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## Payout Policy and Owners? Interests: Evidence from German Savings Banks

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Evidence from German Savings Banks**

Volker Kleff and Martin Weber

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## **Non-technical Summary**

German savings banks are closely linked with their relevant local authority due to their public ownership. Similar to joint-stock companies, which may distribute profits to their stockholders, savings banks are allowed to distribute profits to their local authorities. The savings banks' payout decision, however, is strongly regulated by law. By this means it should be granted that savings banks accumulate enough money to expand their business and can fulfil regulatory capital requirements even in future years. Each federal state within Germany sets its own rules regarding the maximum amount of money that may be distributed. These rules depend on some financial ratios measuring the savings banks' capitalisation. Within these legal limits the savings banks should determine a "reasonable" payout ratio.

We find that profitability and portfolio risk as well as size are the main drivers influencing the payout decision. The higher the profitability and size and the smaller portfolio risk, the more likely are the savings banks to distribute profits or to choose a higher payout ratio.

Savings banks are expected to distribute profits reluctantly, since they heavily rely on retained profits to fund their desired business growth. Local authorities, however, are in need of these money transfers, since they are highly indebted and lack financial means. Therefore, the financial situation of the local authorities may be another potential determinant influencing the savings banks' payout decision.

Indeed, we find that the financial situation of the relevant local authority influences the payout ratio as well. Both the indebtedness and the personnel costs per inhabitant do have a significant and positive impact on the level of payouts. Although there are some hints that the local authorities exert some pressure on the savings banks, however, it could not be excluded that the savings banks voluntarily consider the financial situation of the local authority when determining their payout ratio.

# **Payout Policy and Owners' Interests – Evidence from German Savings Banks**

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**Abstract:** The savings banks' decision to distribute profits among their public owners is strongly regulated by law in order to guarantee their adequate funding via retained profits. However, the legal scope is reluctantly exhausted. In this study we examine the determinants of the savings banks' payout decision in more detail. We find that besides internal determinants also external factors regarding the savings bank's public owner have strong explanatory power. The better the financial situation of the public owner, the less likely is the savings bank to distribute profits and to increase payouts, respectively.

**Keywords:** Savings Banks, Germany, Payout Policy

**JEL classification code:** G21

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## 1 Introduction

The German savings banks represent a very special banking group.<sup>1</sup> They are the only banking group within Europe that is still publicly owned. The reasoning behind the perpetuation of public ownership is the public mandate of the savings banks. They aim at increasing public welfare by increasing competition among banks, by granting loans to all private and public entities within their region, and by enhancing the economic structure of the region via donations. As savings banks were originally founded and capitalised by local authorities, therefore, they are traditionally closely linked to the relevant local authority. Consequently, the local authorities even today are predominantly provided with credits from the local savings bank. Furthermore, many local authorities receive distributed profits from the related savings bank like shareholders from joint-stock companies. In contrast to shareholders, however, local authorities have to utilise the money for purposes of public utility.

The savings banks' payout decision is strongly regulated by law. By this means it should be granted that savings banks accumulate enough money to expand their business and can fulfil regulatory capital requirements even in future years. Each federal state within Germany sets its own rules regarding the maximum amount of money that may be distributed. These rules depend on some financial ratios measuring the savings banks' capitalisation. Well capitalised savings banks according to these ratios are not forced to payout, but are free to distribute a sum between zero and the maximum amount allowed by law. However, the level of payouts should be consistent with the individual financial situation of the savings bank.<sup>2</sup> As a consequence, it is expected that internal factors like profitability or capitalisation help explain the savings banks' payout decision within these legal boundaries.

Nevertheless, there may be some conflicting interests. Savings banks are expected to distribute profits reluctantly, since they heavily rely on retained profits to fund their desired business growth. Local authorities, however, are in need of these money transfers, since they are highly indebted and lack financial means. Therefore, the financial situation of the local authorities may be another potential determinant influencing the savings banks' payout decision. According to the federal laws, the local authorities may have some influence on the savings banks' payout decision. The decision whether or to what extent the savings bank will distribute profits is usually made (except from the federal state of North-Rhine-Westphalia) by the board of directors (*Verwaltungsrat*). Due to the special public ownership of German savings banks, most members of the board of directors are elected by the relevant local authorities (towns and districts), whereas the other members usually are employees of the savings bank.<sup>3</sup>

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<sup>1</sup> For an overview of the characteristics of German savings banks in contrast to other German banking groups, see e.g. Hackethal (2003) or Koetter et al. (2004).

<sup>2</sup> See e.g. §24 para. 1 savings banks' law of Lower Saxony.

<sup>3</sup> See Püttner (2003) for a detailed survey of the German savings banks' laws by the federal states.

Therefore, it is not implausible that the interests of the local authorities could influence the savings banks' payout decision.<sup>4</sup> Sapienza (2002), for instance, found some evidence for a politically motivated behaviour of state-owned banks in Italy. His results suggest that the interest rates charged by the state-owned banks are significantly lower the stronger the political party in the area where the firm is borrowing.

In this study we investigate the determinants of the German savings banks' payout decision in more detail. Section 2 refers to the testable hypotheses. Section 3 presents the data used for the empirical analysis and Section 4 introduces the model to validate the hypotheses. Section 5 presents the results and Section 6 concludes the analysis.

## 2 Hypotheses

The laws by the various federal states are not very specific about how savings banks should decide on their individual payout level between zero and the legal maximum payout level. According to law, the payout should be "reasonable" and should reflect the current profitability, as well as the financial situation and the risk situation of the bank. Therefore, it can be assumed that more profitable and better capitalised banks are generally more willing to distribute profits or to increase their payouts. In fact, a higher profitability increases the financial scope of the savings bank, since it may have excess profits after retaining enough profits for future business growth. Finally, the high relevance of profitability would also be in line with the findings from a large number of papers ranging from Lintner (1956) to more recent papers e.g. by Da Silva et al. (2002), which examine the dividend behaviour of non-financial corporations.

*Proposition 1: The higher the profitability, the more likely the savings bank will distribute profits or increase their payout level.*

Furthermore, savings banks with a high capital-to-asset ratio might be less reliant on retained earnings in order to increase their capital ratio. Therefore, we would expect that better capitalised savings banks are more willing to distribute profits. However, besides capital, also the level of portfolio risk has to be considered, since banking regulation demands to keep a certain proportion of capital to risk. We expect that savings banks with a higher risk exposure are more reluctant to distribute profits than other banks, since it is more risky for them to fall below the minimum of regulatory capital. To obtain some evidence, whether the ratio of capital over risk-weighted assets has some influence on the savings banks' payout decision, we also considered this combined variable in our analysis.

