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Integration of control relations in the problematic of competition between regions

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Inter-regional corporate ownership and regional autonomy: the case of Switzerland

First draft

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We wish to thank: the firm Orell Füssli for making its databases *Who Owns Whom* (ownership / participations in Swiss companies) and that of the *Register of Trade* available to us. Without this raw data, this study would have been impossible. We are most grateful for the assistance provided.

Abstract. By using a unique database on the ownership relations of Swiss firms, this article proposes, for the first time in Switzerland, a spatial analysis of financial links. More precisely, it proposes a study of specific regional characteristics in that it reveals the way in which ownership is structured. The paper clearly highlights the different ways that regions behave regarding their involvement in these ownership structures, on a national and international level. The types of behaviour can be associated with the various economic specialisations of Switzerland's regions. Firstly, it appears that ownership most frequently links firms located within the same Regional Production System. It is then noted that the links between the Swiss regions are far less numerous than international links. The international links, by their number and their distribution throughout Switzerland, constitute the main source of discrimination between the regions. The financial region of Zurich masters this ownership issue most competently. It is the most autonomous region in that it is able to maintain control over its economy, to become highly involved in other spaces, and attract the most investments.

JEL classification: G34, L22, R12

1 INTRODUCTION

Regional endogenous development requires a certain degree of regional "autonomy" in order to be effective. By autonomy, we mean the capacity of a firm to operate relations within its own region or with other, more remote regions (Grosjean and Crevoisier, 2003). Autonomy is therefore the contrary of autarchy (which means no relations with others): it is a capacity to act with, and on, the environment (Varela, 1989).

In regional endogenous development approaches (Regional Production Systems, industrial districts, innovative milieus, etc.), regional autonomy is necessary because it allows local interaction to take place in order to build local resources and to innovate.

During the last 20 years, the development of the financial system and its growing impact on the real economy is raising new questions about regional autonomy and about the limits of endogenous development theories. Disintermediation has forced SMEs and family-owned firms to find new equity capital. At the same time, financial markets are providing better access to capital for large companies that use the stock exchanges for this purpose. The consequence of these developments is an increased integration and concentration of corporate ownership as a result of mergers acquisitions. In France for example, Chabanas (2002) shows that the number of controlled firms was four times higher in 1999 than in 1980.

In such a context, one could in fact wonder whether regional autonomy still exists, and thus whether and to what extent endogenous development theories can still be upheld. The "Global City" approach (Sassen, 1991) shows how financial activities have developed in a highly concentrated way and consequently the way in which financial centres have concentrated their control over a globalised economy. Since these global cities control a significant part of the economy, this naturally means that other regions have at least partially lost their autonomy. Here, a theory of economic and spatial dependence, such as the spatial division of labour, is needed (Massey, 1984).

In this article, we address the question of regional autonomy by means of an analysis of regional, inter-regional and international corporate ownership in Switzerland.

Switzerland has experienced a considerable transformation of its economy over the last 20 years. The international and national financial centres have grown considerably, and in parallel, industry and tourism have encountered difficulties. From a geographical point of view, the Regional Production Systems (RPSs) that constituted the financial centres (Zurich, Geneva, and to a lesser extent Lugano and Basel) have developed, while RPSs that focused on exports have undergone a decline (Corpataux et al., 2003; Crevoisier et al., 2001).

In this paper, autonomy is not viewed in the sense of autarchy but rather as the capacity to handle external relationships. The second part of it will therefore address the notion of autonomy in relation to ownership structures. Starting with Sassen's "Global City" concept and summarising the topic of ownership topic in literature concerning RPSs, it proposes a typology of regional autonomy based on the various types of inter-regional ownership (controlling regions, controlled regions, etc.) that can be observed. If all firms within a region are controlled from outside it, the region concerned could be considered as one with a low degree of autonomy – yet how should regions with a high degree of control but also with numerous dependency relationships be regarded?

The third section describes data on ownership, followed by a brief description of the region analysed (RPSs of Switzerland), and then by an explanation of the method used. The fourth section resumes the main results obtained. The performances of the RPSs are evaluated on a national and international level before presenting the overall results and the basic constraints of the study. The final section recalls the main results and refers to the theoretical approaches used.

2 CORPORATE OWNERSHIP AND REGIONS: THEORETICAL APPROACHES

Naturally, corporate control through ownership does not necessarily prevent autonomy in everyday management. Abundant literature is available on the behaviour of subsidiaries of large groups that involve local players. This type of behaviour can be simply a predation of local resources but also one of developing common resources and innovation (see for instance Perrat, 1992; Saxenian, 1996). Nevertheless, the fact remains that in the event of financial problems or if a local plant needs funds for its development, the shareholders maintain a say in the matter.

Although the more general theme of autonomy appears relatively frequently in literature on regional development, the question of corporate ownership and regional ownership control as such appears rarely. Indeed, the independence of firms can be interpreted as local entrepreneurial dynamism (for instance in literature on industrial districts) but also as backwardness (in literature on the financial markets). Being owned by a group may be seen as dependence (in literature on RPSs), exploitation (in the theory of spatial division of labour) or attractiveness and dynamism (in the "Neo-classic" or "Global City" approaches). For this reasons, it is vital to grasp the various key theoretical approaches in order to make sense out of the notion of ownership control. In this study, the Neo-classical approach, literature on Regional Production Systems (RPSs), the Global City concept and the Spatial Division of Labour (SDL) theory are taken into consideration.

In a world of models, structured according to *Neo-classical hypotheses*, the ownership relation can be simply considered as an investment. The investor allocates his capital to a firm that unites the characteristics of returns and risks in a way that he deems appropriate. Here, the attractiveness of the firm that receives the investment is the decisive factor. The investment is made in it because it is considered to be the best investment opportunity available on the market. The notion of transferring property is not essential here: it is more the returns hoped for and the risks associated with the firm that are decisive¹. On a national level, the allocative process is often considered to have the virtue of harmonising the per capita revenues of the various regions (the *convergence* theory), since the capital is oriented according to its regional marginal productivity, which itself is dependent on the value of the capital/labour ratio.

