

Board and Executive Compensation in the Swiss Banking Industry

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The Case of Cantonal Banks

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Abstract

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JEL Code: G30; J33; G2

Key Words: Board compensation; Executive Compensation; Banking industry

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1 Introduction

Managerial pay has attracted a lot of attention during the last few years. The strong interest in compensation issues is reflected in the academic literature as well as in the popular business press.^{1,2} Previous research has mainly concentrated on compensation practices in industrial firms, and most of the studies use data from the United States. Recently, the implementation of corporate governance regulations including stock exchange listing requirements have led to a greater transparency of compensation practices in public companies outside the US also, and this holds for Switzerland as well.

Our paper is a further contribution to literature on compensation in the banking industry outside the US. In particular, we study the compensation practices of board member and executives of Swiss cantonal banks. The study has two purposes: First, it gives a recent overview of board and executive compensation practices in Swiss cantonal banks. Second, our analysis attempts to investigate the main determinants of compensation structures within the banks of our sample. In particular, it does not only take into account firm-specific characteristics that are commonly related to compensation issues, but it also integrates a canton-specific factor that is likely to affect the remuneration structure of the banks considered.

By the end of 2004, 338 banks were registered in Switzerland.³ Based on criteria related to the banks' strategic position, their geographic market and legal form, the Swiss National Bank (SNB) classifies the banking institutes in the categories *Cantonal Banks*, *Big Banks*, *Regional Banks*, *Raiffeisen Banks*, *Private Banks*, and *Other Banks*.⁴ In what follows, we restrict our attention to the cantonal banks. Our choice is motivated by the following facts. First, there is very little empirical evidence on the behavior of cantonal banks in Switzerland,⁵ and given that cantonal banks represent the second largest bank category, there is an apparent need for further research in this area. Second, the cantons are major (and in most of the cases the only) shareholders of the cantonal banks. Therefore, the cantonal banks belong indirectly to the citizens of the respective cantons. Such an ownership structure calls for a high transparency of the banking activities, and this includes the compensation practices of the banks' board and executive management. Third, our sample is limited by the availability of data. Banks of the

¹ See, e.g., Murphy (1999) or Core, Guay, and Larcker (2003) for reviews of the literature.

² See, e.g., the issue no. 40/2005 of the *HandelsZeitung*, or the December 2005 issue No. 21/05 of the Swiss business magazine *BILANZ*.

³ Bank statistics of the Swiss National Bank (SNB). www.snb.ch.

⁴ More details about the different bank groups can be found in the appendix.

⁵ See Pedernana and Piazza (2004) for an analysis of the 24 Swiss cantonal banks over the years from 1997-2003.

different categories cannot be easily compared with each other. A big bank, for instance, differs from a regional bank not only with respect to its business activities and its earnings structure, but also with respect to the tasks, responsibilities and compensation schemes of the decision makers. Unfortunately, banking institutes that are comparable to cantonal banks and could be included in our analysis (e.g. the Raiffeisen Banks or the Regional banks) have chosen not to publish their board and executive compensation figures so far and therefore, cannot be included in our analysis.

Our sample includes 22 (out of 24) cantonal banks, and we have data over the years from 2002 to 2004. We use a multivariate regression framework and attempt to explain board and executive compensation by commonly used firm-specific variables such as performance of the bank, size, risk exposure, legal form, size of board and executive committee. In addition, we include a measure for the financial power of the canton. In a second step, we explore to what extent pay is linked to change in performance. In particular, we estimate the effect of the change in bank performance from one year to another on the level of board and executive compensation.

The main results of our analysis are as follows: A better bank performance does not seem to be reflected in a higher board compensation, but larger banks pay more to their board members compared to smaller cantonal banks. Board size has a negative impact on the compensation of the individual board members, and the same holds for the financial power of the cantons. As to executive compensation, bank size and the financial power of the canton as main executive pay determinants have both a strong positive effect on the compensation level of executives in cantonal banks, on average. Finally, our results provide some evidence that, in contrast to the bank executives, board members could benefit from the positive change in bank performance that occurred over the last two years.

The added values of our work are as follows. It is the first paper that investigates board and executive compensation practices in Swiss cantonal banks. While there are a few studies that investigate compensation issues of listed Swiss companies in different industries,⁶ our study uniquely focuses on the banking industry. Second, our study does not only take into account firm-specific characteristics that are commonly related to compensation issues, but it also includes a canton-specific factor that is likely to affect

⁶ Beiner et. al. (2005), for example, investigate the relationship between product market competition, incentive schemes and firm valuation for 156 Swiss companies listed at the Swiss stock exchange SWX. They find that more intensive product market competition is associated with stronger incentive schemes for managers and a lower firm value.

the remuneration structure in the banks under consideration. Third, while most of the existing papers focus on executive compensation only, our study attempts to investigate both board and executive compensation practices. Finally, our paper reveals some recent and interesting information about compensation practices in the Swiss banking industry. Given that banking is a highly discrete business and Swiss people usually do not like to talk about their salaries, our paper is a step in a mainly unexplored but potentially insightful direction.

The paper is structured as follows. Section 2 describes the pay determinants included in our analysis. The data description is in section 3. The main results of our empirical analysis can be found in section 4, and section 5 concludes. Some supplementary information are relegated to the appendix.

2 Pay determinants in the banking industry

This section describes the main determinants of board and executive pay included in our analysis.

Performance:

The principal-agent theory suggests that managerial pay should be related to managerial actions in order to align the insurance motive of the manager with the wealth-maximizing incentive of the shareholders (Jensen, 1986). Therefore, market movements which are outside the control of the managers or board members should be excluded from the performance measure. Even though relative performance evaluation may have a significant impact on compensation, we assume that market movements affect the banks in the sample in a similar way. Therefore, our performance measures are based on individual bank returns. Usually, firm performance is measured by the (change in) shareholder value (e.g. Cuñat and Guadalupe, 2005). Given that not all the banks in our sample are listed at the stock exchange, we use the return on the regulatory required equity before taxes as main bank performance indicator. This measure corrects the *ROE* for the fact that a bank may hold more reserves than what is required by the regulator. As an alternative measure, we use the return on equity before taxes in our robustness tests.

Size of the firm:

Several empirical studies provide evidence for a positive relationship between firm size and compensation.⁷ According to Rosen (1982, 1990), the actions of a CEO multiply over the scale of his operations, which allows him to accrue rents in a competitive equilibrium. In a competitive labor market, more talented senior executives are allocated to larger firms since the marginal

⁷ See, e.g., Ciscell and Carroll (1980) for a survey.

productivity of their actions is magnified across the lower levels of the hierarchy. In our analysis, we use the natural logarithm of lended funds as a proxy for firm size.⁸

Risk:

Several empirical studies have found that bank risk is an important determinant of management compensation (e.g. Evans et al, 1997; Knopf and Teall, 1996; Saunders et al. 1990). The higher a firm's risk exposure, c.p., the higher is the risk of firm failure, and board and executives need to be compensated accordingly.