*Proposition 2: The higher (lower) the savings bank's capital ratio (portfolio risk), the more likely the bank will distribute profits or increase their payout level.*

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<sup>4</sup> See Neuberger/Schindler (2001).

However, the payout decision may also be influenced by the local authorities, who are potentially able to achieve their own interests. According to Mauerer (1999) the local authorities even beset savings banks to increase payouts. Indeed, in most federal states, the *Verwaltungsrat*, which represents the link between the savings banks' managers and the local authorities, decides on the distribution of profits by the savings banks. Two thirds of its members usually are elected by the local authorities, whereas only one third of them comprises employees of the savings bank. Furthermore, the president of the *Verwaltungsrat* usually is the head of the local or district authority in which the savings bank is headquartered. Therefore, the payout decision may even be driven by factors that do not refer to the situation of the individual bank, but could reflect the interest of the local authority. Highly indebted local authorities for example may be forced to receive additional financial means. Distributed profits of the savings banks being as high as possible thus can be desired especially by local authorities in financial difficulties.<sup>5</sup> As nearly all German local authorities are severely indebted in the latest years, their potential efforts to increase savings banks' payouts would be plausible. However, we cannot clearly differentiate, whether this potential relationship is driven by the local authorities or the savings banks. On the one hand, it is possible, that the local authorities push for high payouts, on the other hand the savings banks may voluntarily distribute profits if their local authority is highly indebted. However, since the federal laws demand that the level of payouts should depend on the internal financial situation of the savings bank only, the first alternative is more plausible. In other words, there may exist a modified clientele effect according to the previous understanding: Savings banks which are related to a clientele (local authority) in a difficult financial situation thus may be urged to distribute relatively more profits than other savings banks. The original clientele effect suggested by Modigliani and Miller (1961) and empirically confirmed by Elton and Gruber (1970) and Borges (2002)), however, is not applicable for savings banks, since they cannot attract a desired clientele by choosing a certain payout ratio.

*Proposition 3: The worse the financial situation of the local authorities, the more likely the savings bank will payout profits or increase the payout level.*

Finally, the amount of debt lent to the related local authority might proxy the strength of the relationship between the savings bank and the local authority. The potential impact of the savings banks' lending on their payout behaviour, however, is unclear. On the one hand, the pressure to distribute (more) profits might increase with a stronger lending to the local authority, since the relationship between both institutions is closer. On the other hand, the lending to the local authorities might be regarded as a substitute for payouts, since the interest rates claimed from the local

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<sup>5</sup> The distributions of profits are potentially only a part of the benefits granted to the local authorities, as the savings banks basically are also allowed to give donations to them. However, information about the donations to the local authorities do not exist and could not be taken into account. In addition, they would be problematic from a legal point of view, since they may erode the regulation of the distribution of profits.

authorities usually are favourable to them. Therefore, both a positive and negative impact on the payout behaviour would be plausible.

### 3 Data

In order to examine the payout behaviour of German savings banks in detail, we use balance sheet information and income statements provided by the private dataset provider Hoppenstedt. Since this dataset does only include about 70 percent of all German savings banks and is biased towards larger savings banks, we supplemented the dataset manually with the help of individual balance sheet and profit and loss account information which were published in the *Bundesanzeiger*. We merged this dataset with information about the financial situation of the German municipalities and districts, which are provided by the Federal Statistic Office. More specifically, the data for the German municipalities originates from the statistical yearbooks of German municipalities. The data had to be prepared manually, since they are not available electronically. The data for the German districts, however, were provided electronically by the Federal Statistical Office directly.

However, some few savings banks could not be considered in the analysis, since their related municipalities were too small and no data was available for them. We started our analysis with the year 1995, since some definitions of variables regarding the financial situation of the districts had basically changed in 1995.<sup>6</sup>

We explicitly took account of the three different types of German savings banks. There are savings banks related to the local municipality (*Stadtsparkasse*), savings banks related to the district (*Kreissparkasse*) and finally savings banks related to an alliance of municipalities and districts (*Zweckverbandssparkasse*). Due to the continuing process of mergers particularly among both groups of *Stadtsparkassen* and *Kreissparkassen*, the number of *Zweckverbandssparkassen* has steadily increased in recent years. In the end of 2003, about every second German savings bank already belonged to that latter type, whereas *Stadt-* and *Kreissparkassen* each accounted for a quarter of all savings banks. According to these various types of savings banks, we consequently matched *Stadtsparkassen* with the financial data for the relevant municipality, *Kreissparkassen* with the data for the relevant district and *Zweckverbandssparkassen* with the data for the relevant alliance of both municipalities and districts. In the latter cases, we used the mean values<sup>7</sup> of both the relevant municipalities and the relevant districts.

As the payout level is concerned, German savings banks have to observe several restrictions set by the individual federal states. These restrictions by the federal

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<sup>6</sup> The income of the districts was partly not adjusted before 1995 and therefore do not allow a comparison of the data before and after 1995. Furthermore the data was incomplete for several years before 1995.

<sup>7</sup> We also experimented with another calculation and took the data of the relevant local authority only, which is in the worse financial situation, since this local authority may be of especially high relevance for the payout decision of the savings bank. However, we obtained very similar results.

legislator should prevent the savings banks from paying too many profits to the municipality or district. Since savings banks have hardly any alternatives to finance their credit growth, they rely heavily on retained profits. Dependent on the federal state in which the savings bank is headquartered, the maximum payout ratio depends on different financial ratios. In the federal states of Baden-Wuerttemberg, Hesse, Lower Saxony and Schleswig Holstein the financial ratio is defined as the ratio of reserves divided by total assets or debt. This ratio determines, whether the savings bank and how much it may distribute at a maximum, respectively. In other federal states the maximum distribution of profits is determined by risk-weighted assets and the level of regulatory capital. Unfortunately, these latter information are rarely made public. Since even any approximation proved to be too rough, we thus could not deduce any indication, whether and to what extent savings banks in these federal states are allowed to distribute profits or not.<sup>8</sup> Due to the fact that we thus could not model the savings banks' decision to distribute profits in these federal states, we focused our analysis on the former federal states of Baden-Wuerttemberg, Hesse, Lower Saxony and Schleswig Holstein which roughly make up a third of all German savings banks. This restriction on four federal states, however, does not mean a severe limitation of the analysis. In many other federal states, no savings banks actually do distribute profits and thus could not be taken into account anyway. Table 1 summarises the specific legal minimum requirements in these federal states to distribute profits.

