviews were divided into the following four parts:

1. General information on market conditions
2. Research and Development (R&D) activities
3. Innovation activities
4. Investment and the business cycle

Market conditions

The first part addressed the market conditions. The financial sector is mainly characterised by a high threat of new entrants and a high degree of substitution of products and services. The substitution is partly ascribed to the fact that finance companies distribute not only their own but also the competitor's products. Although financial products and services are easily substitutable, there are high barriers to enter the market due to high costs of branding and distribution. The dimensions of competition in the financial sector can be clearly defined. According to the responses the highest competition intensity occurs upon the price. Nevertheless the quality of services as well as the flexibility regarding customer wishes not only represent important factors of competition but also main differentiation factors.

Research and Development

The second part investigated research and development. It is often assumed that financial service companies do not have centralised research and development (R&D) divisions. Furthermore, at first sight it is not clear what kind of activities R&D may contain. In order to investigate what kind of R&D activity financial service companies do and how resources in R&D have developed in the last years we used a list of potential R&D activities proposed by the OECD .

Our results neither support the first nor the second assumption: We found that financial services companies do have centralised divisions for the development of new products and services, particularly the financial engineering, product management, and portfolio and risk management. During the last years resources were particularly allocated to mathematical research relating to financial risk analysis and to the development of risk models for credit policy. Product research developed as the second most important research area, this escalation will require additional resources in the future.

Our respondents consistently stated that highly skilled labour is the core premise for innovation. This supports the argument that service firms particularly rely on human capital and knowledge. Unexpectedly, the majority of the firms assessed the availability of highly skilled labour in Switzerland as good. Only London was rated very good. According to the answers London's strength is mainly caused by the overall large market and the availability of numerous foreigners who are more flexible regarding the working conditions (particularly the length of the employment contract) compared to other locations.

Based on the argument that highly skilled labour is crucial, innovation may be impeded by labour market restriction. A small majority of the firms stated to face no problems in hiring highly skilled labour. The liberalisation of the Swiss labour market for EU-citizens in 2004 facilitated the employment of foreigners for the majority of the surveyed firms. The majority expects further relief from extended liberalisation for new EU-member states.

Innovation activities

The third part focused on innovation activities. Since the term «financial innovation» is not clearly defined, we proposed definitions for product and process innovations to the interviewees:

«Product innovations are new products (or new combinations of existing products), which are new to the customer with respect to their application (new / additional customers), to their quality (new / improved customer service) or to their composition (improved satisfaction of customer needs), from the view of the company.»

This definition for a product innovation was accepted by the majority of the companies. Some respondents criticised that innovations should be defined as new products from the view of the customer and not from the view of the company. New financial products often represent combinations of existing products or simple adjustments. In order to distinguish between variations and real innovations it was suggested to consider the internal hurdles a new product has to pass before final authorisation. According to this approach a new product is an innovation if several adjustments regarding the documentation, the accounting system, the processing (transaction) or the risk management within a company have to be made. If no such adjustments are necessary it is considered a variation.

The suggested definition of a process innovation was less accepted:

«Process innovations regard the application of technically new or improved systems to fulfil (resp., transact) services.»

According to the answers process innovations in the financial sector do not only encompass technological innovations but also improvements of procedures and changes of the business model.

Service companies mainly depend upon two input factors: human capital and the applied knowledge. Thus, it came as a surprise that a small majority of the companies does not have any form of systematic knowledge management system. The term «knowledge management system» is interpreted in many different ways, however. The «high touch» side of knowledge management, i.e. the encouragement of personal exchange and communication within the company is weighted higher than the «high tech» side which mainly regards technological systems.

We asked the companies to rank different drivers within a predefined list. The main driver for product innovation is completing the market for risks. For process innovation the attempt to minimise (or at least reduce) transaction costs is the main driving force. The reduction of regulation and taxation costs both for the customer as well as for the company are important drivers of process and product innovation.

The question regarding the main barriers for innovation revealed interesting insights: Although regulation and taxation are among the main drivers of innovation in the financial sector, the answers imply that these factors also impede innovative activity. In addition, illiquid markets and non-tradable risks were identified as barriers to innovation.

As mentioned, financial service companies do have centralised R&D divisions. Nevertheless there is neither a statistical documentation of the development and implementation of new products and processes nor do any parameters or ratios exist that give useful information about the actual state of innovation of a company. According to the respondents they rather have investment control mechanisms. An alternative approach to measure innovative activity could be based on the authorisation procedure. Every new product has to be authorised by one or several committees. The number of approved products per authorisation level within a defined time period could serve as an index of innovation activity.

Cyclical investment behaviour

The last part investigated the cyclical investment behaviour of the companies. The financial sector generally behaves cyclically – the majority of the companies follows the business cycle and reduces their investments in economically weak phases. Two of the interviewed firms however stated to (partially) follow a countercyclical investment policy in order to operate successfully. The majority of the companies regard the role of the shareholders as important for this cyclical strategy. In the insurance sector, however, the effect of regulation, supervision and rating agencies is even more pro-cyclical than the impact of financial analysts and investors.

Concluding remarks

The two main goals of the study were, firstly, to provide an understanding of the specific aspects of innovation in the financial sector and, secondly, to get a first impression of the actual state of financial innovation in the Swiss financial center. The financial sector consists of different sub-sectors (banks, insurance companies, financial boutiques) which are quite heterogeneous with respect to the market environment, structures and the dependence on the business cycle.

The survey provides some valuable insight into innovation in the financial sector:

The dynamics of financial innovation – regarding both products and processes – is high due to the high degree of substitution of products and services.

The role of skilled labour for continued innovation is high. The interviewed companies rate the availability in Switzerland as good. Due to high costs different companies intend to move some activities to cheaper locations.