The special case about the banking industry is that higher risks are already taken into account by the capital requirements imposed by regulation authority.⁹ The more risks a bank is taking, the more equity does it need to secure its risky balance sheet positions. Therefore, we measure bank risk by the equity coverage ratio, which is the ratio of the effective equity holdings over the required equity holdings as imposed by the regulator. A higher equity coverage ratio stands for a higher degree of security and, therefore, a lower risk.¹⁰ Note that standard risk measures such as nonperforming loans are not available for most banks in our sample.

Number of board members and executives:

If decisions are taken by a larger decision unit, the implied responsibilities and risks are shared among a larger number of persons. Even though most of the compensation studies neglect the impact of board and executive committee size, these factors are an integral part of the usual corporate governance guidelines and compensation committee charters of international companies. We include the size of the board and the size of the executive committee as explanatory variables in our analysis. We expect the size of the board and the executive committee, respectively, to have a negative impact on the corresponding compensation level.

Financial power of the canton:

The financial situation of the canton is likely to have an impact on board and executive compensation practices in cantonal banks. The cantons are the major, and in most of the cases the only shareholders of the cantonal banks. Given this ownership structure, the cantons or their responsible government agency have some control over the decisions taken within the banking institutes. It is likely that a canton's financial situation, among other factors, plays a certain role, and we expect a positive impact of a canton's financial power on the level of board and executive compensation in cantonal banks. We measure the financial situation of the cantons by the index of financial power. This

⁸ The logarithmic specification has the advantage of being less sensitive to outliers (Cuñat and Guadalupe 2004).

⁹ In Switzerland, the bank regulation authority is the Swiss Banking Federal Banking Commission (Eidgenössische Bankenkommission).

¹⁰ See Verordnung über die Banken und Sparkassen (Bankenverordnung, BankV), June 2004, Art. 12 ff.

index is used to determine the flows of money between the Swiss cantons, and it is based on the revenue of the canton, the relative tax burden as well as the share of the canton that is mountain area.

3 Data and sample

3.1 Definition of variables

In this section we provide a description of the variables used in our empirical analysis. Our compensation data refer to the board as well as to the executive committee.¹¹ Information on executive compensation include the total board compensation, the compensation of the best paid board member (who is usually the president of the board), as well as the compensation of each board member. The latter is computed by dividing total board compensation by the number of board members. For the executives, we have total executive compensation and the compensation by executive, which is again total executive compensation divided by the number of executives. Note that the average board and executive compensation figures are approximations of the amounts that are effectively paid to the individual persons. Usually, the members of board and executive committee do not all receive the same amount, given that they have different tasks and responsibilities, which also require varying time commitments.

The data on bank characteristics include the return on required equity as a measure for bank performance. As noted earlier, we use the return on equity before taxes as an alternative performance measure in the robustness tests of our results. Furthermore, the bank-specific data refer to bank size, bank risk, and the information whether the bank is listed at the stock exchange and the size of the board and the executive committee. Finally, we use the index of financial power as a proxy for the financial situation of the cantons. The definitions of the variables are given in Table 1.

¹¹ The executive committee is translated by Geschäftsleitung.

Table 1: Definition of variables

<i>totcomp_board</i>	Total compensation of all board member
<i>comp_board</i>	Average compensation of a board member, defined as total board compensation as reported in the annual report divided by the number of board members
<i>maxcomp_board</i>	Compensation of the highest paid board member (usually the president of the board)
<i>totcomp_exec</i>	Total compensation of all executives (Mitglieder der Geschäftsleitung)
<i>comp_exec</i>	Average compensation of an executive, defined as total executive compensation as reported in the annual report divided by the number executives
<i>nb_board</i>	Number of board members
<i>nb_exec</i>	Number of executives
<i>roe_pretax</i>	Return on equity before taxes in %, defined as ratio of profits before transfers to reserves for general banking risk and before taxes over the book value of equity
<i>rore</i>	Return on required equity in %, defined as <i>roe_pretax</i> multiplied by the equity coverage ratio
<i>size</i>	Firm size, measured by the natural logarithm of lent funds (Kundenausleihen)
<i>equitycov</i>	Equity coverage ratio in %, defined as ratio of the effective equity over required equity as imposed by the bank regulations ¹²
<i>dpub</i>	Dummy variable that take the value of one if the bank is a public company and listed at the stock exchange
<i>finpower</i>	Index of financial power of the cantons (average of all cantons = 100)

3.2 Sample description

As a starting point, we target all the 24 cantonal banks in Switzerland.¹³ Cantonal banks are defined as banks with a statutory basis under cantonal law, with the canton holding a minimum of one third of the bank's capital and the voting rights. Note that the state guarantee, which was a key attribute of cantonal banks in the past, no longer constitutes an essential characteristic. Cantonal banks may be established either as public institutions or as public limited companies.¹⁴

Eleven out of the 24 cantonal banks are listed at the Swiss stock exchange SWX and, therefore, are forced to publish information on total board compensation, on the highest individual board

¹² In German this ratio is called *Eigenmitteldeckungsgrad*.

¹³ This number has declined over the years. Apart from the mergers of the two respective cantonal banks in the cantons of Berne (1990), Geneva (1994) and Vaud (1996), the Solothurner Bank, a subsidiary of the former Swiss Bank Corporation, acquired the majority of shares of the former Solothurner Kantonalbank in 1994. Furthermore, the Union Bank of Switzerland (today's UBS AG) took over the Appenzell-Ausserrhodische Kantonalbank in early 1996.

¹⁴ Eighteen out of the 24 cantonal banks are public legal entities in their own right. Five cantonal banks are mixed stock companies, namely Banque Cantonale Vaudoise, Zuger Kantonalbank, Banque Cantonale du Jura, Banque Cantonale du Valais and Banque Cantonale de Genève. The Cantonal Bank of Berne became a private stock company in 1998. See also *The Swiss Banking Sector, Compendium Edition 2004*, Swiss Bankers Association.

compensation as well as on total executive compensation. The other banks in our sample reveal their compensation information on a voluntary basis.