**Table 1: Legal minimum requirement to distribute profits**

| Federal state      | Time period  | Reserves ... of all ...       |                     |
|--------------------|--------------|-------------------------------|---------------------|
|                    |              | have to be at least ... % ... |                     |
| Baden-Wuerttemberg | 87-90        | 5                             | debt                |
|                    | 91-94        | 5                             | total assets        |
|                    | <b>95-01</b> | <b>4</b>                      | <b>total assets</b> |
| Hesse              | 87-89        | 3                             | deposits            |
|                    | <b>90-01</b> | <b>4</b>                      | <b>total assets</b> |
| Lower Saxony       | 87-89        | 3                             | deposits            |
|                    | <b>90-01</b> | <b>3</b>                      | <b>debt</b>         |
| Schleswig-Holstein | <b>87-01</b> | <b>3</b>                      | <b>total assets</b> |

Since we intend to measure, which factors drive the savings banks' decision to distribute profits, we restricted our sample to these banks, which are in fact allowed to distribute profits. That is why we disregarded those banks, which do not fulfil the legal minimum requirement to distribute profits. Therefore, the remaining savings banks in

<sup>8</sup> The exact calculation of risk-weighted assets and regulatory capital requires information that is not available in the annual accounts. Therefore, we could not clearly differentiate between savings banks which fulfil the legal requirements in order to distribute profits and those, which do not.

our final sample are those which may freely decide on whether to distribute profits or not and if, to distribute profits on a certain level up to the regulatory maximum. Table 2 shows the number of all savings banks in our sample, the number of savings banks which are allowed to distribute profits and finally these banks which actually do so. Since the laws in the various federal states differ considerably, we consciously differentiate between the four federal states in detail.

**Table 2: Summary statistics (Number of savings banks)**

| Year  | Baden-<br>Wuerttemberg |      |      | Hesse  |      |      | Lower<br>Saxony |      |      | Schleswig<br>Holstein |      |      | Total  |      |      |
|-------|------------------------|------|------|--------|------|------|-----------------|------|------|-----------------------|------|------|--------|------|------|
|       | Payout                 |      |      | Payout |      |      | Payout          |      |      | Payout                |      |      | Payout |      |      |
|       | All                    | Pot. | Act. | All    | Pot. | Act. | All             | Pot. | Act. | All                   | Pot. | Act. | All    | Pot. | Act. |
| 1995  | 66                     | 7    | 2    | 29     | 5    | 4    | 57              | 56   | 17   | 15                    | 12   | 2    | 167    | 80   | 25   |
| 1996  | 66                     | 7    | 3    | 29     | 5    | 4    | 57              | 56   | 15   | 15                    | 11   | 2    | 167    | 79   | 24   |
| 1997  | 66                     | 7    | 2    | 28     | 7    | 4    | 55              | 55   | 15   | 15                    | 12   | 2    | 164    | 81   | 23   |
| 1998  | 63                     | 7    | 1    | 27     | 9    | 4    | 55              | 55   | 13   | 15                    | 13   | 2    | 160    | 84   | 20   |
| 1999  | 60                     | 7    | 1    | 27     | 10   | 4    | 53              | 53   | 11   | 15                    | 13   | 2    | 155    | 83   | 18   |
| 2000  | 59                     | 9    | 1    | 27     | 13   | 6    | 53              | 53   | 10   | 15                    | 13   | 2    | 154    | 88   | 19   |
| 2001  | 53                     | 10   | 1    | 27     | 14   | 5    | 50              | 50   | 7    | 14                    | 12   | 1    | 144    | 86   | 14   |
| Total | 433                    | 54   | 11   | 194    | 63   | 31   | 380             | 378  | 88   | 104                   | 86   | 13   | 1,111  | 581  | 143  |

A more detailed analysis reveals that the payout opportunities by law strongly depend on the particular federal state. According to Table 2, only about respectively 12 and 32 percent of all savings banks were allowed to distribute profits in Baden-Wuerttemberg and Hesse, whereas in Lower Saxony or Schleswig Holstein nearly every savings bank was allowed to distribute in the time period from 1995 to 2001. More rigorous legal limitations in Hesse and particularly Baden-Wuerttemberg are partly responsible for that, though the law in Baden-Wuerttemberg was even more rigorous before 1995, when hardly any savings bank was allowed to distribute profits. However, the different number of savings banks being allowed to distribute profits is also due to different capital endowments. If the legal requirements of Baden-Wuerttemberg were applied to savings banks in Lower Saxony, about thirty as contrasted to more than fifty were allowed to distribute profits.

Table 2 indicates, that on average about every fourth savings bank that is allowed to distribute profits has done so. Irrespective of the particular federal state law, there seems to be a trend that savings banks become more and more reluctant to distribute profits. Interestingly, this result corresponds to the findings of other papers focusing on non-financial firms (see e.g. Fama and French (2001) or Baker and Wurgler (2002)), although a supposed linkage with the stock market as found by these studies is implausible in case of savings banks. The number of savings banks distributing profits decreased from 25 in 1995 to 14 in 2001 due to a decreasing number of distributing savings banks especially in Lower Saxony. The Table also suggests that the number of distributing savings banks varied marginally over time, i.e. savings banks generally maintained their payout decision at least over several years. This

result is in line with Gugler (2003), who found that state-controlled firms engage in dividend smoothing, while family-controlled firms do not.

In general, savings banks are reluctant to payout profits. They might argue that they have to accumulate their profits in order to build up the financial basis for their business. As capital regulation demands a certain minimum ratio of capital to risk-weighted assets, banks otherwise may be forced to cut back their business growth. That would not be in the interest of the local authorities either. But there are some differences in the savings banks' reluctance. While in Schleswig-Holstein only 15 percent of all potentially paying savings banks in fact distribute profits, the fraction is somewhat higher in Baden-Wuerttemberg (20 percent) and Lower Saxony (23 percent), and particularly high in Hesse (49 percent).