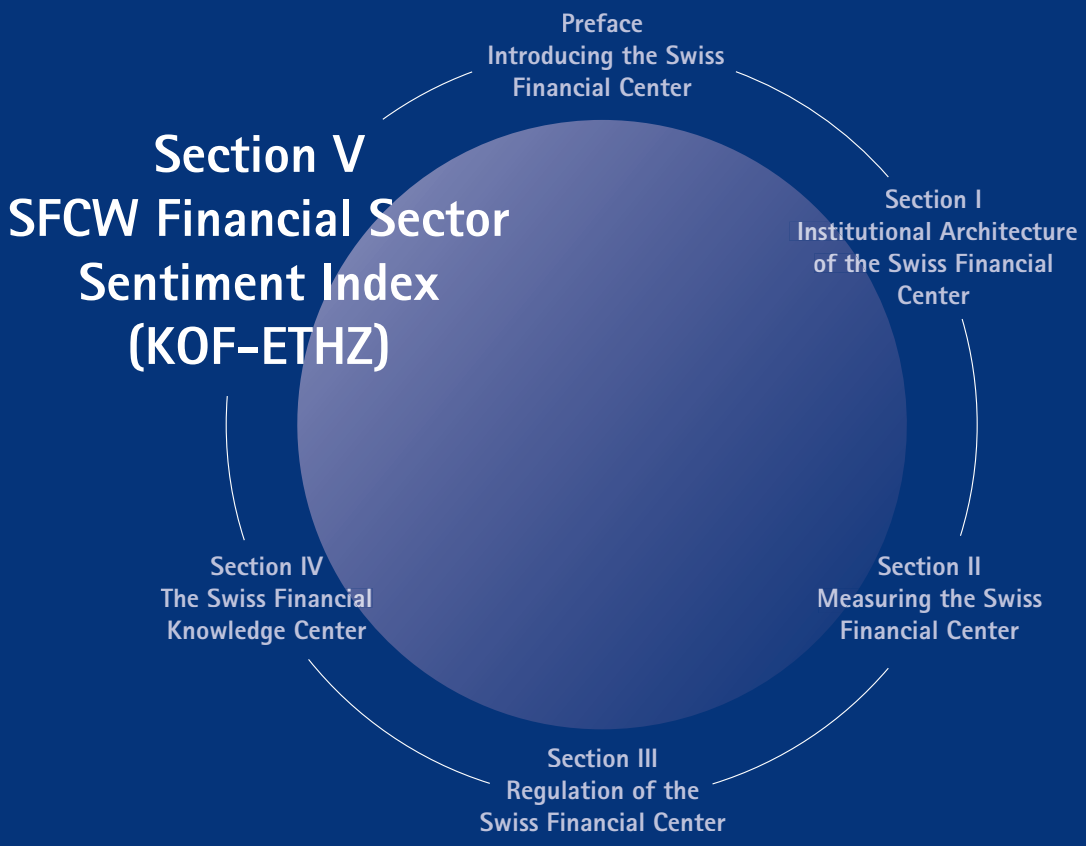
The Swiss financial center's business climate seems to be good. Accordingly, there are barely any dislocations to other places.

Despite the good business climate regulation and taxation negatively affect financial innovation.

The main drivers for product innovation are the attempt to complete the markets for risks and the attempt to reduce the costs of taxation and regulation on the customer's side. Process innovations are mainly driven by the attempt to reduce transaction costs.

The main task to facilitate innovation is to provide a favourable environment (low taxes, liberal labour markets, low bureaucracy rate, high standard of living, excellent education etc.).

A considerable part of the innovations during the last years has been provided by alternative financial actors. Around the financial boutiques numerous jobs have developed which more than compensate the foregone jobs in the banking and insurance sector.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Section V
SFCW Financial Sector Sentiment Index (KOF-ETHZ)

Section V – SFCW Financial Sector Sentiment Index (KOF-ETHZ)

The financial sector's contribution to Swiss GDP is close to 15 percent. To draw a more comprehensive picture of business conditions in the Swiss financial sector, the usual focus on prices and quantities of financial assets and instruments should be accompanied by a quantitative perspective on economic activity and value added. The new SFCW Financial Sector Sentiment Index (KOF-ETHZ) aims at supplying a timely, but still reasonably robust sentiment indicator for real activity performed in the Swiss financial sector.

Key words	Key methods	Key data
financial sector value added sentiment index coincident indicator	indicator selection quantification of qualitative data low pass filtering aggregation	KOF business tendency survey in the Swiss banking industry

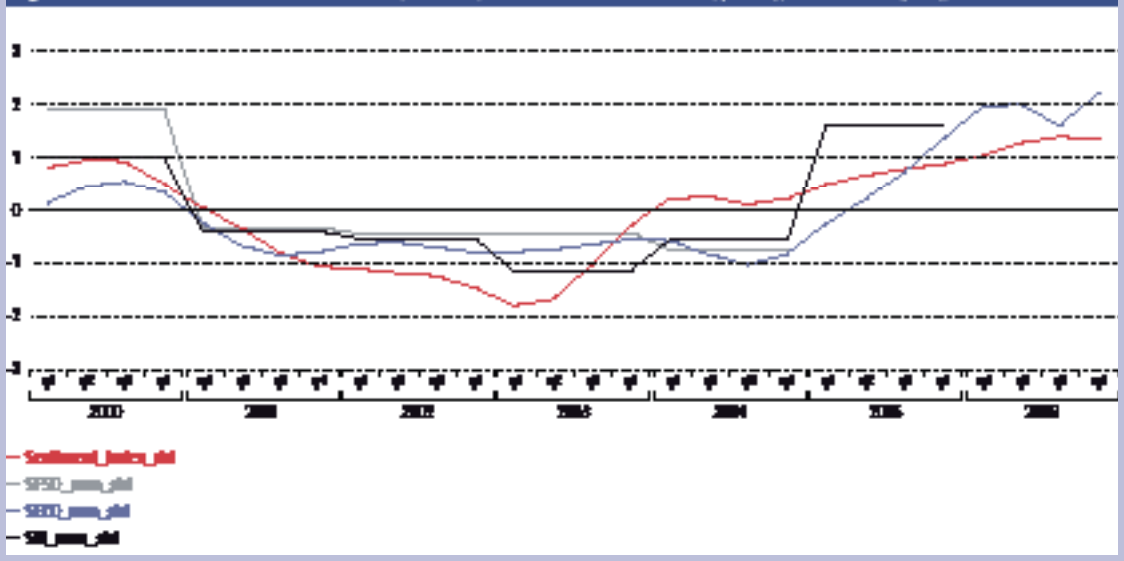
Section Abstract

Following international practice, our new sentiment indicator is constructed along the following lines: It refers to a limited number of series that are taken from survey data. It refers only to questions that directly relate to the focus of the sentiment indicator. It is computed and aggregated in a deliberately transparent fashion. It aims at timely provision of information on coincident economic activity of the banking industry. This approach puts more emphasis on simplicity and transparency than on technical and econometric sophistication. Accordingly, the new sentiment indicator is constructed on the basis of experience with similar instruments elsewhere and a priori reasoning rather than on a data driven selection and aggregation algorithms. Though we do not consider an explicit reference series, the performance of the new index is promising.

Key Conclusion

The SFCW Financial Sector Sentiment Index (KOF-ETHZ) captures the main features of the dynamics that characterize the value added of the Swiss banking industry. It aims at supplying a timely and robust indicator for the activity of the swiss financial sector.

Figure 99: SFCW Financial Sector Sentiment Index (KOF-ETHZ) and value added acc. to SECO (quarterly), SFSO and SBI (yearly), standardized values



1. Introduction

The Swiss financial sector's contribution to GDP is now close to 15 percent. Yet, in contrast to the attention that is attracted by monetary statistics and prices, as well as price indices for numerous financial assets, the value added that is generated by the financial sector does not figure prominently in public debates. To some extent, the focus on prices rather than value added is warranted. As financial asset prices fluctuate, fortunes can be made or lost, and in the medium and long term most Swiss residents will sooner or later be affected by these price movements.