Literature on *Regional Production Systems (RPS)* (industrial districts, techopoles, innovative milieus, etc.) focuses on endogenous development processes. Local forms of interaction and learning are viewed as the result of strategies that are drawn up locally. Usually, it is considered that this takes place in line with considerable decision-taking power on the part of local actors. Obviously, financial independence is part of this autonomy. If the place where decisions are taken and the place where regional interaction and learning occur coincide, this understandably favours coherent local dynamics. Nevertheless, this freedom does not necessarily mean that independent or regionally controlled firms automatically take part in

¹ Some heterodox approaches strongly criticise this concept of the choices by investors. A preference for liquid assets (Dow, 1999) or mimetic mechanisms (Orléan, 1999) constitute factors that question the pertinence of the classical explanatory factors of capital allocation. This article does not take the alternative approaches into consideration, since it is not a study of the allocation process but rather its implications on the systems (regional autonomy).

these dynamics. Inversely, external ownership control does not always prevent dynamic participation in local learning. The way in which large firms' subsidiaries operate within regional production systems has given birth to hundreds of surveys and interpretations. On the one hand, it is clear that the subsidiary of a group does not take part exclusively in a regional or a branch dynamic: it must also deal with corporate management, which has its own development strategy (Dupuy and Gilly, 1995). This considerably hampers the capacity of subsidiaries to nurture endogenous development. Nevertheless, and on the other hand, several authors (see for instance Crevoisier, 1995; Perrat, 1992; Bathelt, 2000) stress that subsidiaries can also be part of local innovative dynamics. This behaviour appears at certain, limited periods of time, when a group is seeking new techniques, products or resources. When innovative projects have matured, accumulation dynamics that are dependent on major investment capacities make them shift. External control becomes decisive at this point in order to organise the various components of the value chain at a much wider spatial scale. These phenomena are not taken into consideration by literature on RPSs.

Another interesting way to consider regional autonomy consists of taking into consideration the location of the owners of large firms that have their headquarters in the region (Wójcik, 2002). In this case, regional autonomy is not referred to as a means of maintaining competitiveness through a better match between collective innovation processes and decision-taking power, but to as a form of *corporate governance* that corresponds to the interests of the region's economic players.

The way in which multi-regional or multi-national firms organise their controlled subsidiaries over space is explained by the *Spatial Division of Labour (SDL) theory* (Massey, 1984). In this theory, labour is seen as a resource used and controlled by capital. Ownership structures play a decisive role because this is the most obvious way in which the different kinds of labour are integrated within a more general production system. Regions are not autonomous: each one has a position in a more widespread organization, and this organisation is orchestrated by large, multi-regional or multi-national companies exerting direct (for example through ownership) or indirect (for example through market power) control. The spatial division of labour is both functional (functions are shared among regions according to specialised skills) and hierarchical (headquarters employing skilled workers are located in regions that are at the top of the spatial division of labour chain) (Hoeschele, 2002), while routine operations that require non-skilled workers are located in regions that are at the lowest level of this chain.

By structuring spatial hierarchical structures and autonomous development in the form of centres, the Sassen's "Global City" (Sassen, 1991) aims to explain why and how the increased dispersion of economic activity took place hand in hand with a growing need for global integration and control. This brought about new functions for the major cities of the world: they became command centres for global economic activity and the production systems that produce precisely the expertise and the means that make this global control possible. Consequently, the increased dispersion of economic activity took place in parallel with increased spatial concentration regarding ownership. Sassen argues that the reorganisation of the financial industry has been characterised by sharp growth and innovation on the part of financial firms, and by their proliferation. These conditions have shifted the point of gravity in the industry away from the large trans-national banks that once dominated the industry towards major *centres* of finance. Sassen shows how the transition to a finance-driven economy generates new economic spaces.

These widely differing theoretical approaches no doubt each explain one part of reality. They at least reveal that ownership can be interpreted in different – if not contradictory – ways. This is no doubt simply due to the fact that ownership is an ambivalent relationship that takes on two aspects without opposition or ambiguity being necessarily present. First of all, it is the proof of the attractiveness of the target firm, since this has led to investments on the part of the entity acquiring it. However, it is also a relationship of power that implies a transfer of the decision-taking autonomy of the target company to the entity acquiring it.

Thus, the definition of the autonomous region *par excellence* is that one that benefits from grouping together the strategic and best-remunerated activities by placing itself at the summit of the hierarchy (Sassen and SDL), that attracts investments to it by offering good prospects for returns at low risk (classical vision) and finally, that succeeds in preserving control over the economic fabric that creates its competitive advantage (RPS).

TABLE 1: INTERPRETATION OF CORPORATE OWNERSHIP IN REGIONAL DEVELOPMENT THEORIES

	Regional control	Inter-regional control		International control		Independent firms
<div> <div>Ownership</div> <div>Theories</div> </div>	Ownership under own regional control *	To control ownership in other regions*	Ownership controlled from other regions*	To control ownership in other countries*	Ownership controlled from other nations*	Independent firms**
Regional Production System theories	Place where decisions are taken and the place where regional interaction and learning occur coincide: favours coherent local dynamics.	Successful RPSs take over competitors and acquire upstream and downstream activities	Inward investments occur because exogenous firms seek access to specific resources	Successful RPSs take over competitors and acquire upstream and downstream activities	Inward investments occur because exogenous firms seek access to specific resources	Place where decisions are taken and the place where regional interaction and learning occur coincide: favours coherent local dynamics.
Spatial division of labour		Central dominant regions exploit spatial differences in skills and wages through corporate ownership	Dependence of local subsidiaries maintains the region at the lowest level of the spatial division of labour chain	Central dominant nations exploit spatial differences in skills and wages through corporate ownership	Dependence of local subsidiaries maintains the region at the lowest level of the international division of labour chain.	
The Global City	Place where decisions are taken and the place where regional interaction and learning occur coincide: favours coherent local dynamics..	National financial centres are paying ever less consideration to their <i>Hinterland</i> .		The growth of a financial centre is closely linked to international financial investments from and to other financial centres.		Place where decisions are taken and the place where regional interaction and learning occur coincide: favours coherent local dynamics.
The Neo-classical paradigm	Ownership is considered in the same way as any other investment. Investors allocate their capital to the most profitable firms, independently of spatial distance.					