**Table 3: Medians of variables of local authorities potentially receiving payouts**

| Federal state      | Local authority      | Debts<br>(€ per inhabitant) | Net income<br>(€ per inhabitant) | Personnel exp.<br>(€ per inhabitant) |
|--------------------|----------------------|-----------------------------|----------------------------------|--------------------------------------|
| Baden-Wuerttemberg | Towns<br>(n=29)      | 972.73                      | 118.40                           | 638.38                               |
|                    | Districts<br>(n=33)  | 692.39                      | 61.65                            | 68.85                                |
| Hesse              | Towns<br>(n=40)      | 1,184.98                    | 101.32                           | 531.99                               |
|                    | Districts<br>(n=54)  | 1,079.64                    | -1.13                            | 117.64                               |
| Lower Saxony       | Towns<br>(n=191)     | 886.82                      | -5.81                            | 462.73                               |
|                    | Districts<br>(n=271) | 1,018.30                    | 4.12                             | 151.69                               |
| Schleswig Holstein | Towns<br>(n=41)      | 667.58                      | 111.94                           | 398.75                               |
|                    | Districts<br>(n=52)  | 736.78                      | 30.50                            | 119.43                               |

According to our argumentation, the particularly small reluctance to distribute profits in Hesse might be the consequence of a particularly bad financial situation of local authorities in Hesse. In fact, Table 3 shows that particularly Hessian local authorities are highly indebted and would be in need of cash infusions, while local authorities in Baden-Wuerttemberg and Schleswig-Holstein are the least indebted.<sup>9</sup> Therefore, we obtain first evidence in favour of our argumentation.

### **Payout ratio**

Since we want to measure the impact of potential determinants on the savings banks' distribution of profits, we have to define a payout ratio as dependent variable. We

<sup>9</sup> See e.g. Deutsche Bundesbank (2002) for an overview of the financial situation of German local authorities.

constructed a variable that measures the savings bank's freedom of choice regarding the determination of the payout level. The payout ratio is defined as the actual level of profits distributed divided by the maximum level that could be distributed by law. Consequently, it equals zero, if the saving bank does not distribute anyhow, but would be allowed to, and equals one, if the savings bank totally exhausts its legal possibilities and pays as much money as allowed to the local authorities.

Alternatively, we measured the payout behaviour more conventionally by dividing the actual level of payout by total assets and the net income, respectively.

#### 4 Methodology and variables

Since most savings banks do not distribute profits to the local authorities according to Table 2, we would not omit much information if we ignored the exact non-zero payout level. Therefore, we first of all apply Logit models to explain the savings banks' payout decision. In the Logit model, the dependent variable equals one if profits are distributed in the relevant year and zero otherwise. Technically, we model an unobservable latent random variable  $y_{it}^*$  that linearly depends on the vector of explanatory variables  $x_{it}$ , i.e.

$$y_{it}^* = x_{it}'\beta + \varepsilon_{it} \quad (1)$$

where  $\beta$  is a vector of coefficients, and  $\varepsilon_{it}$  is a independently and normally distributed error term with mean 0 and variance  $\sigma_\varepsilon^2$ . The observed value  $y_{it}$ , i.e. the savings bank's payout decision, is censored below 0, i.e.

$$y_{it} = \begin{cases} 1 & \text{if } \beta'x_{it} + \varepsilon_{it} > 0 \\ 0 & \text{if } \beta'x_{it} + \varepsilon_{it} \leq 0 \end{cases} \quad (2)$$

Besides the Logit model, we follow Kim and Maddala (1992) and apply Tobit models, which can take account of the difference between zero and continuous observations. Like Logit models they utilise the binary information, whether savings banks distribute profits or not. In addition, however, Tobit models explicitly make use of the information, whether the level of payouts by the small number of distributing savings banks is influenced by the explanatory variables. Therefore, the Tobit model is expected to be more appropriate than the Logit model here. In case of the Tobit model, the observed value  $y_{it}$  is modelled as follows:

$$y_{it} = \begin{cases} \beta'x_{it} + \varepsilon_{it} & \text{if } \beta'x_{it} + \varepsilon_{it} > 0 \\ 0 & \text{if } \beta'x_{it} + \varepsilon_{it} \leq 0 \end{cases} \quad (3)$$

where the dependent variable  $y_{it}$  refers to the payout ratio with respect to the individual savings bank,  $x_{it}$  is a vector of explanatory variables,  $\beta$  is a vector of

coefficients, and  $\varepsilon_{it}$  is a independently and normally distributed error term with mean 0 and variance  $\sigma_e^2$ <sup>10</sup>.

In order to examine, whether also the financial situation of the local authorities influences the savings banks' decision to distribute profits, the vector  $x_{it}$  of explanatory variables does not only contain internal factors of the savings banks, which control for the savings banks' financial situation, but external factors as well describing the financial situation of the local authorities.

*ROA*, *CAP*, *RISK*, *CAP\_RISK*, *LA-LOANS* and *SIZE* represent the internal factors. *ROA* is the return on assets defined as the net income of the individual savings bank divided by its total assets. It is a proxy representing the banks' current profitability and should be positively related to the payout ratio according to Proposition 1. *CAP* is the banks' capital ratio defined as the book value of the bank's reserves divided by total assets. It represents the capitalisation of the savings bank and should positively influence the payout decision (see Proposition 2). The variable *RISK* is a proxy for the savings banks' portfolio risk and is defined as the sum of shares and other non-fixed-income securities, equity participations and loans to customers, where loans to local authorities are weighted with zero percent and loans backed by mortgages with 50 percent. The loans to customers are the most important factor determining the savings banks' portfolio risk. *CAP\_RISK* brings together both *CAP* and *RISK* and is defined as the savings banks capital divided by its portfolio risk. *LA-LOANS* refers to the loans granted to the local authorities. It is defined as the sum of the savings banks' loans to the related authority divided by total assets and should measure the strength of the relationship between both institutions. *SIZE*, finally, is the logarithm of total assets and should control for size effects. Larger savings banks for example might be financially more flexible and could rather distribute profits than smaller banks. Barclay et al. (1995) found for instance a strong effect of size on the payout decision of US corporations. Finally, the type of savings bank might have an influence on the savings banks' payout decision. Potentially, savings banks related to a district might be less influenced by the local authority and therefore might be less reluctant to distribute profits. To control for these different types of savings banks, we add the dummy variables *TOWN* and *DISTRICT* to the model. All these internal variables are regarded as exogenous. The potential backward effect of the payout decision on profitability, the capital ratio and size was considered as negligible.