On the other hand, the direct contribution of financial activity to current value added materialises itself as factor income, and countless jobs as well as the flexible parts of financial sector earnings are linked to value added rather than to asset prices. Indeed, the financial sector tends to have its own sectoral ups and downs rather than to mimic the Swiss manufacturing business cycle, and due to its key position in the economy and its pronounced volatility, the financial sector's business conditions affect the overall business cycle in Switzerland in excess to what its 15 percent share might suggest.[65]

To draw a more comprehensive picture of the business conditions in the Swiss financial sector, the usual focus on prices and quantities of financial assets and instruments should be accompanied by a quantitative perspective on economic activity and value added. Unfortunately, to this date, such data are rare in Switzerland, and the series that are in fact available, come with considerable compilation, computation and publication lags. The new SFCW Financial Sector Sentiment Index (KOF-ETHZ) hence aims at supplying a timelier, but still reasonably robust sentiment indicator for real activity performed in the Swiss financial sector.

65 *See Graff (2006)*

2. Starting Points

Apart from official statistics provided by the SFSO and the Swiss State Secretariat for Economic Affairs (SECO) to break down the GDP according to the 2-digit NOGA classification, few attempts to gauge this aggregate have been documented so far.

Most notably, when the KOF economic barometer for the year-on-year growth rate of the Swiss GDP was recently revised, a multi-sectoral approach was implemeted, where the financial sector business is addressed independently, along with two other sectors. Drawing on some out-of-sample observations, an update of the pre-study, which had been conducted prior to the implementation of the revised barometer, shows encouraging results with respect to the indicator-based forecast for the growth rate of activity in the Swiss financial sector. Importantly, the leading indicators referred to in the revised barometer are largely taken from the KOF business tendency survey in the banking industry. Accordingly, the evidence from the financial sector module in the new KOF economic barometer suggests that the KOF survey data should provide a suitable basis to construct a sentiment indicator that gives a timely reflection of economic activity and value added in the Swiss financial sector.[66]

Following international practice, our new sentiment indicator is constructed along the following lines:

- referring to a limited number of series that are taken from survey data,
- referring only to questions that directly relate to the focus of the sentiment indicator,
- transparent computation and aggregation,
- timely provision of information on economic coincident activity.

Note that this approach puts more emphasis on simplicity and transparency than on technical and economtric sophistication. Accordingly, the new sentiment indicator has to be constructed on the basis of experience with similar instruments elsewhere and a priori reasoning rather than on a data driven selection and aggregation algorithms. This has two important implications:

- Since the construction of the sentiment index is primarily based on the semantic and – presumably – economic content of the underlying survey data, it can go ahead without a quantitative reference series, to which it is fitted.
- The sentiment index is still aiming at giving a real time indication of an economic process. This process may not (yet) have an adequate quantitative representation in the corpus of data on the Swiss economy. The presently available official estimates for value added in the financial sector were only recently introduced, so that they still have to demonstrate their validity. They are hence not taken as explicit reference series for our sentiment index, but rather as independent attempts to reflect the same economic process. Accordingly, similarity of the official estimates for NOGA 65 value added with our index would deliver some support to the soundness of our approach, but we do not take the official data as an explicit benchmark.

66 *See Graff (2006)*

3. Official Data on Financial Sector Value Added in Switzerland

The authoritative source for Swiss value added is the SFSO's «industries production account». However, for our purpose, the data from the production account suffer from two drawbacks.

Firstly, the production account is a yearly statistics, which is not adequate to represent the business situation that one would typically address with a sentiment index.

Moreover, the compilation, computation and publication lag is considerable. The first release of provisional data comes more than 1.5 years after the end of a particular year, and the breakdown of these data is at the so-called A6 1-digit NOGA classification that comprises NOGA 65–74 (financial intermediation, insurance and pension funding, real estate, rental, informatics, R&D). This aggregate is obviously too wide for our purposes. The 2-digit breakdown that delivers the first provisional numbers for NOGA 45 and would hence be more adequate, comes still a year later, and it takes another year until these data are finalized.

An alternative source for data on nominal value added in the financial sector is provided by the Swiss Banking Institute (SBI) at the University of Zurich. An advantage of these data is that their publication lag is about one year shorter, but the main drawback, the yearly frequency, remains. Nevertheless, independently computed numbers allow for an informal cross-check, and the two series are indeed telling the same story (→ Figure 100).

Though the numbers are not identical, which indicates that the financial sector aggregate is not defined or measured in exactly the same way, the co-movement of the two series from 1990–2004, i.e. the period that is covered by both series, is very pronounced. Indeed, the Spearman correlation is as high as 0.97 and the only major difference is that the SFSO data suggest a decline in 2003, whereas the SBI data do not.

As the two time series from independent sources are essentially telling the same story, we have some reason to assume that the data are basically reliable in terms of the dynamics of the target series.

Figure 100: Financial sector nominal value added, 1990–2005, SFSO and SBI (CHF, billions)

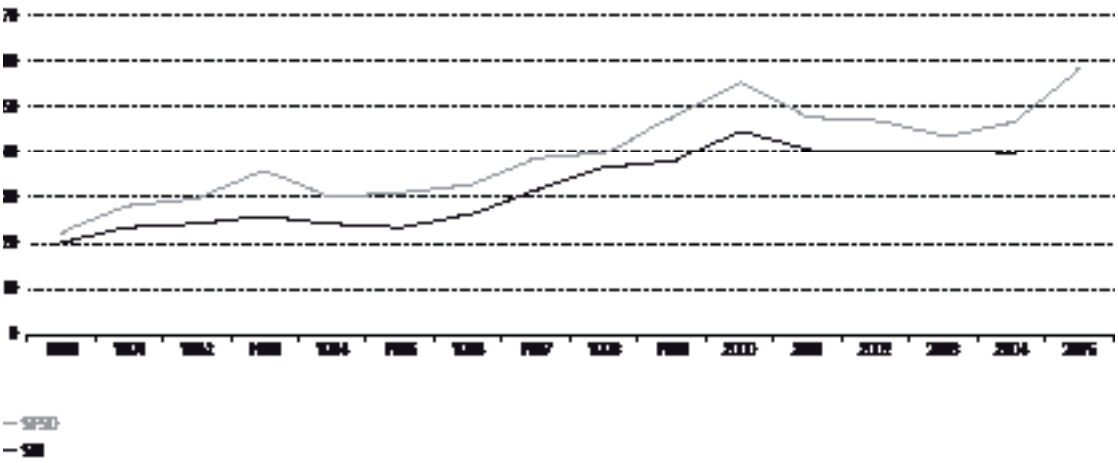


Figure 100 *Graff, KOF*

As we have argued above, yearly data are not suitable as a reference series for a business sentiment indicator that aims at a higher frequency, in this case at quarterly data, which is the frequency of the KOF business tendency survey in the Swiss banking industry. Now, the SECO has recently undertaken to break down the yearly 2-digit NOGA GDP numbers supplied by the BFS into quarterly frequency, so that the resulting quarterly series for NOGA 65 might have the potential to serve as a reference series for our endeavour. Yet, for a number of reasons, we shall refrain from choosing the SECO data as an explicit reference series. Firstly, there are a number of general concerns:

- Transforming a yearly time series into quarterly frequency is not a trivial task. In particular, one has to select one or more series with the desired frequency and impose their quarterly profile on the yearly series, conditional on a preservation of the yearly aggregate.
- The quarterly pattern of a real-world economic series is usually a mix of seasonality and specific factors that is hard to decompose, which adds to the difficulty of the task.