Board compensation data are available for 22 banks out of 24 cantonal banks. The Tessiner Kantonbank and the Fribourger Kantonbank are not part of our sample. Given that these banks are not listed at the stock exchange, they are not required to publish their compensation data. Complete executive compensation information are available for 16 banking institutions only. Therefore, some banks publish information about board compensation, but do not reveal the executive compensation figures. The missing banks are all smaller institutions which are not listed at the stock exchange.¹⁵ Our data cover the years from 2002 to 2004, but not all compensation figures are available for all the banks over the entire time period. Therefore, our panel is unbalanced. Table 2 reports the structure of the compensation data included in our sample.

Table 2: Number of observations by variable and year

Variable	Number of observations			
	2002	2003	2004	Total
Total board compensation	15	22	22	59
Compensation by board members	15	22	22	59
Compensation of highest paid board member	14	20	22	56
Compensation by board members without highest paid board member	13	20	22	55
Total executive compensation	13	16	16	45
Compensation by executive	13	16	16	45

This table shows the number of observations in total and by compensation variable for each year. The data sources are the annual reports of the banks.

All the bank-specific data, if not noted otherwise, are taken from the annual reports of the banks. The information on the financial power of the canton is published by the Federal Department of Finance. Note that the latter variable is available for every second year only.¹⁶

3.3 Descriptive statistics

Table 3 shows descriptive statistics of all the variables used in our analysis. On average, the banks in our sample spend 659'000 CHF on board compensation per year. Each board member receives 69'600 CHF on average, but as our figures reveal, the differences between banking institutions are quite large. This is also reflected by the maximum board compensation, which is the individual compensation of the best paid member of the board. On average, a board has 10

¹⁵ In addition to cantonal banks of Fribourg and Tessin, the missing institutions are the cantonal banks of the cantons of Appenzell Innerrhoden, Glarus, Nidwalden, Obwalden, Schaffhausen, and Uri.

¹⁶ The values for the year 2002 in our sample correspond to the index for the period 2002/03, and the values for 2004 correspond to the index for the period 2004/05. In order to obtain values for 2003, we build the average of the index from 2002 and 2004.

members, and there are 6 executives in the cantonal banks of our sample. The latter figure ranges from five to 15.

Furthermore, the return on equity before taxes *ROE* amounts to 8.26%, and the return on required equity before taxes *RORE*, which corrects the *ROE* for the fact that a bank may hold more reserves than what is required by the regulator, is 15.10% on average. The equity coverage ratio, which is our risk measure, is 166% on average. This means that the cantonal banks in our sample hold 1.6 times more equity than would be required by bank regulations, on average. Also, 11 out of 15 cantonal banks under consideration are listed at the stock exchange. Overall, the descriptive statistics reveal a rather large variation between the banking institutes with respect to the characteristics considered, even though the banks in our sample all belong to the category cantonal banks. Finally, our canton-specific measure of financial power indicates that the cantons in our sample are slightly less affluent than the average Swiss canton, given that the latter is normalized to 100.

Table 3: Descriptive statistics

Variable	Mean (Std. Dev.)	Median	Min.	Max	N
Total board compensation (<i>totcomp_board</i>)	658.59 (454.82)	560.55	88.39	2'063.23	59
Board compensation (<i>comp_board</i>)	69.60 (52.33)	59.59	9.82	294.75	59
Maximum board compensation (<i>maxcomp_board</i>)	204.70 (185.65)	170	24.24	1'281.20	55
Total executive compensation (<i>totcomp_exec</i>)	2'958.90 (1'454.)	2'638.12	1'206.95	7'716.40	45
Executive compensation (<i>comp_exec</i>)	517.90 (195.22)	534.96	169.19	1'103.22	45
Number of board members (<i>nb_board</i>)	9.58 (2.39)	9	7	15	59
Number of executives (<i>nb_exec</i>)	5.71 (2.54)	5	3	15	59
Return on required equity (<i>rore</i>)	15.10 (11.05)	16.21	-55.27	29.66	59
Change in <i>rore</i> from (<i>t-1</i>) to <i>t</i> ($\Delta rore$)	4.78 (10.51)	2.18	-3.16	69.82	45
Return on equity before taxes (<i>roe_pretax</i>)	8.26 (11.18)	10.04	-72.72	16.03	59
Change in <i>roe</i> from (<i>t-1</i>) to <i>t</i> (Δroe)	2.10 (11.47)	0.77	-28.02	82.05	59
Size of the firm (<i>size</i>)	15.80 (0.94)	16.22	14.21	17.79	59
Equity coverage ratio (<i>equitycov</i>)	165.69 (29.62)	166	76	244.1	59
Dummy variable public company (<i>dpub</i>)	0.55				59
Index of cantonal financial power (<i>finpower</i>)	94.16 (48.82)	80	30	227	59

This table reports descriptive statistics of variables used in the regression analyses: *totcomp_board* is the total amount of compensation paid to all board members; *comp_board* is the total amount of compensation paid to all board members divided by the number of board members; *totcomp_exec* is the total amount of compensation paid to all executives; *comp_exec* is the total amount of compensation paid to all executives divided by the number of executives; *nb_board* is the number of board members; *nb_exec* is the number of executives; *rore* is the return on required equity, defined as return on equity before taxes multiplied by equity coverage ratio; $\Delta rore$ is change from year (*t-1*) to *t* of the return on required equity; *roe_pretax* is the return on equity before taxes, defined as ratio of profits before transfers to reserves for general banking risk and before taxes over the book value of equity; Δroe_pretax is change from year (*t-1*) to *t* of the return on equity; *size* is the natural logarithm of lended funds, *equitycov* is the equity coverage ratio defined as current equity holdings relative to the required equity holdings; *dpub* is a dummy variable and equal to one if the bank is listed at the stock exchange and zero else; *finpower* is an index for the financial power of the canton (average over all cantons=100). The *N* refers to the total number of observations over all the years. The data are expressed in 1'000 CHF of 2004. The data sources are the annual reports of the banks and the website of the Federal Department of Finance. The time period covers the years from 2002 to 2004.