In contrast to the internal factors, the external factors refer to the financial situation of the local authority. Net income (*INC*), is defined as the balance of the total income and total expenses of the budget (*Verwaltungshaushalt*) per inhabitant of the town and/or district. According to Proposition 3, we expected that the higher the (positive) balance, the less the local authority is forced to look for some alternative financial sources and therefore is less likely to push through payouts. Since the net income is highly volatile, local authorities might pursuit to smooth it by transfers from the related savings bank. This expectation would also be in line with the tax-smoothing

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<sup>10</sup> The latter assumption of normally distributed residuals might be critical. However, conditional moment tests could not refuse the assumption and thus confirm the suitability of the Tobit model in many cases.

hypothesis by Barro (1979). The second factor, personnel expenses (*PEXP*) is defined as a single constituent of total expenses, the sum of personnel expenses, which is divided by the number of inhabitants of the town and/or district.<sup>11</sup> We assume, that the higher the ratio, the smaller is the financial scope of the local authority and the higher the pressure to obtain other funding sources. Third, we examine the indebtedness (*DEBTS*) as a determinant of the savings banks' payout behaviour. Indebtedness is defined as the ratio of total debts of the local authority divided by the number of inhabitants of the town and/or district. We expect that particularly savings banks related to highly indebted local authorities distribute profits.

Both internal and external factors which potentially determine the savings banks' payout decision refer to the end-of-December of each year. These figures are supposed to form the basis for the payout decision by the *Verwaltungsrat*. Usually the *Verwaltungsrat* decides in spring or summer of the following year, when these internal and external figures already have become public.

**Table 4: Median of variables for distributing and non-distributing savings banks**

| Year  | Pay-out | Savings banks |           |            |              |             | Relevant local authorities |         |              |           |
|-------|---------|---------------|-----------|------------|--------------|-------------|----------------------------|---------|--------------|-----------|
|       |         | ROA           | CAP       | RISK       | CAP_<br>RISK | SIZE        | LA-<br>LOANS               | INC     | DEBTS        | PEXP      |
| 1995  | No      | 0.0033        | 0.0406    | 0.5441     | 0.0751       | 20.6065     | 0.0371                     | 28.8810 | 982.83       | 259.30    |
|       | Yes     | 0.0039 **     | 0.0419    | 0.5504     | 0.0739       | 20.7800     | 0.0407                     | 30.2517 | 1,192.30 *** | 302.42    |
| 1996  | No      | 0.0031        | 0.0409    | 0.5537     | 0.0736       | 20.6441     | 0.0344                     | 18.5708 | 1,001.28     | 246.60    |
|       | Yes     | 0.0036 ***    | 0.0441    | 0.5445     | 0.0774       | 20.8866 **  | 0.0366                     | 8.9094  | 1,230.14 *   | 288.97    |
| 1997  | No      | 0.0031        | 0.0415    | 0.5648     | 0.0734       | 20.7249     | 0.0354                     | 1.6492  | 976.39       | 234.56    |
|       | Yes     | 0.0035 ***    | 0.0431    | 0.5596     | 0.0763       | 20.8716     | 0.0321                     | -2.9812 | 1,077.54     | 241.87    |
| 1998  | No      | 0.0029        | 0.0422    | 0.5849     | 0.0719       | 20.8288     | 0.0357                     | 10.9203 | 928.31       | 194.68    |
|       | Yes     | 0.0034 *      | 0.0429    | 0.5563 **  | 0.0770       | 20.9764     | 0.0280                     | 15.3912 | 1,117.95 *   | 259.42    |
| 1999  | No      | 0.0028        | 0.0432    | 0.5954     | 0.0734       | 20.8670     | 0.0255                     | 20.1693 | 915.36       | 231.64    |
|       | Yes     | 0.0031        | 0.0441    | 0.5546 **  | 0.0787 *     | 21.2036     | 0.0246                     | 7.8024  | 1,085.80     | 306.38    |
| 2000  | No      | 0.0027        | 0.0453    | 0.6114     | 0.0743       | 20.9993     | 0.0271                     | 27.0088 | 897.32       | 217.92    |
|       | Yes     | 0.0030 **     | 0.0452    | 0.5816 **  | 0.0792       | 21.3402 *   | 0.0271                     | 2.5815  | 1,145.11 **  | 291.54    |
| 2001  | No      | 0.0018        | 0.0452    | 0.6059     | 0.0737       | 21.1304     | 0.0256                     | 19.2772 | 881.42       | 230.25    |
|       | Yes     | 0.0023        | 0.0482 *  | 0.5693     | 0.0845 **    | 21.6429 **  | 0.0377                     | 55.9995 | 1,134.86 *   | 332.65    |
| Total | No      | 0.0028        | 0.0421    | 0.5799     | 0.0739       | 20.8443     | 0.0298                     | 20.0588 | 933.60       | 231.61    |
|       | Yes     | 0.0033 ***    | 0.0443 ** | 0.5577 *** | 0.0772 ***   | 21.1134 *** | 0.0332                     | 12.2669 | 1,130.29 *** | 284.74 ** |

**Note:** Two-sample Wilcoxon rank-sum tests were carried out to examine, whether the medians differ significantly. \*, \*\*, and \*\*\* indicate significance on the 10 %, 5 % and 1 % level, respectively.

Table 4 presents some descriptive statistics regarding the various internal and external factors over time and differentiates between distributing and non-distributing savings banks. In line with Proposition 1 we find that distributing savings banks in fact are more profitable than non-distributing savings banks. Two-sample Wilcoxon rank-sum tests, non-parametric alternatives to the two-sample t-test, indicate that *ROA*, but

<sup>11</sup> We alternatively defined *PEXP* as the sum of personnel expenses divided by the total income of the local authorities. However, the conclusions remain the same.

also *SIZE* are generally higher for distributing savings banks. With regard to external factors results further suggest that distributing savings banks are related to local authorities, which are indebted to a stronger extent. Therefore, we obtain first evidence, that the financial situation of the local authority as well has some effect on the savings banks' decision to distribute profits (see Proposition 3).

## 5 Results

Table 5 shows the results of the Logit model. We both state the coefficients and the marginal effects for each explanatory variable. The coefficients indicate the effects of the explanatory variables on the latent variable  $y_i^*$ , whereas the marginal effects, calculated for mean values of the explanatory variables, indicate the effect on the observable variable  $y_i$ . In other words, the marginal effect represents the change in the probability of  $y=1$  due to a unit change in the relevant explanatory variable.

Model specification 1 comprises the whole set of explanatory variables. *CAP\_RISK*, however, was consciously omitted due to a high collinearity with both *CAP* and *RISK*. Model specification 2 in turn focuses on *CAP\_RISK* and disregards both *CAP* and *RISK*. Finally, specification 3 only comprises internal factors, whereas specification 4 only comprises external factors.