Moreover, given the particular nature of the SECO data and our survey data, the following considerations apply:

- No validation is possible of the resulting quarterly series provided by the SECO against a reference series (which is why the quarterly breakdown is performed in the first place). The quality of the resulting series hence cannot be assessed and relies wholly on the SECO's intuition in picking adequate quarterly series (which in the end might not even exist) to perform the breakdown.
- The SECO has launched its quarterly series only two years ago, so that observers of the Swiss business cycle had very limited time to gain some experience with these data, which would allow for some judgement on the quality of the data. As there is no reference series, this is essential.
- The SECO data come with an extended publication lag. For the NOGA 2-digit breakdown, the first data release is 2.5 years after the end of a particular year, and the data for these four quarters are still provisional and revised a year later. Hence, the finalised data that would be more suitable to serve as a reference come with a lag of 3.5 years. At the time of writing this – in May 2007, the last finalised quarterly SECO data for NOGA 65 are for 2003, and the four provisional data points referring to 2004 are due to be revised towards the end of June 2007.
- The SECO extends its quarterly breakdown beyond years for which the SFSO supplies yearly data. These data points are mere estimates. In contrast to the data up to 2003/2004, the presently available SECO estimates for 2005q1–2006q4 are thus not anchored to any yearly value, so that the levels of the 2005–2006 SECO data remain highly suspicious.
- Last but not least, the KOF business tendency survey in the banking industry was launched in 2000, so that at this stage, the subset of quarterly data points that are covered by both SECO and KOF comprises only 12 elements of finalised data (2000q1–2003q4) and 16 data points when we add the provisional SECO data for 2004 that result from the breakdown of the SFSO numbers for 2005. This is too short for a data driven construction of an indicator, and while this will not prevent us from taking a look at these data, it is likewise too short for a serious assessment of our new index against the SECO data.

The SECO data for nominal gross value added are shown in Figure 101, along with the SFSO and the SBI data, for which we have distributed the yearly numbers evenly across the four quarters of a year. As Figure 101 shows, the SECO's quarterly breakdown closely tracks the SFSO series until 2004q4, and after this quarter, without the yearly anchor, it suggests a steep upward climb. The SBI data supply some support for the upward movement of the SECO data during 2005, but the data points for 2006 have to stand for themselves. Moreover, while the three series in general draw a congruent picture of the NOGA 65 dynamics in Switzerland since 2000, the year 2004 remains a puzzle. Since the SFSO data suggest a decline from 2003 to 2004, the SECO breakdown has to account for this, which results a decline in 2004q3. On the other hand, the SBI data suggest that the local minimum would fall into the year 2003, unless we would assume a very pronounced quarterly pattern in 2004. Now, recalling that the SFSO number for 2004 is still provisional, the dynamics of the SECO series has to be considered as very preliminary, if not highly dubious, so that the comparison of the SECO, SFSO and SBI series indeed justifies our scepticism regarding a choice of the SECO data as a reference series for our new index.

Figure 101: Financial sector nominal value added (CHF, billions)

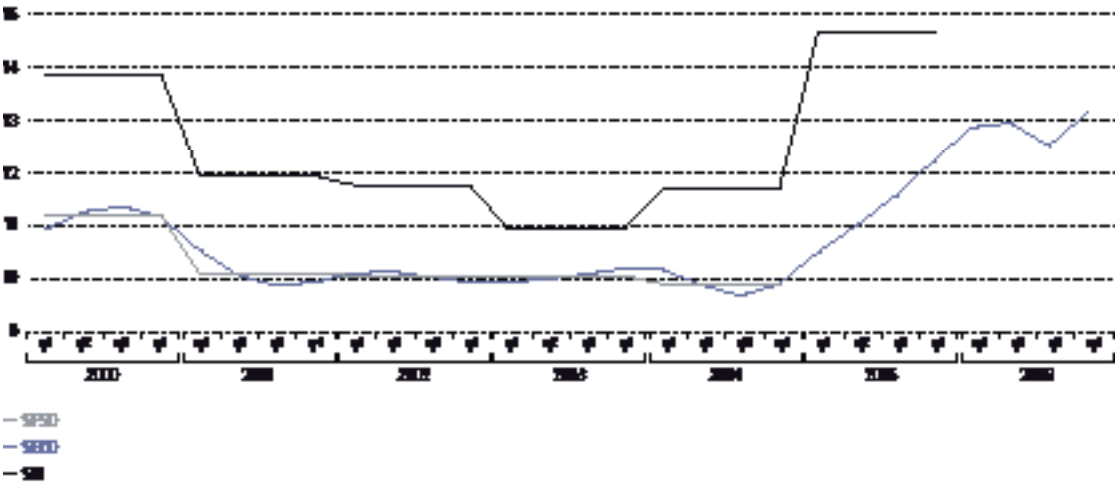


Figure 101 *Graff, KOF*

4. The SFCW Financial Sector Sentiment Index (KOF-ETHZ)

Without an explicit reference series, the new index basically relies on the content of the underlying survey data, along with the experience that is available from similar exercises elsewhere.

Typically,[67] an economic sentiment index that builds on survey will be computed as the arithmetic average of two or three series, which refer to items like:

- assessment of present business situation
- expected business situation in the near future
- assessment of present demand
- expected demand in the near future
- assessment of present profit
- expected profit in the near future
- assessment of present employment
- expected employment in the near future

An inspection of the KOF business tendency survey in the Swiss banking industry, having in mind that we are aiming at an indicator that mimics value added rather than profit or balance sheets, shows that the following items from the questionnaire (reproduced in the appendix) appear to be plausible candidates to be included into the index:

- question 1 (business situation)
- question 2 (demand for banking services)
- question 4 (employment full-time adjusted)

The survey questions are qualitative.[68] In particular, there are three or five possible answers to the qualitative questions. The appraisals may be stated as «good/too high», «satisfactory/sufficient» or «poor/too low» when there are three options and as «much higher», «higher», «the same», «lower» or «much lower» when there are five. In order to quantify these data, the responses from the questionnaires are weighted[69] and aggregated to form percentages of each response category of the total. Then, the difference between the above and below «satisfactory/sufficient» or «the same» shares (commonly called «balance»), is calculated, which reduces the information into a single index number that ranges from –1 to +1.[70] Finally, though the data from the KOF business tendency survey in the Swiss banking industry do not exhibit strong seasonality, they are, like most survey data, relatively volatile, so that they are sent through a low pass filter[71] to separate the trend/cycle components from the noise.