3.3.1 Total board compensation

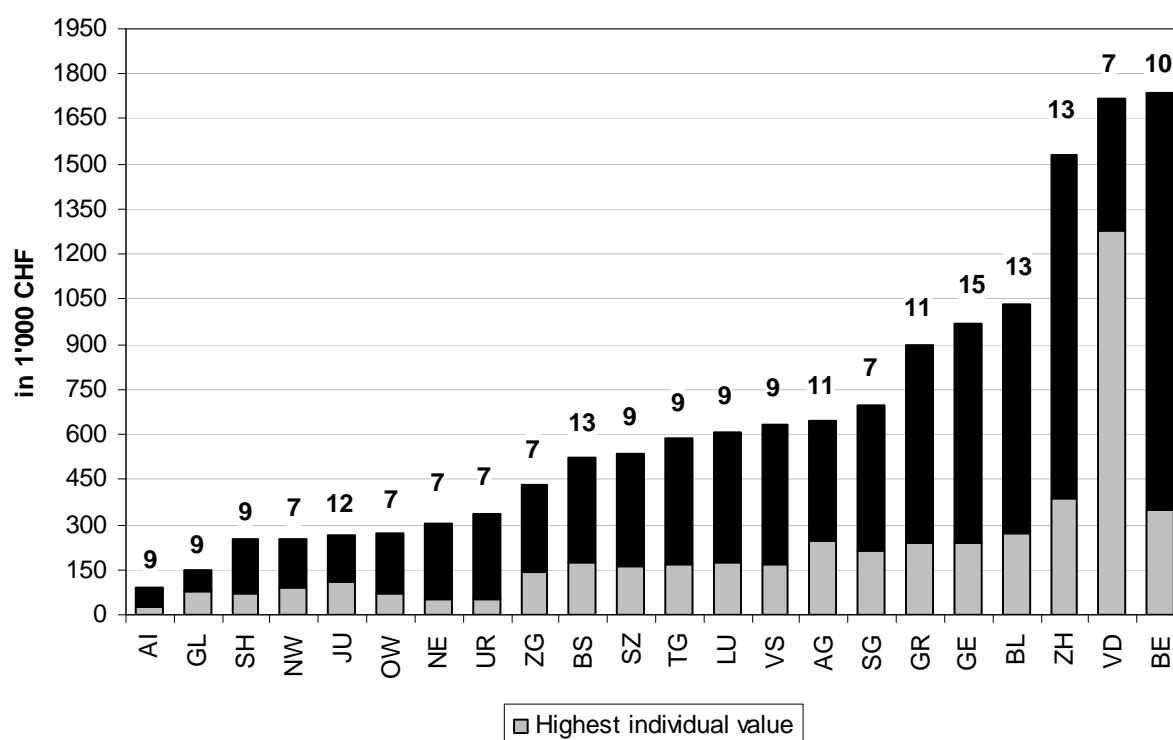
In order to get an idea about the board compensation figures of the individual banks, Figure 1 shows for each bank in our sample the total compensation paid to the board members in 2004. In addition, we also report the highest amount paid to an individual board member, who is usually

the president of the board. This information is captured by the grey area in each column. Finally, the number of board members is indicated as well. The cantons are ranked according to their level of total board compensation. Note that the Tessiner Kantonalbank and the Freiburger Kantonalbank are not part of our sample. Given that these banks are not listed at the stock exchange, they are not required to publish their compensation data.

As we can see from Figure 1, the Berner Kantonalbank BEKB has the most expensive board, which receives a total compensation of 1.74 Mio CHF in 2004.¹⁷ The BEKB is closely followed by the cantonal bank of the canton of Vaud BCV, which spends 1.72 Mio. CHF on its board. The third bank with a relatively high total board compensation is the Zürcher Kantonalbank ZKB with 1.53 Mio. CHF. At the same time, the ZKB has 13 board members, while there are only seven and ten persons in the board of the BCV and the BEKB, respectively. Even though total board compensation and board size are positively correlated with each other on average, the board of the bank with the highest and the lowest board compensation are very similar in size.

Looking at the highest compensations paid to individual board members, we observe that the highest amount of 1.28 Mio. CHF is paid to the president of the BCV. The cantonal bank of Appenzell Innerrhoden is at the other end of the ranking, with a maximal individual board compensation of 27'000 CHF only. Finally, there is also a large variation of the share of the highest compensation relative to total board compensation in our sample. On average, the highest individual compensation corresponds to one third of total compensation for the banks in our sample. While the BCV pays 74.5% of total board compensation to its best paid board member, this ratio amounts to 15 % for the Urner Kantonalbank.

¹⁷ Recently, the Berner Kantonalbank BEKB introduced an elaborated incentive system with a bonus-malus system that is unique in the Swiss Banking industry. Based on profit targets that are ranging over several years, the compensation values are determined at the end of each year. Depending on whether the targets have been met or not, the fixed part of the compensation is reduced by up to 50% in case of an underperformance and it is increased by up to 100% in case of an overperformance. The BEKB reports a very good performance for the year 2004, which is reflected in the board compensation figures of 2004.

Figure 1: Total and highest individual board compensation in 2004

This figure shows total board compensation, the highest individual compensation as well as the number of board members in 2004. The values are expressed in 1'000 CHF of 2004. The data sources are the annual reports of the banks.

3.3.2 Total executive compensation

Figure 2 reports total executive compensation of 16 cantonal banks for the year 2004. as noted earlier, this information is not available for eight cantonal banks. The missing banks are all smaller institutions which are not listed at the stock exchange and therefore, do not have to publish their compensation figures. In addition, we indicate the number of executives of each bank.¹⁸

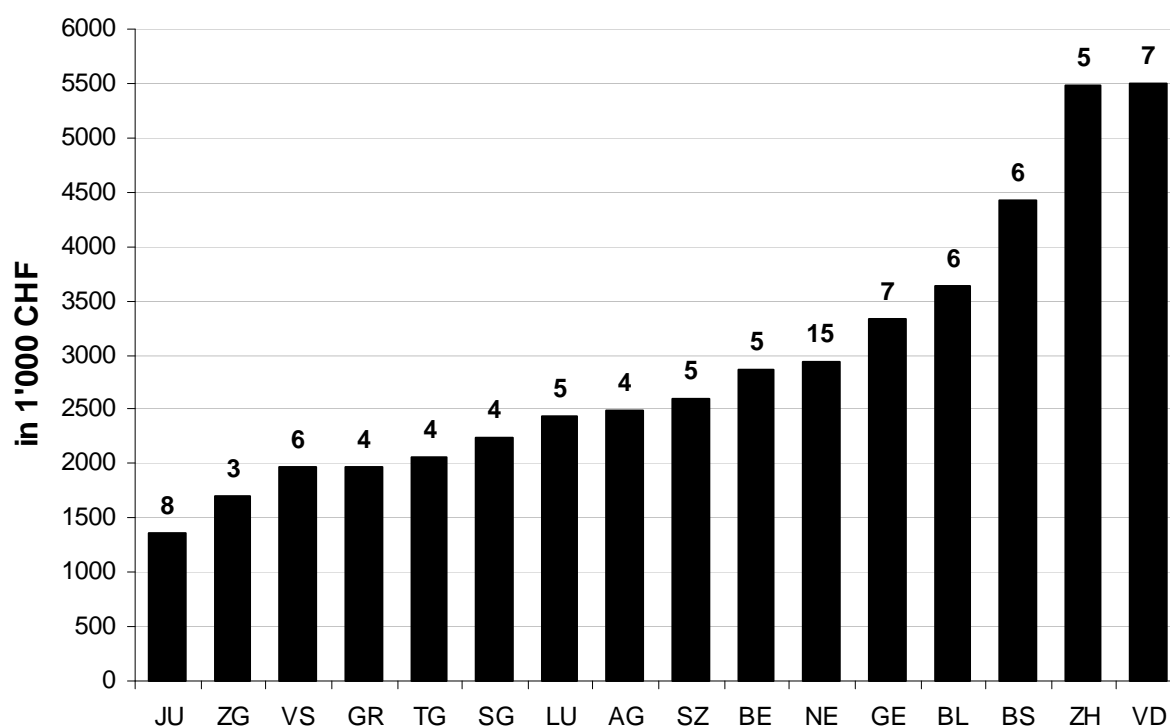
The cantonal banks of the relatively larger and also more urban cantons pay the highest amounts to their executives. On average, larger cantons also have larger cantonal banks, and the best paid executives are, therefore, working for the larger banks on average. As we will see later on, bank size as well as other characteristics play an important role for the absolute level of compensation. It is clear that larger banks are also more complex institutions to manage, and generally require more elaborated management skills. Furthermore, executives working in urban centers such as Zurich or Basel face a larger set of professional outside options compared to a