* data taken into account in the database
** not taken into account in the database

3 DATA AND METHODS

3.1 DATA

The data required in order to carry out the various analyses regarding relations between firms was obtained from the *Who owns Whom* database published by the firm Orell Füssli, which specialises in collecting data on companies. The figures are those for January 2003. The main criterion used for a company to feature in the database is a minimum share capital of CHF 500,000.² or its dependency on a larger firm. The database thus includes companies whose equity capital exceeds this threshold and their possessions, whose size may be more modest.

In order to describe these firms more precisely and notably to obtain their location, it is necessary to use another database, i.e. the *Swiss Directory of the Register of Trade (Annuaire suisse du registre du commerce)* also by Orell Füssli. Unfortunately, no reliable indication regarding the size of these companies is provided. The number of employees or the equity capital of the company is mentioned in some cases but not sufficiently regularly for the information to be used. Without external sources of data, this forces us to work by adopting the highly restrictive hypothesis that these companies are of a uniform size. Moreover, we should stress the fact that this database is a rare case in that the names of the companies are provided, whereas the custom for such information generally consists of aggregating the data in order to preserve their anonymity. Thanks to this factor, it is thus possible to carry out research into these companies when the quality of the information (notably regarding their size) is not satisfactory.

The results presented below are based on a table of ownership relations that are strictly over 50%, i.e. controlling relations. Theoretically, each relation thus implies a transfer of strategic decision-taking from the firm formerly owned to the owner firm. After some operations on this table, this now lists only relations between the final owners and the owned firms, i.e. relations between firms in the possession of others and the entities that have formal control over them³. Regarding ownership by foreign entities, the threshold of 50% (strictly for cases where this is exceeded) was also used. It should be noted that unlike in the case of the Swiss relations, we do not possess data on equity capital that is owned in other countries by foreign firms. The number of foreign companies controlled by the firms is thus underestimated, since it is possible that the foreign companies in question in turn control other entities (in

² approximately 320'000.- euros.

³ If A owns (>50%) B and B owns (>50%) C, the final relations are between A and B and between A and C. The relation between B and C disappears since, logically, B no longer has decision-taking autonomy.

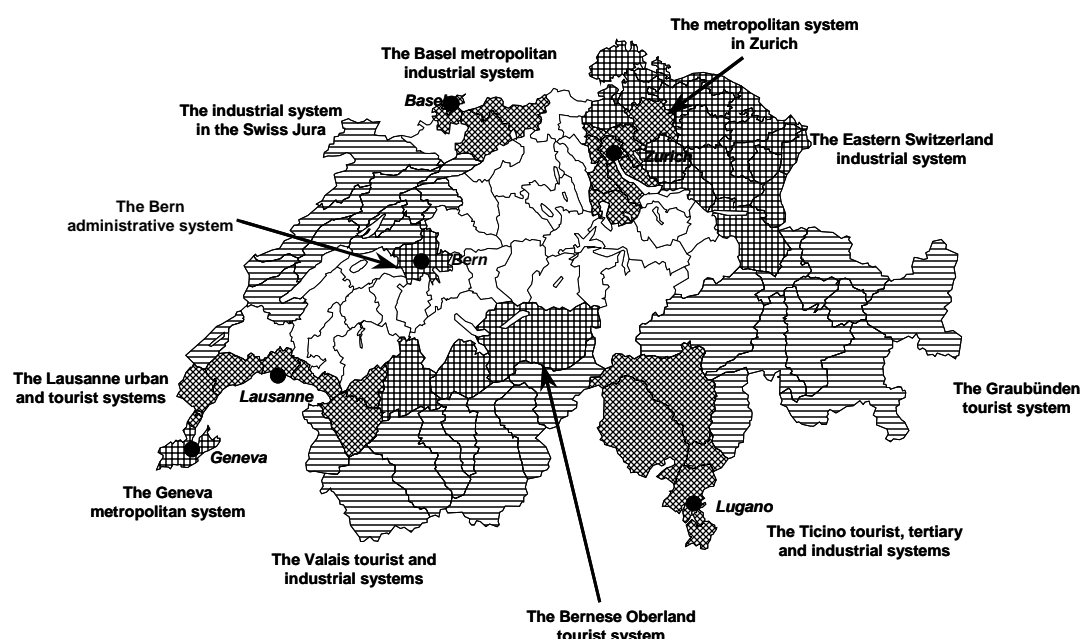
Switzerland or abroad). On the other hand, the final Swiss owner is retained for our purposes, as is the case for internal relations in the country⁴.

After selection (relations >50% only) and processing (in order to retain only relations between the final owner and what it owns), some 17,456 relations remain. Among these, 7,138 are relations of control between Swiss RPSs and 9,019 between RPSs and foreign countries. These links are analysed in turn in the sections below.

3.2 REGIONAL PRODUCTION SYSTEMS IN SWITZERLAND

Usually, studies on the case of Switzerland are based on the politico-administrative breakdown by Canton (NUTS 3). Cantons differ largely in population (from 1 to 30!) and are not coherent economic entities. That is why the breakdown into regions used for this study is that of the RPSs proposed by Crevoisier et al. (2001). The authors identified eleven systems in Switzerland (Map 1) that are homogeneous from the point of view of economic specialisation: each of them is highly specialised in one or several types of complementary activities. Essentially, this identification is based on the analysis of employment localisation quotients. Moreover, the quantitative analysis was validated by regional monographs and interviews with regional experts in order to pinpoint the most qualitative data on existing relations between the various activities.

MAP 1: THE ELEVEN REGIONAL PRODUCTION SYSTEMS IN SWITZERLAND



Source: Corpataux, Crevoisier and Thierstein (2002)

The eleven RPSs of Switzerland do not cover the country's entire territory, since it has regions that have no specificities in relation to the national structure. As Table 2 shows, the RPSs

⁴ If $A_{\text{Switzerland}}$ owns $B_{\text{Switzerland}}$ and $B_{\text{Switzerland}}$ owns C_{Foreign} , the relation between $B_{\text{Switzerland}}$ and C_{Foreign} is deleted in order to retain only the relations between the final owner ($A_{\text{Switzerland}}$) and what it owns ($B_{\text{Switzerland}}$ and C_{Foreign}).

nevertheless account for 73.1% of the population⁵ and 77.8% of jobs⁶. The specialised regions identified are of highly varying sizes from a surface area, population or employment point of view.