We find that both internal and external factors influence the savings banks' payout decision. As the LR-test indicates, even exclusively external variables do have significant explanatory power with regard to the dependent variable. Among the internal determinants profitability, portfolio risk and size are most important. They also remain highly significant when modifying the specification according to model 2 and 3. The striking large coefficient of *ROA* is particularly due to the small level of *ROA* compared to other explanatory variables. The positive sign of the profitability measure indicates that savings banks being more profitable actually are less reluctant to distribute profits and confirms our Proposition 1. Therefore, we obtain evidence that highly profitable savings banks are less reliant on retained earnings to boost business growth. In fact, several savings banks distribute a certain percentage of their net profit for the year. However, the savings banks' capital endowment is of less importance for the payout decision. The capital ratio remains insignificant in the model specifications. This finding holds for both the ratio of capital to total assets and for the ratio of capital to risk-weighted assets. However, we find that portfolio risk has a significant impact on the savings banks' payout decision. According to Proposition 2 we find that savings banks with a higher portfolio risk are more reluctant to distribute profits than other banks. Furthermore, we find that size is another important variable explaining the payout decision. The positive relationship indicates that particularly larger savings banks distribute profits. The reason for that finding might be the fact that these banks are financially more flexible. Alternatively, they might be stronger exposed to the public and therefore could feel more responsible for public affairs and thus for the local authorities. The loans to local authorities do have a significant impact on the payout decision as well. We find a negative effect, which suggests that loans to the local authorities might be a substitute for distributed profits. Such a substitutive relationship might hold, since loans to the local authorities usually are priced very favourably for the local authorities. Finally, we find only little evidence that the

dummy variables *TOWN* and *DISTRICT* can explain the savings banks' payout decision.

**Table 5: Logit results**

|                       | LOGIT                   |            |                         |            |                         |            |                        |            |
|-----------------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|------------------------|------------|
|                       | (1)                     |            | (2)                     |            | (3)                     |            | (4)                    |            |
|                       | Coef.                   | Marg. eff. | Coef.                   | Marg. eff. | Coef.                   | Marg. eff. | Coef.                  | Marg. eff. |
| ROA                   | 778.4664 ***<br>(4.83)  | 122.7358   | 709.3981 ***<br>(4.87)  | 114.9538   | 664.1472 ***<br>(5.04)  | 110.0211   |                        |            |
| CAP                   | 3.0512<br>(1.17)        | 4.8106     |                         |            | 2.6390<br>(1.01)        | 0.4372     |                        |            |
| RISK                  | -8.3052 ***<br>(-4.50)  | -1.3094    |                         |            | -5.2811 ***<br>(-4.08)  | -0.8749    |                        |            |
| CAP_RISK              |                         |            | 4.3676<br>(0.80)        | 0.7078     |                         |            |                        |            |
| SIZE                  | 0.6173 ***<br>(4.07)    | 0.0973     | 0.6256 ***<br>(4.35)    | 0.1014     | 0.8425 ***<br>(5.84)    | 0.1396     |                        |            |
| LA-LOANS              | -0.3040 **<br>(-2.34)   | -0.0479    |                         |            | -0.2107 *<br>(-1.65)    | -0.0349    |                        |            |
| TOWN                  | -0.7775 *<br>(-1.86)    | -0.1226    |                         |            | 0.3144<br>(1.04)        | 0.0521     |                        |            |
| DISTRICT              | 0.7894 *<br>(1.92)      | 0.1245     |                         |            | -0.1577<br>(-0.57)      | -0.0261    |                        |            |
| INC                   | -1.5073 *<br>(-1.72)    | -0.2376    |                         |            |                         |            | -0.5519 *<br>(-1.75)   | -0.0978    |
| PEXP                  | 5.2198 ***<br>(3.56)    | 0.8230     | 2.0120 ***<br>(3.24)    | 0.3260     |                         |            | 1.1339 **<br>(2.02)    | 0.2008     |
| DEBTS                 | 0.9366 ***<br>(2.58)    | 0.1477     | 1.0197 ***<br>(3.24)    | 0.1652     |                         |            | 1.1903 ***<br>(3.94)   | 0.2108     |
| Constant              | -14.8086 ***<br>(-4.33) |            | -18.4685 ***<br>(-5.64) |            | -18.0703 ***<br>(-5.82) |            | -2.4609 ***<br>(-5.75) |            |
| Observations          | 581                     |            | 581                     |            | 581                     |            | 581                    |            |
| Pseudo R <sup>2</sup> | 0.198                   |            | 0.150                   |            | 0.138                   |            | 0.064                  |            |
| Log-Likelihood        | -260.18                 |            | -275.55                 |            | -279.42                 |            | -303.44                |            |
| P-val.(LR test)       | 0.0000                  |            | 0.0000                  |            | 0.0000                  |            | 0.0000                 |            |

**Note:** \*, \*\*, and \*\*\* indicate significance on the 10 %, 5 % and 1 % level, respectively. z-values on the basis of robust standard errors are in parentheses. Time dummies are included but not reported. Indicated are both the total number of observations and those observations being uncensored (non-zero profit distributions). The log-likelihood ratio tests whether the log-likelihood in the unrestricted model (with explanatory variables) differs significantly in the restricted (with constant only) model. The log-likelihood is the relevant test value.

Besides these internal factors, external factors do influence the savings banks' payout decision as well.<sup>12</sup> First of all, we find that the indebtedness of the local authorities helps to explain the payouts. The significant and positive relationship between the local authorities' debts and the savings banks' payout signals that profits are preferably paid to highly indebted local authorities. These findings confirm our

<sup>12</sup> The external factors are divided by 1.000 in order to increase the coefficients in the regression so that they reach a presentable size. The interpretation of the results is not influenced by this procedure.

Proposition 3. We also find evidence that the financial scope of the local authorities, measured by the personnel expenses per inhabitant, has strong explanatory power. We obtain evidence that the higher the personnel expenses per inhabitant, i.e. the smaller is the financial scope, the more likely is the related savings bank to distribute profits.

In contrast, the local authorities' net income seems to be of less importance for the savings banks' payout decision. However, we find some evidence of a negative relationship between net income and the payout ratio. Since payouts from the savings banks are higher, when net income is lower, we obtain some evidence that local authorities try to smooth their net income.