¹⁸ In contrast to the board compensation figures, there is no rule that forces the banks to reveal the highest individual executive compensation value. As a consequence, most cantonal banks do not publish this information. In fact, the Züricher Kantonalbank ZKB has published this information already since 2003 (1.33 Mio. CHF in 2004), and it is for the first time available for the Berner Kantonalbank BEKB also (938'000 CHF in 2004).

bank executive in the canton of Jura, for instance, and it is likely that this is reflected in our data as well.

The number of executives ranges from three for the canton of Zug to a maximum value of 15 for the canton of Neuchatel. The average number of executives is 6 persons, and this figure does not seem to be statistically correlated with the number of board members.

Figure 2: Total executive compensation in 2004



This figure shows total executive compensation as well as the number of executives in 2004. The values are expressed in 1'000 CHF of 2004. The data sources are the annual reports of the banks.

Up to this point, we have not yet taken into account size and performance of the individual banking institutions as well as other characteristics that may be important for board and executive compensation. We will address this issue in the following section.

4 Empirical analysis

In this section, we investigate the effects of the pay determinants as discussed in section 2 on compensation of board members and executives within a multivariate regression framework. We use simple OLS regressions, where we correct for heteroscedasticity and include a constant as well as time dummies. In a first step, we investigate the effects of the pay determinants as described in 2 on the level of compensation. In a second step, we estimate pay-for-performance sensitivities to see whether a change in performance has an impact on the compensation level. We report the results for board compensation and executive compensation in separate subsections.

In order to test the robustness of our results, we carry out a set of sensitivity analyses with respect to the estimation method and the included variables. The robustness tests are described in section 4.3.

4.1 The level of compensation

Our main interest is to understand which factors determine the level of compensation of board members and executives in Swiss cantonal banks. We use the following three compensation measures: (1) the compensation of board members *comp_board*, which is defined as total board compensation divided by the number of board members, (2) the highest individual board compensation *maxcomp_board*, (3) the compensation of executives, which is computed by dividing total executive compensation by the number of executives.

According to the existing literature and our earlier explanations in section 2, we include the return on required equity *rore* as a performance measure, *size* a measure for bank size approximated by the natural logarithm of lended funds, the equity coverage ratio *equitycov* as proxy for bank risk and finally the dummy variable *dpub* as explanatory variables in our analysis. The latter variable takes the value of one if the bank is a public company and therefore listed at the stock exchange, and zero else. In a second specification, we include the number of board members and executives, respectively, as an additional explanatory variable. Finally, our third specification takes account of the financial power of the cantons. For this purpose, we use the index of financial power *finpower* as a supplementary right hand side variable. The regression equations are summarized by expressions (1) to (3).

$$comp_j_{it} = \beta_0 + \beta_1 ror_{it} + \beta_2 size_{it} + \beta_3 equity\ cov_{it} + \beta_4 dpub_i + u_{it} \quad (1)$$

$$comp_j_{it} = \beta_0 + \beta_1 ror_{it} + \beta_2 size_{it} + \beta_3 equity\ cov_{it} + \beta_4 dpub_i + \beta_5 nb_{it} + u_{it} \quad (2)$$

$$comp_j_{it} = \beta_0 + \beta_1 ror_{it} + \beta_2 size_{it} + \beta_3 equity\ cov_{it} + \beta_4 dpub_i + \beta_5 nb_{it} + \beta_7 finpower_{jt} + u_{it} \quad (3)$$

$$i = 1, \dots, 22 \quad t = 1, \dots, 3 \quad j = board; exec \quad u_{it} \sim N(0, \sigma^2)$$

4.1.1 Board compensation

Table 4 reports the results from regressing board compensation as well as maximum board compensation on the set of explanatory variables that are expected to affect the absolute level of compensation. The second column contains the estimation results of model (1), which includes the performance measure, bank size, risk and the dummy for public companies. Interestingly, bank performance as measured by the return on required equity is negatively correlated with the compensation level of the board members, and this result is significant at the 1% level. Larger banks pay more to their board members, on average, and the same holds for public companies. Surprisingly, the positive and significant coefficient of the equity coverage ratio implies that risk has a negative impact on board compensation. This finding stands in contrast to the theoretical literature, which predicts a positive relationship between risk and pay. Our second specification includes the board size as an additional explanatory variable. Given the results in the third column of Table 4, we conclude that the larger the board is, the lower is the individual board compensation. This finding may reflect that fact that a larger board implies less responsibility for the individual board member, which stands in line with our expectations. Finally, we include the effect of the financial power in our estimation results. Interestingly, banks in more financially powerful cantons reward the board members less compared to weaker cantons. On the one hand, this result is surprising because we would expect richer cantons to pay more the board of their cantonal banks. On the other hand, serving on the board of a cantonal bank is a part-time occupation. This activity may imply additional benefits including reputation effects for the board members, and these effects are likely to be more important in financially stronger cantons.