TABLE 2: DESCRIPTION OF THE SWISS RPSs

	Specialisation(s)	Population		Employment	
Jura	Watchmaking, jewelery	628,270	8.6%	242,538	7.7%
Basel	Chemical industry	494,799	6.8%	248,621	7.9%
Bern	Public administration	292,420	4.0%	175,570	5.6%
Geneva	Financial activities, international organisations	410,145	5.6%	208,248	6.6%
Graubünden	Tourist industry	190,183	2.6%	80,058	2.5%
Lausanne	Public administration, tourist industry	481,376	6.6%	200,317	6.4%
Eastern CH	Machine and textile industry	1,085,286	14.9%	400,485	12.7%
Oberland	Tourist industry	79,550	1.1%	30,284	1.0%
Ticino	Tourist industry, financial activities	310,671	4.3%	143,103	4.6%
Valais	Tourist industry	279,077	3.8%	101,481	3.2%
Zurich	Financial activities	1,076,674	14.8%	615,032	19.6%
Total RPS	-	5,328,451	73.1%	2,445,736	77.8%
Switzerland	-	7,287,357	100.0%	3,141,778	100.0%

Sources: Crevoisier, Corpataux and Thierstein (2001), Federal population censuses in 2000 and establishments census in 2001

3.3 CALCULATION OF THE INDICES

In order to compare the various regions, the indices relating to attractiveness, control and own control are calculated. The method used is briefly presented below.

Control index

P_j is the number of entities controlled by region j outside its territory. The performance index in terms of control of the region j (C_j) is defined as follows:

$$C_j = P_j / \left(\frac{1}{11} \times \sum_{i=1}^j P_i \right)$$

Literally, C_j corresponds to the number of inter-regional possessions of region j , divided by the average number of inter-regional possessions of the 11 RPSs. The interpretation of the index is as follows: when a region possesses an index equal to X , it can be said that it controls X times more companies than the average of the RPSs.

Attractiveness index

S_j is the number of firms within region j that are controlled from other regions. The attractiveness index of region j (A_j) is defined by:

⁵ Civil population, Federal population census, 2000.

⁶ Federal establishment census, 2001.

$$A_j = S_j / (\frac{1}{11} \times \sum_{i=1}^{11} S_i)$$

A_j is thus equal to the number of companies owned by other regions in region j , divided by the average number of companies owned inter-regionally in the RPSs. If $A_j = X$, it can be said that region j is X times more attractive than the average.

Own control index

Here, T_j is the total number of owned companies in region j , and U_j is the number of companies that region j possesses among these T_j companies⁷. This gives the own control index (O_j) that is equal to:

$$O_j = \frac{U_j}{T_j} / (\frac{1}{11} \times \sum_{i=1}^{11} \frac{U_i}{T_i})$$

O_j is the portion of the companies controlled by region j among the total of controlled firms in this region. If $O_j = X$, it can then be said that in j there is X times more own control of firm than in the other regions of Switzerland.

Weighted indexes

It is clear that the size of the regional entities considered plays a role and creates bias in the analysis if one attempts to measure performances with all other parameters remaining constant. This bias, however, also reflects the reality in which production systems of different sizes co-exist. For this reason, we present the non-weighted results and the results weighted by the size of the regional entities considered in parallel.

The results regarding control and attractiveness are weighted by the portion that each RPS represents in terms of employment. On the other hand, no adjustment has been applied to the own control indices. In fact, even if this can depend on the size of the regions, weighting would have had little sense. Own control is a notion that is pertinent to the scale of a system, whatever its size. Nevertheless, control and attractiveness can doubtlessly be considered as dependent on the size of the RPSs. A large RPS will rapidly take on major significance in another region (with high level of control), just as a large RPS will rapidly constitute a major target for investment for another (with high level of attractiveness). The weighting was made by means of the number of jobs located in the regions.

E_i is the number of jobs in region i . The weighted control formula for region j (WC_j) is thus:

$$WC_j = (\frac{P_j}{E_j}) / (\frac{1}{11} \times \sum_{i=1}^{11} \frac{P_i}{E_i})$$

⁷ Thus $T_j - U_j = S_j$.

Finally, the weighted attractiveness of region j (WA_j) is defined by:

$$WA_j = \left(\frac{S_j}{E_j}\right) / \left(\frac{1}{11} \times \sum_{i=1}^{11} \frac{S_i}{E_i}\right)$$

Thus, if $WC_j (WA_j)$ is equal to X , it can be said that in terms of employment, region j is X times more controlling (attractive) than the average for Switzerland.

4 RESULTS

4.1 NATIONAL RELATIONS: PROXIMITY MATTERS!

In this section, our focus is on existing relations of control on the space of the Swiss RPSs alone. Each observation thus links a final owner (owned by no other national or international firm) with a subsidiary, each of them located in one of the RPSs defined above. Thus, if a relation implies an owner of subsidiary located beyond this space, it is excluded⁸. The observations are summarised in Table 3.

TABLE 3: INTER-RPS CONTROLLING RELATIONS

Subsidiaries	Owners											Total
	Jura	Basel	Bern	Geneva	Graubünden	Lausanne	Eastern CH	Oberland	Ticino	Valais	Zurich	
Jura	404	11	37	22	5	22	11	1	1	0	62	576
Basel	5	646	30	12	8	10	9	0	0	0	124	844
Bern	6	28	371	5	3	7	9	0	2	0	68	499
Geneva	9	28	12	328	0	44	10	0	2	5	76	514
Graubünden	1	7	6	4	127	1	18	0	6	1	37	208
Lausanne	20	20	23	23	0	285	11	0	1	4	58	445
Eastern CH	8	27	26	10	19	7	907	1	7	0	205	1,217
Oberland	0	3	12	1	3	1	1	42	0	0	6	69
Ticino	6	13	6	12	4	6	15	0	133	0	47	242
Valais	4	11	6	19	2	27	1	2	0	72	12	156
Zurich	25	110	71	46	35	46	112	0	11	2	1,910	2,368
Total	488	904	600	482	206	456	1,104	46	163	84	2,605	7,138

Source: Who owns Whom database 2003, Orell Füssli

Of the 7,138 existing relations between the RPSs, 73.2% are internal relations (the owner and the entity owned belong to the same RPS). These are shown on the diagonal of Table 3. Shares in firms are particularly affected by proximity, to belonging to the purchaser's target RPS. Thus 91.7% of owned companies in the Oberland are owned internally. The most "extravert" region shows a rate of 61.3% (Graubünden).