**Table 6: Tobit results**

|                       | TOBIT                  |            |                        |            |                        |            |                        |            |
|-----------------------|------------------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|
|                       | (1)                    |            | (2)                    |            | (3)                    |            | (4)                    |            |
|                       | Coef.                  | Marg. eff. |
| ROA                   | 237.5197 ***<br>(5.94) | 53.0392    | 239.7837 ***<br>(5.71) | 53.2626    | 237.4377 ***<br>(5.48) | 54.3101    |                        |            |
| CAP                   | 0.8856<br>(0.54)       | 0.1977     |                        |            | 0.8647<br>(0.46)       | 0.1978     |                        |            |
| RISK                  | -2.2528 ***<br>(-5.22) | -0.5031    |                        |            | -1.8547 ***<br>(-4.04) | -0.4242    |                        |            |
| CAP_RISK              |                        |            | 2.1953 ***<br>(2.45)   | 0.4876     |                        |            |                        |            |
| SIZE                  | 0.2085 ***<br>(3.95)   | 0.0466     | 0.2637 ***<br>(4.86)   | 0.0586     | 0.3597 ***<br>(6.60)   | 0.0823     |                        |            |
| LA-LOANS              | -0.1354<br>(-0.85)     | -0.0302    |                        |            | -0.1212<br>(-0.67)     | -0.0277    |                        |            |
| TOWN                  | -0.3431 **<br>(-2.26)  | -0.0668    |                        |            | 0.1103<br>(0.98)       | 0.0264     |                        |            |
| DISTRICT              | 0.1921<br>(1.56)       | 0.0434     |                        |            | -0.1159<br>(-1.17)     | -0.0264    |                        |            |
| INC                   | -0.1314<br>(-1.35)     | -0.0293    |                        |            |                        |            | -0.1342<br>(-1.19)     | -0.0327    |
| PEXP                  | 1.8496 ***<br>(3.68)   | 0.4130     | 0.8638 ***<br>(3.92)   | 0.1919     |                        |            | 0.6366 ***<br>(2.73)   | 0.1550     |
| DEBTS                 | 0.3276 ***<br>(2.91)   | 0.0731     | 0.4034 ***<br>(3.75)   | 0.0896     |                        |            | 0.5515 ***<br>(4.95)   | 0.1343     |
| Constant              | -5.2281 ***<br>(-4.57) |            | -7.5842<br>(-6.44)     |            | -7.7257 ***<br>(-6.27) | -1.7671    | -1.1619 ***<br>(-6.52) |            |
| Observations          | 581                    |            | 581                    |            | 581                    |            | 581                    |            |
| Uncensored            | 143                    |            | 143                    |            | 143                    |            | 143                    |            |
| Pseudo R <sup>2</sup> | 0.1916                 |            | 0.1551                 |            | 0.1333                 |            | 0.0708                 |            |
| Log-Likelihood        | -296.88                |            | -310.27                |            | -318.27                |            | -341.23                |            |
| P-val.(LR test)       | 0.0000                 |            | 0.0000                 |            | 0.0000                 |            | 0.0000                 |            |

**Note:** \*, \*\*, and \*\*\* indicate significance on the 10 %, 5 % and 1 % level, respectively. z-values on the basis of robust standard errors are in parentheses. Time dummies are included but not reported. Indicated are both the total number of observations and those observations being uncensored (non-zero profit distributions). The log-likelihood ratio tests whether the log-likelihood in the unrestricted model (with explanatory variables) differs significantly in the restricted (with constant only) model. The log-likelihood is the relevant test value.

Table 6 presents the results for the Tobit model. In contrast to the Logit model, the marginal effects here do measure the effect of the explanatory variables on the expected value of the dependent variable conditional on the dependent variable being observed, i.e. not censored. Although the coefficients differ from these of the Logit model to some extent, the results are very similar. The findings from the Tobit model suggest, that not only the binary payout decision, but also the non-zero payout level is influenced by the explanatory variables in the expected manner. Profitability, portfolio risk and size are relevant internal factors explaining the level of payouts. Interestingly, the capital-to-asset ratio is insignificant, whereas the risk-weighted capital ratio is significant. This result suggests that regulatory capital requirements influence the payout decision. In contrast to the results from the Logit regression, however, we do not find a significant and negative (substitutive) relationship between the loans granted to the local authorities and the level of payouts. Furthermore, our finding is confirmed that also external factors affect the distribution of profits. More specifically, we find a positive and significant effect of both the local authorities' indebtedness and their personnel expenses per inhabitant on the payout level. Thus, also the Tobit model provides support for Propositions 1 and 3. However, we obtained mixed evidence in favour of Proposition 2. On the one hand, portfolio risk has a significant and negative impact on the payout decision as expected, on the other hand results suggest so far, that the capital ratio does not influence the payout level. Again, these results remain robust when modifying the specification by omitting variables according to specifications (2) to (4).

### **Further robustness checks**

As a first robustness check we examine each year of the observation period separately in order to detect potential divergent relationships over time. Table 7 shows the results from the Tobit model for the individual years 1995 to 2001. The results confirm our previous findings that the internal factors profitability, portfolio risk and size, but also the external factor describing the indebtedness of the local authority help to explain the payout decision of the savings banks. Beyond, we find that these results are quite robust over time. We detect a significant relationship between these explanatory variables and the payout level for almost every single year. However, the explanatory power of the model tends to become smaller in the end of the observation period. In 2001, the LR-test indicates that all explanatory variables do not have a significant effect on the payout decision. We ascribe this finding to the low number of savings banks distributing profits in 2001.

**Table 7: Tobit results for each individual year**

|                       | 1995        | 1996        | 1997         | 1998        | 1999        | 2000       | 2001       |
|-----------------------|-------------|-------------|--------------|-------------|-------------|------------|------------|
| ROA                   | 185.2204 ** | 243.0252 ** | 436.5280 *** | 374.3887 ** | 91.8919     | 322.4766 * | 163.4855   |
| CAP                   | 2.9288      | 4.2721      | 6.1445       | 17.4820     | 28.1925     | 3.2649     | 0.1082     |
| RISK                  | -2.2032     | -3.1033 **  | -1.9752      | -0.9703     | -4.8258 *** | -4.0618 ** | -2.1998    |
| SIZE                  | 0.2273 **   | 0.2769 **   | 0.3744 **    | 0.2658      | 0.4810 ***  | 0.2963     | 0.2967 *   |
| LA-LOANS              | 1.7141      | 0.1047      | -2.6090      | 0.9160      | 3.5750      | -0.1853    | 6.0296     |
| TOWN                  | 0.1212      | -0.0120     | -0.1346      | 0.0752      | 0.2106      | 0.2487     | 0.0020     |
| DISTRICT              | -0.2727     | -0.1803     | -0.3897      | -0.0061     | 0.1078      | 0.2548     | -0.2629    |
| INC                   | 1.0171      | 0.7152      | -1.0533      | 0.3963      | -0.6200     | -0.1417    | -0.1190    |
| DEBTS                 | 0.6597 ***  | 0.5268 **   | 0.4285       | 0.6570 **   | 0.4428      | 0.7655 **  | 0.6497     |
| Constant              | -5.3186 **  | -5.8452 **  | -8.9186 ***  | -8.1340 *   | -10.0681 ** | -6.4089    | -6.9345 ** |
| Observations          | 80          | 79          | 81           | 84          | 83          | 88         | 86         |
| Uncensored            | 25          | 24          | 23           | 20          | 18          | 19         | 14         |
| Pseudo R <sup>2</sup> | 0.2574      | 0.2499      | 0.2059       | 0.1828      | 0.2188      | 0.2403     | 0.1468     |
| Log-Likelihood        | -40.94      | -41.07      | -44.29       | -41.92      | -37.41      | -40.93     | -37.35     |
| P-val.(LR test)       | 0.0008      | 0.0012      | 0.0063       | 0.0273      | 0.0128      | 0.0021     | 0.1696     |