An inspection of the balance indicators resulting from questions 1, 2 and 4 (→ Figures 102-104) reveals that both business situation and expected employment balances allow for a plausible decomposition into trend/cycle and noise, whereas this is not as obvious for the demand for banking services.[72] Accordingly, for the SFCW Financial Sector Sentiment Indicator (KOF-ETHZ), we shall refer to questions 1 and 4 only.

67 *See e.g., among many others, the ifo business climate or the ECFIN confidence index.*
68 *For a general description of the KOF surveys, see Graff/Etter (2004)*
69 *The weights on the micro-level are the firms' employment*
70 *This method of extracting relevant information is widely used. For a discussion of its properties, see Dasgupta/Lahiri (1992)*
71 *For this index, we refer to the Census X12 smoother*
72 *We refer to the overall assessments in questions 1 and 2, since the decomposition into domestic and foreign components is not useful, as we are interested in a general index. Regarding question 2, we look at the comparison with both the previous quarter and the next quarter («the quarter that just begun»), as we do not have prior assumption which perspective would be more revealing. Question 4, however, is a priori restricted to the forward looking perspective, as labour market indicators are known to be lagging or coincident rather than leading indicators of economic activity*

Figure 102: Financial sector, business situation, KOF survey balance indicator, original and low pass filtered

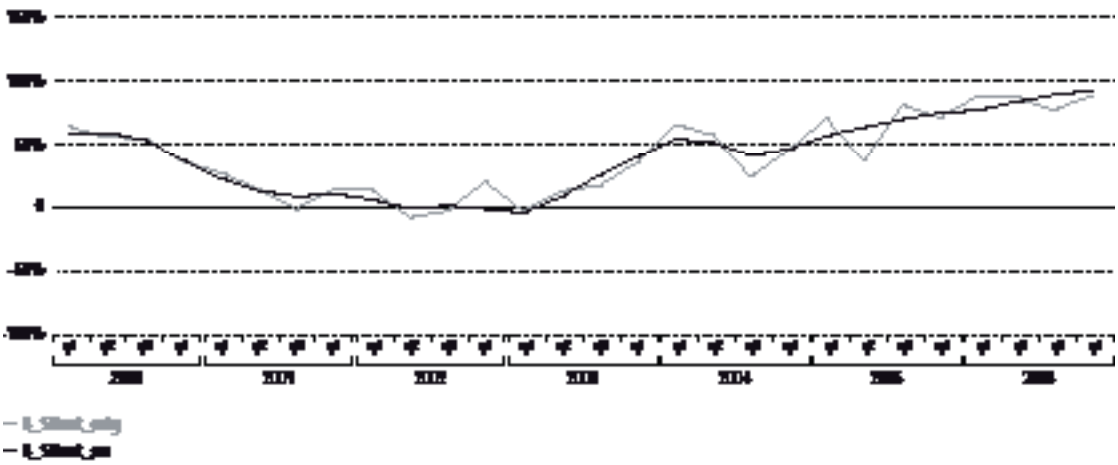


Figure 103: Financial sector, demand compared to previous quarter and next quarter, KOF survey balance indic., orig. and low pass filtered

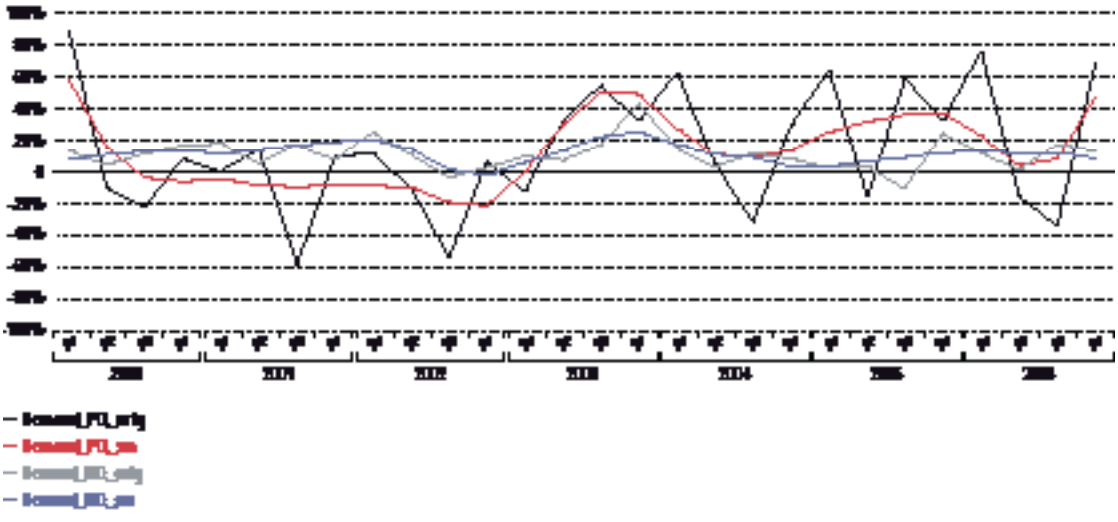


Figure 102 *Graff, KOF*
Figure 103 *Graff, KOF*

Figure 104: Financial sector, employment, next quarter, KOF survey balance indicator, original and low pass filtered

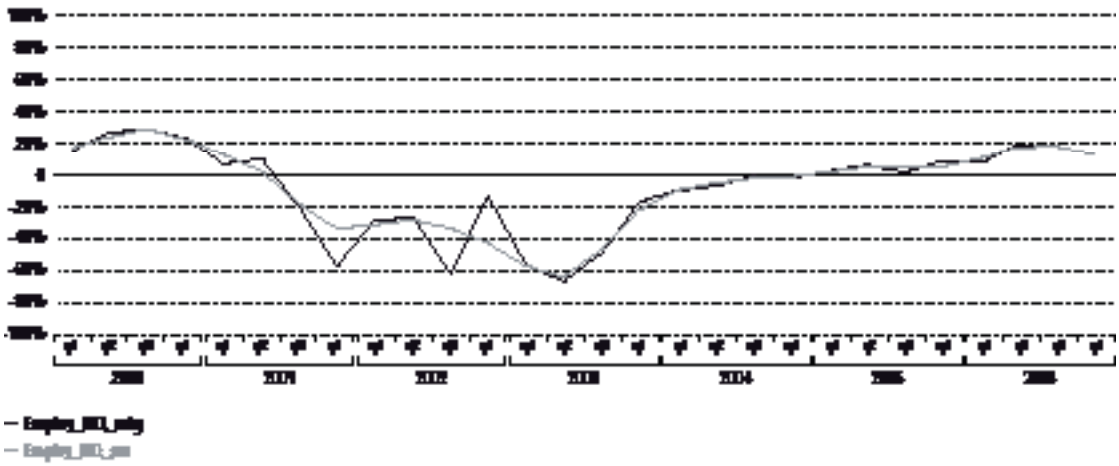


Figure 104 *Graff, KOF*

Based on this reasoning, the SFCW Financial Sector Sentiment Indicator (KOF-ETHZ) is computed as the arithmetic mean of the low pass filtered balance indicators referring to questions 1 and 4 from the KOF business tendency survey in the Swiss banking industry. In particular, the responses that were entered into the index are:

- «We see our business situation overall as good.» minus «we see our-business situation overall as poor.»
- «Employment full-time adjusted will increase in the quarter which has just begun.» minus «employment full-time adjusted will decrease in the quarter which has just begun.»