Reasoning on the basis of controlled companies in the spaces (reading Table 3 horizontally), we note that certain regions control only a fairly modest portion of the total of affiliated

⁸ The guiding principle in these analysis is always the concept of final control. For example, if A_{RPS} owns $B_{outside\ RPS}$ and $B_{outside\ RPS}$ owns C_{RPS} , the relations $A_{RPS}-B_{outside\ RPS}$ and $B_{outside\ RPS}-C_{RPS}$ are ignored, preserving only the relation between $A_{RPS}-C_{RPS}$.

companies (right hand column of Table 3) in their region. The Valais (46.2%), Ticino (55.0%) and the Oberland (60.9%) have low rates of own control compared with Zurich (80.7%), or Basel (76.5%). The involvement of one system in other can also reach interesting proportions. Zurich is, for example, the owner of other RPSs to degrees varying from 7.7% to 19.4%. It is virtually always the best represented "foreign" owner. We thus reveal that the inter-RPS relations are the source of notable imbalances, although this type of relation represent only 26.8% of the sample.

Similarly, we could ask ourselves which are the regions that attract the most investments from the various RPSs. Apart from their own region, nearly all regions show a clear preference for that of Zurich. However, as mentioned above, Zurich is the system with the largest own ownership. Zurich is thus an attractive region (favourite destination of a large number of RPSs), controlling (highly present in the other RPSs) and independent (high rate of own ownership).

TABLE 4 : NATIONAL RPSs PERFORMANCE INDEXES

RPS	Own control	Control		Attractiveness	
	Not weighted	Not weighted	Weighted	Not weighted	Weighted
Jura	1.1	0.5	0.5	1.0	0.9
Basel	1.2	1.5	1.6	1.1	1.0
Bern	1.1	1.3	2.0	0.7	0.9
Geneva	1.0	0.9	1.1	1.1	1.1
Graubünden	0.9	0.5	1.5	0.5	1.2
Lausanne	1.0	1.0	1.3	0.9	1.0
Eastern CH	1.1	1.1	0.7	1.8	1.0
Oberland	0.9	0.0	0.2	0.2	1.1
Ticino	0.8	0.2	0.3	0.6	0.9
Valais	0.7	0.1	0.2	0.5	1.0
Zurich	1.2	4.0	1.7	2.6	0.9

Source: table drawn up by authors

The figures for own control are not highly dispersed. This can be explained fairly easily by the clear preference on the part of the RPSs for holding shares in companies within their own systems. On the other hand, control and attractiveness (non-weighted) reveal highly dispersed figures and particularly because of Zurich, which clearly dominates the other Swiss regions in these areas. In the non-weighted figures in Table 4, we clearly see the different factors reflected in the analysis in Table 3. Zurich controls four times more companies, is 2.6 times more attractive, and presents an own ownership figure of 1.2 times higher than the average.

The *weighting* considerably reduces the gaps between the systems. In terms of control, Zurich is not longer ahead and it is Bern that dominates the other regions of Switzerland. Zurich nevertheless remains in the upper part of the hierarchy of regions. The sparsely populated region of Graubünden climbs in this analysis, whereas the eastern Switzerland shows a large loss.

In terms of attractiveness, the regions of Graubünden, the Oberland and Geneva show the best results. Zurich falls slightly below the national average. The weighting here particularly reduces the gaps regarding performance: there is only a difference of 0.2 point separating the highest from the lowest.

4.2 INTERNATIONAL RELATIONS

In this section, we focus on the relations between the RPSs and foreign firms. Initially, it should be noted that the number of companies owned by Swiss firms is largely understated since we have no information about the number of firms that are controlled abroad by firms that are under direct Swiss control. On the other hand, it was possible to identify not only the Swiss firms that are directly controlled from abroad but also firms controlled indirectly⁹. Even if the direct relations among the foreign firms are not known, it was possible to identify the indirect links. In fact, some 1,299 firms are controlled, via Switzerland, by other foreign firms.

TABLE 5 : INTERNATIONAL CONTROL RELATIONS

RPS	Swiss owners		Foreign owners	
Jura	335	6.3%	242	6.5%
Basel	935	17.6%	298	8.0%
Bern	203	3.8%	133	3.6%
Geneva	400	7.5%	522	14.1%
Graubünden	29	0.5%	55	1.5%
Lausanne	514	9.7%	235	6.3%
Eastern CH	683	12.9%	400	10.8%
Oberland	3	0.1%	16	0.4%
Ticino	62	1.2%	194	5.2%
Valais	8	0.2%	39	1.1%
Zurich	2,138	40.3%	1,575	42.5%
Total	5,310	100.0%	3,709	100.0%

Source : table drawn up by authors

Table 5 shows that 5,310 foreign firms are owned by Swiss firms, and 3,709 Swiss firms are owned by foreign ones. It can thus be noted that although our data does not permit us to identify indirect control relationships beyond Switzerland's borders, the RPSs taken together nevertheless show a clearly positive balance regarding foreign firms (+1,601)¹⁰.

The database states the nationality of the companies owned by Swiss firms, but not the foreign owners of Swiss firms. Table 6 shows the nations for whose firms the Swiss RPSs own majority shares. Germany, with 13.5% of the relations, is the country that attracts the most investment from Swiss companies. Switzerland's neighbouring countries (Germany, France, Austria and Liechtenstein) represent 1,566 cases of Swiss ownership (with the 41 from Liechtenstein), i.e. 29.5% of the sample.

Although geographical proximity may appear decisive when considering the importance of Germany, is it considerably less clear when examining the other countries that emerge. The USA (8.7%), Great Britain (8.4%), China (3.5%) or Japan (1.9%) prove that firms' interest in controlling companies clearly goes beyond the constraints linked to geographical distances.

⁹ Again respecting the principle of the final owner, if A_{Foreign} owns $B_{\text{Switzerland}}$ and $B_{\text{Switzerland}}$ owns $C_{\text{Switzerland}}$, it is the relations $A_{\text{Foreign}}-B_{\text{Switzerland}}$ and $A_{\text{Foreign}}-C_{\text{Switzerland}}$ that are taken into consideration.