In addition to the average individual board compensation, we estimate the model with the highest individual board compensation as explained variable. The results are given in three most rightwards columns of Table 4. Bank performance does not seem to have any impact on the compensation of the best paid board member, and the same holds for bank risk. The positive effect of size, in contrast, is even stronger than for the average board compensation. The fact that the bank is listed at the stock exchange has only a weak positive impact on the maximum board

compensation, and this effect is not even significant in our third specification. Finally, the financial power of the canton has a negative impact. Even though we can still explain about 40% of the variation in the dependent variable, the fit of the model is not as good as for our first regression results for board compensation. This can be related to the fact that other variables not included in our empirical model may be important determinants of the maximum board compensation.

Table 4: The compensation of board members

$comp_{it}$	Board compensation			Maximum board compensation		
	(1)	(2)	(3)	(1)	(2)	(3)
$rore_{it}$	-1.53** (0.36)	-1.18** (0.30)	-1.15** (0.28)	0.62 (1.18)	1.17 (1.72)	1.29 (1.75)
$size_{it}$	40.99** (7.02)	44.29** (7.24)	48.70** (7.75)	123.16** (30.48)	128.94** (36.16)	138.46** (37.92)
$equitycov_{it}$	0.56** (0.20)	0.42** (0.15)	0.43** (0.15)	1.18 (0.85)	0.93 (0.71)	0.91 (0.74)
$dpub_i$	19.75* (6.94)	26.62** (9.57)	24.91** (8.82)	53.67(*) (28.88)	63.14(*) (39.83)	60.41 (38.60)
nb_board_{it}	-	-7.68** (2.85)	-6.98* (2.68)	-	-1159 (14.45)	-9.85 (14.16)
$finpower_{jt}$	-	-	-0.22** (0.07)	-	-	-0.56* (0.26)
F	23.47**	28.06**	25.58**	14.76**	12.61**	10.42**
R^2	0.51	0.62	0.65	0.39	0.41	0.43
N	59	59	59	55	55	55

This table reports estimates from OLS regressions of the board compensation $comp_board$ and the maximum board compensation $maxcomp_board$ on the following pay determinants: $rore$ is the return on required equity, defined as return on equity before taxes multiplied by equity coverage ratio; $size$ is the natural logarithm of lended funds; $equitycov$ is the equity coverage ratio defined as current equity holdings relative to the required equity holdings; $dpub$ is a dummy variable and equal to one if the bank is listed at the stock exchange and zero else; nb_board is the number of board members; $finpower$ is an index for the financial power of the canton (average over all cantons=100). The time period covers the years from 2002 to 2004. The data are expressed in 1'000 CHF of 2004. The data sources are the annual reports of the banks and the website of the Federal Department of Finance. The N refers to the total number of observations over all the years. An F -test is performed for the simultaneous significance of all coefficients. Standard errors in brackets are corrected for heteroscedasticity. Time dummies and constant included. **, *, and (*) denotes statistical significance at the 10%, 5%, and 1% level.

4.1.2 Executive compensation

Table 5 reports the results from regressing the executive compensation variable *comp_exec*, which is defined as total executive compensation divided by the number of executives, on the set of the explanatory variables under consideration. The estimation results of the first specification, as given in column (1), indicate a weak positive impact of bank performance as measured by the return on required equity on executive pay. Firm size is the only variable that has a strongly significant impact on the pay level, and similar to board compensation, larger banks pay more to their executive members.

The second specification includes the number of executives in the regression equation, and in analogy to board compensation, this variable has a significantly negative effect on board compensation. Again, this finding matches our expectations. While the coefficient of firm size is still highly significant, firm performance loses its explanatory power in this model specification. Finally, our last specification takes into account the financial power of the cantons. The more powerful a canton is, the more does an executive of a cantonal bank earn, and this effect is significant at the 1% level. This result confirms our hypothesis that executives in cantonal banks of financially stronger cantons can benefit from the financial power of the canton, on average.

Table 5: The compensation of executives

$comp_board_{it}$	Executive compensation		
	(1)	(2)	(3)
$rore_{it}$	2.53 ^(*) (1.33)	1.84 (1.31)	1.88 ^(*) (1.08)
$size_{it}$	232.66 ^{**} (28.73)	226.64 ^{**} (29.07)	206.14 ^{**} (28.35)
$equitycov_{it}$	0.65 (0.94)	1.13 (0.97)	0.97 (0.76)
$dpub_i$	-26.47 (34.63)	-32.39 (31.40)	-32.90 (28.48)
nb_exec_{it}	-	-10.34 [*] (4.73)	-4.98 (5.18)
$finpower_{jt}$	-	-	0.94 ^{**} (0.19)
F	13.91 ^{**}	14.51 ^{**}	15.33 ^{**}
R^2	0.77	0.79	0.84
N	45	45	45

This table reports estimates from OLS regressions of the executive compensation $comp_exec$ on the following pay determinants: $rore$ is the return on required equity, defined as return on equity before taxes multiplied by equity coverage ratio; $size$ is the natural logarithm of lended funds; $equitycov$ is the equity coverage ratio defined as current equity holdings relative to the required equity holdings; $dpub$ is a dummy variable and equal to one if the bank is listed at the stock exchange and zero else; nb_exec is the number of executives; $finpower$ is an index for the financial power of the canton (average over all cantons=100). The time period covers the years from 2002 to 2004. The data are expressed in 1'000 CHF of 2004. The data sources are the annual reports of the banks and the website of the Federal Department of Finance. The N refers to the total number of observations over all the years. An F -test is performed for the simultaneous significance of all coefficients. Standard errors in brackets are corrected for heteroscedasticity. Time dummies and constant included. **, *, and (*) denotes statistical significance at the 10%, 5%, and 1% level.

4.2 Pay for performance sensitivities

There is a large empirical literature that examines to what extent executive pay is related to firm performance.¹⁹ In what follows, we estimate pay-for-performance sensitivities in order to see whether the level of compensation is sensitive to a change in bank performance from year t to year $(t-1)$. In analogy to our former model specifications, we control for the size of the firm, its risk exposure, whether it is listed at the stock exchange, the size of the decision unit as well as for the financial power of the cantons. We estimate these regressions separately for our two board compensation measures as well as for the executive competition variable. Equations (4) to (6) summarize the model specifications.

$$comp_j_{it} = \beta_0 + \beta_1 \Delta rore_{it} + \beta_2 size_{it} + \beta_3 equityco_{it} + \beta_4 dpub_i + u_{it} \quad (4)$$

$$comp_j_{it} = \beta_0 + \beta_1 \Delta rore_{it} + \beta_2 size_{it} + \beta_3 equityco_{it} + \beta_4 dpub_i + \beta_5 nb_{it} + u_{it} \quad (5)$$

¹⁹ See, e.g., Jensen and Murphy (1990), Murphy (1985, 1986) Rosen (1990) Barro and Barro (1990).