The underlying series and the resulting index are shown in Figure 105. Note that since the balance indicators range from –1 to +1, the same applies to the new index.

Figure 105: SFCW Financial Sector Sentiment Index (KOF-ETHZ) and underlying KOF survey data

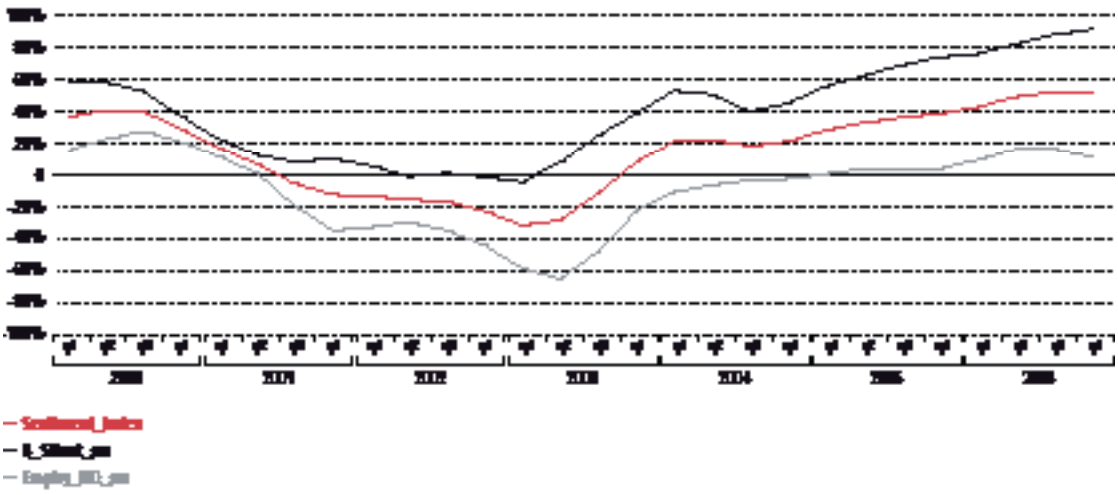


Figure 105 *Graff, KOF*

5. Properties of the SFCW Financial Sector Sentiment Index (KOF-ETHZ)

As was explained in detail, for the time being, we do not have an explicit reference series for our new sentiment index. Yet, a comparison with the data that are presently available for value added in the Swiss financial sector, we can – in spite of all shortcomings of the available data – give a first, albeit preliminary impression of the performance of our new index.

At this stage, a graphical exposition is probably most revealing. To this end, we standardize our index as well as the estimates for value added in NOGA 65 according to SECO (quarterly) as well as SFSO and SBI (yearly) and plot them together. The result is shown in Figure 106. Obviously, the SFCW Financial Sector Sentiment Index (KOF-ETHZ) captures the main features of the dynamics that characterise the value added series.

This is a very encouraging finding, which leads us to conclude that in due time, we may be able to refer to a data corpus that delivers support to this first impression with a more formal statistical approach.

Figure 106: KOF Financial Sector Sentiment Index and value added acc. to SECO (quarterly), SFSO and SBI (yearly), standardized values

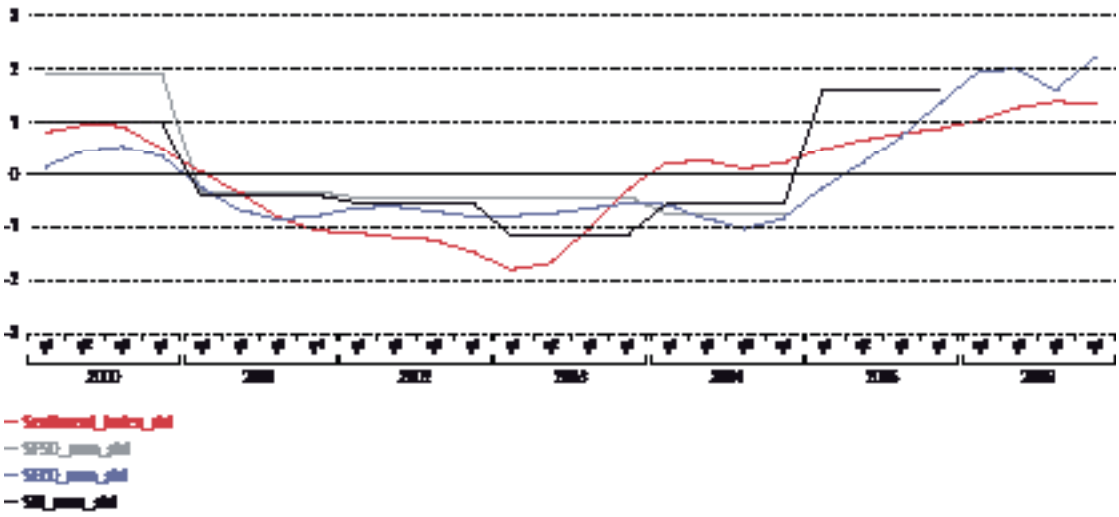


Figure 106 *Graff, KOF*

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Appendix

Section II – Appendix 1: Detailed calculation of banks' gross value added

	Subtractive Method – Creation of gross value added	
+	Net interest income	Gross output value
+	Fees and commissions receivable	
+	Net profit or loss on financial operations	
+	Other net non-interest income	
-	Fees and commissions payable	Non labor costs of inputs
-	Operating expenses excl. staff costs	
=	**Gross value added**	

	Additive Method – Distribution of gross value added
+	Staff costs
+	Income tax
+	Distributed profit
+	Internal application
=	**Gross value added**

Section II – Appendix 2: Detailed calculation of insurance companies' gross value added