¹⁰ However, the number of companies controlled indirectly could also be considerable. In the case of Switzerland, for example, some 2,482 firms are directly controlled from abroad, with 1,227 being controlled indirectly. Moreover, it should be recalled that via these companies, 1,299 foreign companies are indirectly controlled by foreign firms.

The fourth column of the table shows the RPS that is the most involved in each of these countries: Zurich is always ahead, as the results of Table 5 already rendered predictable.

TABLE 6 : FAVOURITE TARGET NATIONS FOR SWISS INTERESTS

Rank	Target nation	Subsidiaries	Most implicated RPS (No.)
1	Germany	715	Zurich (280)
2	United States	463	Zurich (215)
3	Great Britain	444	Zurich (210)
4	France	391	Zurich (117)
5	Italy	240	Zurich (84)
6	China	187	Zurich (73)
7	Holland	181	Zurich (80)
8	Austria	179	Zurich (70)
9	Spain	136	Zurich (48)
10	Luxembourg	105	Zurich (62)
11	Belgium	103	Zurich (38)
12	Japan	99	Zurich (41)
13	Singapore	95	Zurich (45)
14	Australia	90	Zurich (42)
15	Brazil	85	Zurich (26)
16	Sweden	82	Zurich (39)
17	Canada	71	Zurich (27)
18	Caiman Islands	63	Zurich (48)
19	Bermuda	58	Zurich (26)
20	Czech Republic	58	Zurich (30)
...
Total	140 nations	5,310	Zurich (2,138)

Source: Orell Füssli databases

As in the previous section, we propose an assessment of the various RPSs in terms of control, attractiveness and own control¹¹ but this time on an international level. From Table 7, we see that Zurich is largely ahead in terms of the non-weighted ownership index but also regarding that for attractiveness. Still in non-weighted terms, Basel and Eastern Switzerland have a high rate of ownership, and Geneva and Eastern Switzerland are high on the attractiveness scale.

As for the national comparison, the weighting reduces the dispersion regarding performances, although major differences remain: particularly in terms of ownership. Basel thus becomes the region with the highest level of control, closely followed by Zurich. Lausanne, Geneva and Eastern Switzerland are also above the average. Zurich and Geneva are clearly the most attractive regions for foreign investments. Ticino, to a lesser extent, is also considered to be an attractive destination. The attractiveness of Zurich and Geneva is somewhat offset, when weighted, by a fairly sharp decrease in their own control indices. With Ticino, Geneva becomes the region with the least own control. On the other hand, the low attractiveness of Bern permits the region to obtain the highest index for own control.

¹¹ For own control, the results presented here are global, i.e. national and international. Thus, the number of internal links was considered as compared with the total (internal, inter-regional and international) of owned companies in the territory.

TABLE 7 : INTERNATIONAL RPSs PERFORMANCE INDEXES

RPS	Own control	Control		Attractiveness	
	Not weighted	Not weighted	Weighted	Not weighted	Weighted
Jura	1.1	0.7	0.9	0.7	0.8
Basel	1.2	1.9	2.4	0.9	1.0
Bern	1.3	0.4	0.8	0.4	0.6
Geneva	0.7	0.8	1.2	1.5	2.1
Graubünden	1.0	0.1	0.2	0.2	0.6
Lausanne	0.9	1.1	1.7	0.7	1.0
Eastern CH	1.2	1.4	1.1	1.2	0.8
Oberland	1.1	0.0	0.1	0.0	0.4
Ticino	0.7	0.1	0.3	0.6	1.1
Valais	0.8	0.0	0.1	0.1	0.3
Zurich	1.0	4.4	2.3	4.7	2.1

Source : own elaboration

The own control figures in Table 7 have the advantage of providing us with clear information concerning the relatively low level of dispersion of the results, i.e. all are fairly close to the average. They do not, however, indicate the proportions in which the RPSs do in fact have own control. In fact, the integration of international relations clearly questions own control on the part of the RPSs. On a national level, only the Valais (46.2%) controlled less than half the subsidiaries on its territories. By integrating the subsidiaries of foreign companies within the calculation, most regions fall below this threshold: Ticino (30.5%), Geneva (31.7%), the Valais (36.9%) or even Lausanne (41.9%) control only a fairly small proportion of the subsidiaries located on their territory. Bern (58.7%), Basel (56.6%) and Eastern Switzerland (56.1%) become the regions that emerge as the leaders for this parameter.

4.3 SIGNIFICANCE OF THE RESULTS

4.3.1 *Comparison of regional, national and international levels*

The above sections analysed ownership structures on a national and international level. The present section is aimed at identifying an overall image of the phenomenon. It is a question of examining how the production systems, homogeneous from the point of view of their specialisation, organise their financial relations at different spatial levels.

Two initial findings should be stated. Firstly, and within the national relations, it is the intra-RPS relations that are most clearly represented (73.2%). On this level, proximity is of central importance. This, however, is placed in some doubt by the second, highly significant issue: the importance of the international relations. In our case, of the 16,157 relations analysed, 9,019 (55.8%) are international¹². This clearly confirms the image of Switzerland as a highly internationalised country.

¹² And, moreover, without taking into consideration the 1,299 controlling relations between foreign firms with Swiss firms as the intermediaries.

It could be added, on this subject, that 42.7% of the firms owned in the RPSs are international, 42.0% are internal and 15.4% are in the hands of another Swiss RPS. These proportions put the results obtained in the section on national relationships into clear perspective, since the indices regarding ownership structure obtained are based on far fewer relations than for the international section. From the point of view of owned companies in the RPSs, 48.2% of relations are internal, 34.2% are owned by foreign firms, and 17.6% are owned by firms in other RPSs. The comment that the international indices are calculated using a much higher number of relations should thus be reiterated.

By observing the weighted results (Tables 4 and 7) only, it can be noted that the dispersion of performances is extremely low for national attractiveness and for own control. The major differences appear at the international level and regarding national control. It is thus essentially in these criteria that a significant differentiation between RPSs can take place.