$$\begin{aligned}
comp_board_{it} = & \beta_0 + \beta_1 \Delta rorer_{it} + \beta_2 size_{it} + \beta_3 equityco_{it} + \beta_4 dpub_i + \beta_{5,6} nb_{it} \\
& + \beta_7 finpower_{jt} + u_{it} \tag{6}
\end{aligned}$$

$i = 1, \dots, 22 \quad t = 1, \dots, 3 \quad j = board; exec \quad u_{it} \sim N(0, \sigma^2)$

4.2.1 Pay-for-performance and board compensation

From the results in Table 6, we observe that a change in performance as measured by the difference in the required return on equity between year (t-1) and year t has a positive and highly significant impact on board compensation, and this holds across all our three specification. This result stands in line with findings of other empirical studies. Note that most of those investigations use the change in shareholder value from one period to another as a measure for the change in firm performance. Given that the banks in our sample are not all listed at the stock exchange, we cannot use this variable. Furthermore, firm size has a significant positive effect on the compensation level, and the coefficient of the board size is negative and significant as well in both specifications where the variable is included. As to *dpub* and *finpower*, the corresponding regression coefficients are not significant (in all the specifications). Xxx.

Looking at the results of maximum board compensation as dependent variable, it is apparent that the change in performance as well as the firm size both have a significant positive impact on the level of the highest individual board compensation. All the other variables do not seem to be important.

In addition, we also consider a specification where we replace the level of compensation with the change in compensation from year *t* to year (*t*-1). Given our data structure, we do not have a sufficient number of observations for the executive compensation variable and can, therefore, estimate this model for the board compensation variables only. Without reporting the results, we find that a change in firm performance as approximated by $\Delta rorer$ has a highly significant positive impact on the change in board as well as maximum board compensation. The coefficient of size, which is included as additional control variable, in contrast, is not significant.

Table 6: The pay-for-performance sensitivities of board compensation

$comp_{it}$	Board compensation			Maximum board compensation		
	(1)	(2)	(3)	(1)	(2)	(3)
Δror_{it}	3.13** (0.26)	2.84** (0.25)	2.75** (2.19)	5.35* (2.43)	4.84* (2.22)	4.63* (2.15)
$size_{it}$	27.60** (5.08)	31.66** (5.47)	35.16** (6.26)	107.36** (31.55)	114.23* (34.36)	121.81* (47.05)
$equitycov_{it}$	0.22 (0.19)	0.13 (0.15)	0.14 (0.15)	0.85 (1.07)	0.68 (0.81)	0.69 (0.83)
$dpub_i$	10.49 (6.81)	15.72* (7.72)	14.63(*) (7.34)	44.47 (30.86)	53.76 (47.48)	51.35 (46.66)
nb_board_{it}	-	-5.23* (2.19)	-4.91(*) (2.10)	-	-9.25 (18.10)	-8.66 (17.99)
$finpower_{jt}$	-	-	-0.15(*) (0.08)	-	-	-0.33 (0.29)
F	61.97**	53.86**	7.04**	19.04**	18.58**	4.26**
R^2	0.79	0.82	0.83	0.46	0.48	0.48
N	45	45	45	43	43	43

This table reports estimates from OLS regressions of the board compensation $comp_board$ and the maximum board compensation $maxcomp_board$ on the following pay determinants: Δror is change from year ($t-1$) to t of the return on required equity, defined as return on equity before taxes multiplied by equity coverage ratio; $size$ is the natural logarithm of lendend funds; $equitycov$ is the equity coverage ratio defined as current equity holdings relative to the required equity holdings; $dpub$ is a dummy variable and equal to one if the bank is listed at the stock exchange and zero else; nb_board is the number of board members; $finpower$ is an index for the financial power of the canton (average over all cantons=100). The time period covers the years from 2002 to 2004. The data are expressed in 1'000 CHF of 2004. The data sources are the annual reports of the banks and the website of the Federal Department of Finance. The N refers to the total number of observations over all the years. An F -test is performed for the simultaneous significance of all coefficients. Standard errors in brackets are corrected for heteroscedasticity. Time dummies and constant included. **, *, and (*) denotes statistical significance at the 10%, 5%, and 1% level.

4.2.2 Pay-for-performance and executive compensation

As we can see from the results in Table 7, a positive change in the return on required equity has a negative and significant impact on the level of executive compensation. Even though banks have performed well from one period to another over the time period considered, this is not reflected in the executive compensation, on average. In fact, a better performance has even a negative impact on the compensation of executives in our sample. At a first glance, this result is surprising, and it also stands in contrast to the results from the board compensation variables. A possible explanation for this observation is that executive compensation has been reviewed and corrected downwards in many companies over the last few years, also as a consequence of the higher public interest in this issue. Furthermore, it is also possible that the bank managers are compensated according the market standards, and that the individual firm performance does not play such an important role.

As to the other variables, firm size has again a highly significant positive impact on the level of executive compensation, while the effects of the other variables included in the

model are significant in one out of the two specifications and significant at the 10% level only. Due to an insufficient number of observations for the dependent variable and missing values of the financial power index in 2004, we cannot estimate the third specification for the executive compensation variable.

Table 7: The pay-for-performance sensitivities of executive compensation

$comp_exec_{it}$	Executive compensation	
	(1)	(2)
Δror_{it}	-3.22** (0.90)	-2.70* (1.05)
$size_{it}$	272.59** (38.57)	259.11** (40.00)
$equitycov_{it}$	1.18 (0.78)	1.42 ^(*) (0.80)
$dpub_i$	-21.05 (37.32)	-32.70 (33.27)
nb_exec_{it}	-	-9.62* (4.53)
F	13.25**	16.93**
R^2	0.83	0.84
N	33	33

This table reports estimates from OLS regressions of the executive compensation $comp_exec$ on the following pay determinants: Δror is change from year $(t-1)$ to t of the return on required equity, defined as return on equity before taxes multiplied by equity coverage ratio; $size$ is the natural logarithm of lended funds; $size$ is the natural logarithm of lended funds; $equitycov$ is the equity coverage ratio defined as current equity holdings relative to the required equity holdings; $dpub$ is a dummy variable and equal to one if the bank is listed at the stock exchange and zero else; nb_exec is the number of executives. The time period covers the years from 2002 to 2004. The data are expressed in 1'000 CHF of 2004. The data sources are the annual reports of the banks. The N refers to the total number of observations over all the years. An F -test is performed for the simultaneous significance of all coefficients. Standard errors in brackets are corrected for heteroscedasticity. Time dummies and constant included. **, *, and ^(*) denotes statistical significance at the 10%, 5%, and 1% level.