	Additive Method – Distribution of gross value added	
+	Ergebnis des Geschäftsjahres	
+	70% der Abschlussaufwendungen für das direkte Geschäft 70% der Verwaltungsaufwendungen 70% der Aufwendungen für die Verwaltung von Kapitalanlagen	Annahme Personalkosten
+	Direkte Steuern	
+	Ausserordentliche Erträge abzgl. ausserordentliche Aufwendungen	
-	Lfd. Erträge aus Kapitalanlagen in verbund. Unternehmen	Neutralisierung der nicht versicherungsverbundenen Kapitalerträge und Zinsaufwendungen
-	Lfd. Erträge aus Aktien, etc.	
-	Lfd. Erträge aus eigenen Aktien	
-	Lfd. Erträge aus festverzinslichen Wertpapieren	
-	Lfd. Erträge aus Schuldscheindarlehen	
-	Lfd. Erträge aus Hypothekaranforderungen	
-	Lfd. Erträge aus Policedarlehen	
-	Lfd. Erträge aus Festgeldern und sonstigen Kapitalanlagen	
-	Lfd. Erträge aus Kapitalanlagen für anteilgebundene Lebensversicherungen	
-	Depotzinsen	
+	Zinsaufwendungen an versicherungstechnische Rechnung	
+	Übrige Zinsaufwendungen und sonstige Aufwendungen für Kapitalanlagen	
+	Abschreibungen auf Kapitalanlagen	
-	Zuschreibungen zu Kapitalanlagen	
-	Sonstige Erträge abzüglich Aufwendungen für Kapitalanlagen	
=	**Brutto–Wertschöpfung**	

Section II - Appendix 1 *Based on SNB: Die Banken der Schweiz 2004.*
Section II - Appendix 2 *Based on BPV: Die privaten Versicherungseinrichtungen in der Schweiz - Zahlen und Fakten 1997-2004.*

Subtractive Method – Creation of gross value added		
+	Gebuchte Bruttoprämien	Brutto-Produktionswert versicherungstechnisch
-	Veränderung der Bruttoprämienüberträge	
+	Sonstige versicherungstechnische Erträge für eigene Rechnung	
-	Zahlungen für Versicherungsfälle, Bruttobetrag	
-	Veränderung der Schadenrückstellungen, Bruttobetrag	
-	Nicht anderweitig auszuweisende Veränderung der versicherungstechnischen Nettorückstellungen	
-	Veränderung Deckungskapital, Bruttobetrag	
+	Veränderung Zillmerabschlag	
-	Abgegebene Rückversicherungsprämien	Vorleistungen versicherungstechnisch
+	Veränderung des Anteils der Rückversicherer an den Bruttoprämien	
+	Zahlungen für Versicherungsfälle, Anteil Rückversicherer	
+	Veränderung Schadenrückstellungen, Anteil Rückversicherer	
+	Veränderung Deckungskapital, Anteil Rückversicherer	
-	Aufwendungen für Überschussbeteiligung	
-	Provisionen für das in Rückdeckung genommene Versicherungsgeschäft	
-	Veränderung Abschlussaufwendungen	
+	Erhaltene Provisionen	
-	Sonstige versicherungstechnische Aufwendungen	
-	30% der Abschlussaufwendungen für das direkte Geschäft	betriebliche Vorleistungen versicherungstechnisch
-	30% der Verwaltungsaufwendungen	
=	**Brutto–Wertschöpfung versicherungstechnisch**	

+	Der technischen Rechnung zugeordneter Zinsertrag für eigene Rechnung	Brutto-Produktionswert Anlagen und Übriges
+	Erträge aus Grundstücken und Bauten	
-	Nicht realisierte Gewinne aus Kapitalanlagen für anteilgebundene Lebensversicherungen	Vorleistungen Anlagen und Übriges
-	Nicht realisierte Verluste aus Kapitalanlagen für anteilgebundene Lebensversicherungen	
+	30% der Aufwendungen für die Verwaltung von Kapitalanlagen	
-	Gewinne aus dem Abgang von Kapitalanlagen	
-	Verluste aus dem Abgang von Kapitalanlagen	
-	30% der Aufwendungen für die Verwaltung von Kapitalanlagen	betriebliche Vorleistungen Anlagen und Übriges
=	**Brutto–Wertschöpfung aus Anlagen und Übriges**	

Section II – Appendix 3: Hausman Test

Hausman Test for gva_gdp

Variables	Coefficients			
	(b) fixed	(B)	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
diff_intreal	.0008129	.0007573	.0000556	
mcap_gdp	.0141568	.0138245	.0003323	
cir	-.012218	-.0139507	.0017328	
car	.0751064	060909	.0141974	.0330544
bonds_to_a~s	-.004089	-.0096539	.0055649	.0018564

b = consistent under Ho and Ha; obtained from xtreg, B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$chi2(5) = (b-B)'(V\_b-V\_B)^{-1}(b-B)$

= -6.37 chi2<0 ==> model fitted on these data fails to meet the asymptotic assumptions of the Hausman test; see suest for a generalized test

Hausman Test for l_gva				
Variables	**Coefficients**			
	(b) fixed	(B)	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
gdpcap	3412.227	3408.572	3.655152	227.7049
diff_intreal	.9409254	.948103	-.0071775	.1311882
conc	-41.2708	-56.69551	15.42471	6.415102
mcap_gdp	26.72055	25.34256	1.37799	1.389114
cir	-74.42484	-79.04257	4.617724	1.767485
overhd	-199.2231	-14.99529	-184.2278	119.6242
bonds_to_a~s	-85.09914	-71.70209	-13.39705	15.8563

b = consistent under Ho and Ha; obtained from xtreg, B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic
chi2(7) = (b-B)'(V_b-V_B)$^{-1}$(b-B)
= -14.94 chi2<0 → model fitted on these data fails to meet the asymptotic assumptions of the Hausman test; see suest for a generalized test

Hausman Test for e_gva				
Variables	**Coefficients**			
	(b) fixed	(B)	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
diff_intreal	-.0007158	-.0030809	.0023651	
mcap_gdp	.0015455	.0161388	-.0145933	
cir	-.2570985	-.2740666	.0169681	
car	-2.428766	-2.757268	.3285027	.5352363
conc	-.075714	-.1562358	.0805219	
bonds_to_a~s	.2944533	.1158948	.1785585	.0323174
banksize	-3.12e-08	-1.38e-08	-1.74e-08	1.07e-08

b = consistent under Ho and Ha; obtained from xtreg, B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic
chi2(6) = (b-B)'(V_b-V_B)$^{-1}$(b-B)
= 21.94
Prob>chi2 = 0.0012
(V_b-V_B is not positive definite)