4.3.2 Linking the structure of ownerships and the specific characteristics of the RPSs

Is it possible to establish a link between the ownership structure of the various Swiss RPSs as it appears in Table 4 and 7 on the one hand, and between the economic profile of these different RPSs as it appears in several recent studies on the economy of the various regions of Switzerland on the other (Corpataux and Crevoisier 2004; Crevoisier et al., 2001; Roth and Crevoisier, 2004)

The *financial regions* of Zurich and Geneva occupy the leading positions within the hierarchy of ownership structures. They are by far the most attractive regarding foreign investments, and exert considerable control at every level. This confirms their role as a hub for international investments, and particularly in the area of finance (Roth and Crevoisier, 2004). On a national level, Zurich also functions as a central location for numerous services: the main import and distribution companies and the major banks and insurance companies serving the national market have their headquarters in Zurich. This is not the case for Geneva, which is practically an enclave within French territory and whose economy is above all oriented around international activities. The degree of own control of the two systems is relatively low, and particularly for Geneva.

The *Basel region* occupies an intermediate position. The headquarters of the largest pharmaceutical and chemical companies,¹³ it has a twin vocation: industrial and financial. Over the last twenty years, however, the pharmaceutical companies have expanded internationally to a considerable extent. The activities that remain in Basel are increasingly focused on the management of these large, global concerns and less and less on the industrial aspects. The presence of prestigious financial institutions such as the Bank for International Settlements, or the Swiss Bankers Association further reinforces this financial profile. All this is reflected in the control exerted by Basel at a national, but above all international, level. However, and unlike Zurich or Geneva, Basel does not really attract international investors. It does not have a hub function.

¹³ The giants Novartis and Roche are the concerns that inflate the indices for the region to the greatest extent.

The conurbation of Bern, the capital of Switzerland, is traditionally the central location for numerous activities linked to the post service, telecommunications, railways, and agricultural and agro-food activities. It is also the region with the highest degree of own control. This should be considered in comparison with its moderate attractiveness. *Lausanne* is considered to the central location within western Switzerland. These two regions thus have high own control indexes on a national level. Bern is extremely low on the international scale. If Lausanne has a much higher degree of international control, this is largely explained by the presence of the headquarters of Nestlé in the region – a company that is by no means representative of the general profile of the region.

The *industrial regions* of Eastern Switzerland and the Jura present extremely similar profiles. They vary little from the "average RPS" except for national control: a criterion for which both regions have fairly low performances (0.7 and 0.5 respectively). These regions are generally considered to be fairly internationalised, but when compared with the regions of Zurich, Basel or Geneva, this characteristic is considerable attenuated.

Finally, the *tourist regions* of Graubünden, the Bernese Oberland and the Valais are at the lower end of the hierarchy. These regions have a low level of own control and are not attractive to international investors. The Graubünden region is an exception, with a high level of national control that we are unable to explain. These regions nevertheless remain attractive for Swiss investors.

Finally, the *Ticino* region has a fairly heterogeneous profile. The traditional activities of tourism and of serving as the location for production subsidiaries for firms in Switzerland's German-speaking region have declined over the last twenty years. Over the same period, the financial centre of Lugano, highly oriented towards Italy and partly controlled from Zurich, was in the process of developing. The entire system is highly open to the exterior and marked by its border with Italy. All this explains the extremely low levels of own control and of control.

4.4 PLACING THE RESULTS IN PERSPECTIVE

All the analysis presented in this study is based on ownership structures among companies for which the *size* is unknown. In the database used, reliable information on the size and the number of employees is only available for a minority of companies. This forced us to work on the hypothesis of the entities being of a uniform size. Thus, a link between two SMEs was handled here in the same way as a link between two major companies. It is therefore clear that the interpretation of these statistics becomes delicate. On the other hand, the database offers one rare advantage: it states the names of all companies concerned. This enabled us to carry out research with a view to additional information. We were thus able to note that the larger groups, identified thanks to data on what they owned, correspond to the giants on the Swiss stock exchange, the Swiss Market Index. We can therefore conclude that the number of companies controlled is a reliable indicator of the importance of the groups, and at least for the larger among them.

Another aspect that limited this study was the spatial organisation of the individual company. In fact, this was only taken into account to a very limited extent since the analysis is based on

the location of the headquarters alone. The spatial impact of a control / dependency relation can thus be distorted by the dispersion of a *multi-establishment* company over several regional systems. Ideally, the impact should be broken down among the various establishments, but this has naturally not been the case because the database is related to the financial relations (share capital owned) and not legal ones (links between headquarters and their establishments).

Control and dependency among the companies has been defined in the study as a relation of equity capital ownership of more than 50%. Behind this purely statistical value, in reality, hides a completely different complexity. First of all, the financial control over a company does not always necessitate such a portion of equity capital. Much lower degrees of ownership can be decisive at shareholders general meetings. A comprehension of further dimensions is necessary for an even more delicate issue – that of evaluating the *degree of decision-taking autonomy* of a subsidiary. One could, for example, cite the criterion of the place of the entity concerned within the group's global strategy, including its level of specialisation, the intensity of its exchanges with other entities in the group, and the group's positioning in the technical division of labour (Dupuy and Gilly, 1995). On a meso-economic level, the only links clearly integrated within this study are those of a financial nature. The financial nature constitutes a necessary dimension but one that is not sufficient to judge the decision-taking power of a company and even more so of a region.

5 CONCLUSIONS

Does the spatial analysis of ownership structure between companies in Switzerland make it possible to reveal an overall vision of the economic fabric of the country? If so, does this vision correspond to any of the theories taken into consideration for this study?

On a regional scale first of all, it is striking to note that 48.2 of all subsidiaries owned in Switzerland are owned by a company located in the same RPS. If we add to this the considerable number of independent companies that are not taken into account in this study, it can be noted that proximity still plays a decisive role. The spatial entities initially taken into account for the analysis are systems that are characterised by economic *specialisations* compared with the rest of the country. In each region, an organisation's proximity is thus superposed on a joint specialisation and geographical proximity: the RPSs of Switzerland are largely coherent and independent.

The image of inter-regional relations is then superposed on this first image. Compared to the proportion of internal relations, the portion of inter-regional relations can appear negligible (17.6% of subsidiaries are controlled from another RPS). These relations are nevertheless important because inter-regional control is considerably hierarchised, leading to the emergence of controlling regions and controlled regions. There is thus always a spatial division of labour at the national level. At its peak are the central conurbations of the Swiss plateau (Bern, Zurich and to a lesser degree Basel and Lausanne), which play the role of a central location controlling the *national market*.