4.3 Robustness tests

We carry out a set of sensitivity tests to check the robustness of our results with respect to the estimation method, the included variables and the sampling procedure. In a first step, we include the lag of the dependent variables instead of the values for the current year. The results are mainly in line with the reported findings. Second, we use a fixed effects panel data model to estimate relationships between the variables under consideration. This method controls for bank-specific omitted variables by allowing each bank to have a separate intercept term. Even though the number of observations is rather small for this type of exercise, the estimation results confirm to a large extent our former findings. In a third step, we use the return on equity before taxes as an alternative performance measure. Again, our results are robust with respect to this variation. Finally, we are aware of the fact that our sample is rather small. Therefore, we repeat our estimations by applying the bootstrap technique to get bootstrap confidence intervals. The

bootstrap involves repeated re-estimation of a parameter using random samples with replacement from the original data. Because the sampling is with replacement, some items in the data set are selected two or more times and other are not selected at all. When this is repeated a hundred or a thousand times, we get pseudo-samples that behave similarly to the underlying distribution of the data. Again, the results from bootstrapping confirm the main findings of our analysis.

5 Conclusions

This study attempts to give a recent overview of board and executive compensation practices in Swiss cantonal banks. Our analysis investigates the importance of firm- and canton-specific characteristics that are likely to affect board and executive compensation in cantonal banks.

On average, a board member of Swiss cantonal bank earns 70'000 CHF per year, and the yearly compensation of an executive amounts to 518'000 CHF. There are, however, large differences between the cantonal banks with respect to compensation level of board and executives. From our regression analysis we find that a better bank performance does not seem to be reflected in a higher board compensation, but larger banks pay more to their board members compared to smaller cantonal banks. Board size has a negative impact on the compensation of the individual board members, and the same holds for the financial power of the cantons. As to executive compensation level, bank size and the financial power of the canton as main executive pay determinants have both a strong positive effect on the compensation of executives in cantonal banks, on average.

Our study may provide some interesting findings, but the results are limited from several points of view. First, even though our sample includes 22 out of the 24 existing cantonal banks, our data base is rather small. This has to do with the fact that some banks that could and should be included in our analysis do not report their compensation figures. Also, the banks in our sample have published compensation data since 2002 only, which is a rather short time period. Furthermore, it would be interesting to have more information about the compensation figures. In addition to the level of compensation, it would be desirable to have more information about the structure of compensation, i.e. cash vs. non-cash, equity vs. non-equity based, etc. Also, we have no information on equity holdings of managers and board members.

We are aware of the fact that our study deals with a rather sensitive topic. Note that the objective of our work is not to change cultural elements in Switzerland or to practice some form of modern voyeurism, but it is our aim to deliver a substantial contribution to a transparent compensation culture in Swiss cantonal banks. This may not only be important for financial experts including

financial analysts and the business press, but it also provides more information to the citizens of the respective cantons, who are, in the end, the owners of the cantonal banks.

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6 Appendix

The Swiss banking system

The Swiss banking system is based on the concept of universal banking, where all banks can offer the full range of banking services. In reality, however, several bank groups have become fully or partially specialized in certain areas and offer a limited number of services. Give some descriptive statistics about number of banks and the total of their assets. The banks can be classified into the following groups:²⁰

(1) *Big banks*: UBS AG and the Credit Suisse Group are two largest banks in Switzerland. Together, these two ‘big banks’ account for over 50% of the balance sheet total of all banks in the Swiss market.

(2) *Cantonal banks*: There are 24 Cantonal banks,²¹ which are semi-governmental organizations with a state guarantee. In accordance with cantonal law, their objective is to promote the economy of the respective canton. They are involved in all banking activities, but have an emphasis on the lending and deposit business. Despite their close connection to the state, Cantonal Banks must comply with commercial principles in their business activities. Similarly, ongoing liberalization processes may soon lead to an abolishment of the state guarantee.

(3) *Regional banks and savings banks*: These banks are smaller universal banks with an emphasis on lending and deposit business. They voluntarily restrict their activities to one region, which gives them the advantage of customer proximity and good knowledge of local circumstances and regional business cycles.

(4) *The Raiffeisen Group*: It consists of affiliated independent banks organized as a cooperative, with strong local roots and a history of more than a century. The Raiffeisen banks have the highest number of branches in Switzerland and they are all affiliated to the Swiss Union of Raiffeisen Banks, which is responsible for strategic leadership for the whole group as well as the risk management. The Raiffeisen Group is one of Switzerland’s leading retail banks and has significantly increased its market share over the past few years.

(5) *Private banks*: These institutions are among the oldest banks in Switzerland. They are either individually owned firms, or collective and limited partnerships. Private bankers are subject to unlimited subsidiary liability with their personal assets. Their

²⁰ See also <http://www.swissbanking.org>.

²¹ There are 26 cantons in Switzerland. For historical reasons, three of these cantons consist of two half-cantons, namely Appenzell (Appenzell Ausserrhoden and Appenzell Innerrhoden), Basel (Basel-Stadt and Basel-Landschaft), and Unterwalden (Obwalden and Nidwalden).

field of activity is asset management, mainly for private clients. As a rule, private banks do not publicly offer to accept savings deposits.

(6) **Foreign banks:** Foreign-control means that over half of the company's votes are held by foreigners with qualified interests. Origin of banks: Europe, predominantly EU (over 50%), Japan (around 20%). Their fields of activity are foreign business and asset management.

(7) **Other banks:** This group includes banks with various business objectives, such as institutes specializing in the stock exchange, securities and asset management businesses; commercial banks, which are universal banks for which mortgage investments, commercial loans to trade, industry and commerce play a significant role, and finally consumer credit institutes: institutes, which give small loans to private individuals and the industry.

Table 8: Number and size of Swiss banks (Dec. 31st 2004)

Bank group	Number of institutes	Total assets in Bio. CHF	in %
Cantonal banks	24	314.3	12.62
Big banks	3	1643.5	65.99
Regional and Savings banks	83	81.5	3.27
Raiffeisen Banks	1	106.1	4.26
Others (Handelsbanken, Börsenbanken, Kleinkreditbanken, andere Banken und ausländisch beherrschte Banken)	188	313.6	12.59
Subsidiaries of foreign banks	25	14.9	0.60
Private bankers (Privatbankiers)	14	16.8	0.67
Total	338	2'490.8	100

This table shows for each bank category as defined by the Swiss National Bank (SNB) the number of banking institutions, their total assets as well as their relative share of total assets compared to all the banks in Switzerland. The data refer to Dec. 31st 2004, and the data source is the SNB publication Die Banken in der Schweiz 2004, Schweizerische Nationalbank, Table 1 p. A