Section II – Appendix 4: Summary statistics of the panel

Variable	Obervations	Mean	Std. Dev.	Min	Max
gva_gdp	313	0.04	0.04	-0.05	0.30
l_gva	307	149.18	210.00	-1277.03	1559.56
e_gva	325	0.38	0.21	-0.64	1.14
gdpcap	359	0.03	0.01	0.01	0.09
cpi	373	79.83	22.96	9.18	140.49
diff_int	408	-0.23	5.05	-23.33	17.27
eximp_gdp	397	0.79	0.48	0.17	2.89
dumeu	408	0.88	0.32	0.00	1.00
lf_edu	113	19.85	8.06	0.40	43.30
school_yrs	60	8.68	1.76	3.85	12.05
mcap_gdp	387	0.58	0.65	0.00	5.09
bonds_to_a~s	204	116.29	140.70	7.81	685.41
conc	236	0.65	0.22	0.15	1.00
dum_banksys	408	0.82	0.38	0.00	1.00
banksize_t~p	322	0.02	0.02	0.00	0.12
car	329	0.05	0.02	0.00	0.12
nim	233	0.03	0.01	0.00	0.05
cir	326	0.82	0.44	0.38	4.72
overhd	231	0.03	0.01	0.00	0.05
inctax	324	0.30	0.56	-3.52	8.80
regcap	136	153129.50	278335.90	1657.00	1346966.00
biscap	110	0.11	0.02	0.07	0.16
cpi_score	152	7.58	1.60	2.99	10.00

Section V – Appendix 1: Business Tendency Survey

Business Tendency Survey

Banking

Quarter 02/2003

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Please note:

- The questions refer to the activities of **domestic branches**.
- The **notes** are on the back of the sheet.
- Leave out any questions dealing with areas of business which do not apply to you.
- Your responses are treated **strictly confidential**.
- Please return the questionnaire by the **15th of the month**.

1. We see our **business situation** ...	good	satisfactory	poor	
... overall as	☐	☐	☐	
... with domestic clients as	☐	☐	☐	☐ no domestic clients
... with foreign clients as	☐	☐	☐	☐ no foreign clients

	... was/were, in the quarter under report by comparison with the previous quarter,					... will, in the quarter which has just begun		
2. **Demand for banking services** ...	much higher	higher	the same	lower	much lower	increase	stay the same	decrease
... overall	☐	☐	☐	☐	☐	☐	☐	☐
... from domestic clients	☐	☐	☐	☐	☐	☐	☐	☐
of which ... private clients	☐	☐	☐	☐	☐	☐	☐	☐
... corporate clients	☐	☐	☐	☐	☐	☐	☐	☐
of which SME	☐	☐	☐	☐	☐	☐	☐	☐
... from foreign clients	☐	☐	☐	☐	☐	☐	☐	☐
3. **Profitability:**								
Net interest income	☐	☐	☐	☐	☐	☐	☐	☐
Net fee and commission income	☐	☐	☐	☐	☐	☐	☐	☐
of which asset management	☐	☐	☐	☐	☐	☐	☐	☐
Net trading income	☐	☐	☐	☐	☐	☐	☐	☐
Net trading income	☐	☐	☐	☐	☐	☐	☐	☐
Gross operating income (GOI)	☐	☐	☐	☐	☐	☐	☐	☐
Personnel expenses/GOI ratio	☐	☐	☐	☐	☐	☐	☐	☐
Other operating expenses/GOI ratio	☐	☐	☐	☐	☐	☐	☐	☐
Gross operating profit	☐	☐	☐	☐	☐	☐	☐	☐
4. **Employment** full-time adjusted		☐	☐	☐		☐	☐	☐
5. **Volume** ...								
... of securities transactions for clients	☐	☐	☐	☐	☐			
... of assets under management	☐	☐	☐	☐	☐			
... of authorized loans	☐	☐	☐	☐	☐			

Comments:

	too high	sufficient	too low
6. **Capacity:** We consider our ...			
... IT capacity to be	☐	☐	☐
... spatial capacity to be	☐	☐	☐
... frontoffice staff capacity to be	☐	☐	☐
... backoffice staff capacity to be	☐	☐	☐
	improved	**remained unchanged**	**worsened**
7. In the last months, our **opportunities of refinancing** ...			
... by customers funds	☐	☐	☐
... by other funds	☐	☐	☐
8. In the last months, our domestic **competitive position** ...			
... in credit transaction	☐	☐	☐
... in customer funds transaction	☐	☐	☐
... in asset management	☐	☐	☐
9. In the last months, the **credit rating** ...			
... of our domestic borrowers	☐	☐	☐
of which ... private clients	☐	☐	☐
... corporate clients	☐	☐	☐
of which SME	☐	☐	☐
... of our foreign borrowers	☐	☐	☐
	will increase	**remain unchanged**	**will decrease**
10. In the quarter which has just begun, **loans** ...			
... to domestic clients	☐	☐	☐
of which ... private clients	☐	☐	☐
... corporate clients	☐	☐	☐
of which SME	☐	☐	☐
... to foreign clients	☐	☐	☐
11. In the quarter which has just begun, we expect ...			
... our **interest margins**	☐	☐	☐
... our **commission rates**	☐	☐	☐
	increase	**remain unchanged**	**worsen**
12. After the end of the quarter which has just begun, ...			
... **business** will	☐	☐	☐

Notes

Business surveys ask firms to estimate their own past and future business position. The results of business surveys give projections of economic trends and in particular of cyclical changes earlier than do official statistics. For the purpose of delimiting the domestic financial market, answers should relate only to the activities of domestic branches.

The paragraph „Comments" is reserved for general descriptions of the situation, notes about special business conditions etc. Occasionally we will use this paragraph for additional questions.

Your answers are treated strictly confidential. The results don't allow conclusions to individual firms. The KOF ETH Zurich is governed by the Swiss Federal Law of Statistics..

The questions

1. Your assessment of the business situation should primarily take account of performance factors. Other criteria such as volume of business, market share, etc. may also be considered.
2. To assess changes in demand, you can take account of income from the specific client groups (overall, domestic and foreign, private and corporate of which SME) or of the corresponding transaction volumes. Corporate clients are firms which are recognized as independent legal entities and quasi-corporate enterprises (characteristic: own accounting). Small and medium enterprises (SME) are firms with less than 250 employees. (*)
3. The profit, cost/profit ratios and net earnings asked for refer to the corresponding entries in the income statement. Additionally we ask for net earnings in asset management. Gross operating income includes all (net) income, being part of the gross operating profit. (*)
4. The assessment of changes in employment should be based as far as possible on full-time equivalents. (*)
5. This question refers to individual production-like volumes of banking transactions. Authorized loans include secured and non-secured loans. (*)
6. As regards operational capacity, you are asked to give a breakdown by information technology and telecommunications capacity (IT), on the one hand, and by space, on the other. As regards human resource capacity, you are asked to distinguish between front- and back-office staff.
7. The question to refinancing opportunities distinguishes between customers funds and other funds (Interbank loans, etc.).
8. The competitive position is to be judged with regard to the banking services on offer. Competitors do not include banks only, but all financial service providers.
9. This question aims at the change of credit rating in the portfolio of loans.
10. – 12. We ask here for a current assessment of short and medium-term evolution. Conserning the development of loans, please consider secured and non-secured loans.

(*) For extraordinary changes, please use the additional options ("much higher" or "much lower"). Please give your actual assessment of evolution in the quarter which has just begun.