The type of relations that must doubtlessly be considered as being the most important is nevertheless that of those on an international level. It is their number (34.2% of subsidiaries in Switzerland are controlled from abroad, meaning twice as many than those controlled by another RPS) *and* their distribution that make them the most discriminating type of ownership participation. Firstly, their distribution varies considerably among the regions, which can be seen from comparing the national and international indices (Tables 4 and 7). Moreover, their number is greater. The international ownership indices are thus calculated on the basis of 5,310 relations, while on a national level the basis is 1,913 relations.

To understand these international relations, it appears that two explanations are necessary: one based on the logic of control by the major companies, and another on the logic of the financial centres.

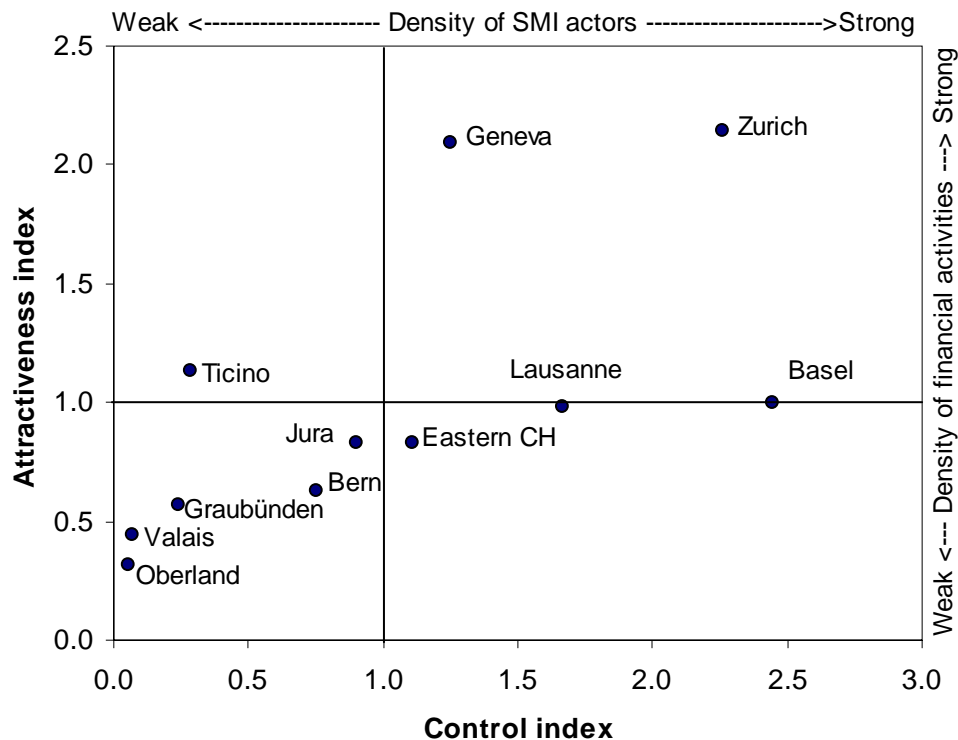
The logic of the control by major companies places the regions of Basel and Lausanne in a controlling situation, but not on a level of attractiveness regarding international investments. In fact, the location of the three largest Swiss multi-nationals Novartis, Roche (in Basel) and Nestlé (in the Lausanne regions) largely explains the positions of the regions in which these companies have their headquarters.

The logic of the financial centre is based on a system, a milieu considered to be propitious by foreign investors. In line with the Global City described by Sassen, the financial regions of Zurich, Geneva and to a lesser extent Ticino attract international investments on a massive scale, because foreign investors see these areas as offering the best opportunities.

Zurich is the best example of where these two types of logic combine, since a large proportion of its local financial fabric consists of giants in the highly internationalised banking and insurance sector, such as UBS AG, Credit Suisse, Swiss Reinsurance, Swiss Life Holding, and to which the industrial giant ABB Ltd. can also be added. These groups partly explain the control index for Zurich, but the mass of smaller owners remains the most important.

Graph 1 shows the relation between the control and the attractiveness of Switzerland's regions. Attractiveness appears to depend on the density of the financial activities, whereas control is partly explained by the presence of the giants on the Swiss Market Index. The superiority of Zurich is somewhat striking. The weighted indices were nevertheless used in order to create the graph. Without this weighting, the Zurich system's performance would appear four times higher than the average.

GRAPHIC 1: WEIGHTED INTERNATIONAL CONTROL AND ATTRACTIVITY INDICES OF RPSSs



Source: graph drawn up by authors

The geographical proximity factor completely fails to hold true on an international level. The main player, Zurich, is equally capable of investing in its European neighbours as it is capable of doing in more remote countries such as the USA, Great Britain or even China. The Zurich system clearly shows its capacity for handling this type of difficulty, in the same way as the global cities behave. Its specialisation in the financial sector is doubtlessly decisive here.

This being the case, what can we deduce regarding the variances regarding autonomy in the various regions of Switzerland? While internal relations stress the independence of the regions, the importance of the international relations demonstrates that autonomy does not consist of an autarchic approach, but resides in a region's capacity for managing its internal and external relations in parallel. In this light, the Zurich region is without doubt the most autonomous, in the sense that it manages to handle both national and international controlling relations and attractiveness while maintaining an average level of own control. Basel is high within the controlling hierarchy at all levels – regional, national and international – but not particularly attractive. Geneva is international but has a low level of own control and is not well integrated within the national economy. Bern and Lausanne are at the top of the hierarchy regarding control of the national economy, and present a different profile on an international level. The industrial regions achieve average performances, but control few other entities within the country. Their autonomy thus above all appears to be linked to their integration within an international-scale sector. Their case, in fact, appears to correspond fairly well to the theories regarding the RPSs: these regions exert their own control while managing their relations with the exterior, yet without being integrated within a spatial hierarchy. Finally, the tourist regions are revealed as being the least autonomous, fairly attractive on a national level, but very low within the hierarchy in the other areas.

The overall picture that emerges is thus far richer than suggested when applying each theory in an isolated manner.

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