**Note:** \*, \*\*, and \*\*\* indicate significance on the 10 %, 5 % and 1 % level, respectively. z-values on the basis of robust standard errors are in parentheses. Indicated are both the total number of observations and those observations being uncensored (non-zero profit distributions). The log-likelihood ratio tests whether the log-likelihood in the unrestricted model (with explanatory variables) differs significantly in the restricted (with constant only) model. The log-likelihood is the relevant test value.

Next, we examine in more detail, whether the payout behaviour differs among the different federal states. We focused on a comparison between Lower Saxony and the three other federal states in the sample, since the number of observations for the latter three federal states were too small for being analysed separately. Table 8 summarises the results. Whereas our previous findings regarding profitability, portfolio risk and size hold for both groups of savings banks, we find that even the capital-to-asset ratio has a positive and significant effect on the distribution of profits in Hesse, Baden-Wuerttemberg and Schleswig-Holstein. In contrast to our findings from the Logit-Model for the whole sample, we find that loans to local authorities do have a positive and significant effect on payouts in Lower Saxony. The results suggest that the closer the relationship between the savings bank and the local authority, the higher is the level of payouts. As the dummy variables *TOWN* and *DISTRICT* are concerned, our earlier finding that rather savings banks related to districts than savings banks related to towns do distribute profits is confirmed. However, the relationship only holds for Hesse, Baden-Wuerttemberg, and Schleswig-Holstein.

We also find some interesting differences regarding the relevance of the external determinants of the savings banks' payout decision. While the indebtedness of the local authorities is significant and positive for the sample comprising Hesse, Baden-Wuerttemberg, and Schleswig Holstein, we find a significant and positive effect of the

personnel expenses per inhabitant on the payout decision in Lower Saxony.<sup>13</sup> However, the interpretation of the results is similar. In both groups of savings banks the financial situation of the local authorities helps to explain the savings banks' payout decision as assumed in Proposition 3.

**Table 8: Tobit results for different federal states**

|                       | TOBIT                  |            |   |            |
|-----------------------|------------------------|------------|---|------------|
|                       | Lower Saxony           |            | Hesse,<br>Baden-Wuerttemberg,<br>Schleswig-Holstein |            |
|                       | Coef.                  | Marg. eff. | Coef.   | Marg. eff. |
| ROA                   | 215.5739 ***<br>(5.40) | 44.8733    | 181.8097 **<br>(2.17)                               | 22.0531    |
| CAP                   | -0.4028<br>(-0.18)     | -0.0838    | 41.6097 ***<br>(2.72)                               | 5.0471     |
| RISK                  | -1.1642 ***<br>(-2.81) | -0.2423    | -6.7323 ***<br>(-5.64)                              | -0.8166    |
| SIZE                  | 0.1708 ***<br>(2.85)   | 0.0355     | 0.2596 **<br>(2.29)                                 | 0.0315     |
| LA-LOANS              | 2.4268 **<br>(1.97)    | 0.5052     | -0.6897<br>(-0.26)                                  | -0.0837    |
| TOWN                  | -0.1809<br>(-1.17)     | -0.0339    | -0.2488<br>(-0.73)                                  | -0.0269    |
| DISTRICT              | 0.0944<br>(0.76)       | 0.0197     | 0.8358 ***<br>(2.85)                                | 0.1268     |
| INC                   | -0.2821<br>(-1.02)     | -0.0587    | -0.0742<br>(-0.73)                                  | -0.0090    |
| PEXP                  | 1.2061 **<br>(2.24)    | 0.2511     | 1.4521<br>(1.46)                                    | 0.1761     |
| DEBTS                 | -0.0257<br>(-0.22)     | -0.0053    | 1.6561 ***<br>(5.44)                                | 0.2009     |
| Constant              | -4.2885 ***<br>(-3.31) |            | -6.9079 ***<br>(-2.67)                              |            |
| Observations          | 378                    |            | 203   |            |
| Uncensored            | 88                     |            | 55  |            |
| Pseudo R <sup>2</sup> | 0.1630                 |            | 0.4150  |            |
| Log-Likelihood        | -165.70                |            | -90.26  |            |
| P-val.(LR test)       | 0.0000                 |            | 0.0000  |            |

**Note:** \*, \*\*, and \*\*\* indicate significance on the 10 %, 5 % and 1 % level, respectively. z-values on the basis of robust standard errors are in parentheses. Time dummies are included but not reported. Indicated are both the total number of observations and those observations being uncensored (non-zero profit distributions). The log-likelihood ratio tests whether the log-likelihood in the unrestricted model (with explanatory variables) differs significantly in the restricted (with constant only) model. The log-likelihood is the relevant test value.

<sup>13</sup> The variables *PEXP* and *DEBTS* are multicollinear to some extent. If *DEBTS* is excluded from the regression, *PEXP* becomes significant for savings banks in Hesse, Baden-

Furthermore, we analyse potential differences between the different types of savings banks. Savings banks related to an alliance of both towns and districts for instance might be influenced by the local authorities less easily than savings banks related to a single district or town, since the influence of the single town and district is smaller. In order to accomplish their aims the relevant local authorities had to arrange coalitions of interests first, which are difficult to constitute.

Table 9 summarises the results. Not surprisingly, we find that profitability is very relevant for the payout decision of all groups of savings banks. Savings banks related to towns or districts do particularly consider portfolio risk when determining the level of payout, whereas savings banks related to both towns and districts rather take account of the capital-to-asset ratio. The interpretation of the results, however, is similar. They suggest that savings banks with a higher regulatory capital ratio tend to be less reluctant to distribute profits. However, size significantly affects the payout decision only in case of savings banks related to districts and savings banks related to both towns and districts. Larger savings banks in the observed four federal states, which are related to a town, therefore, are not more likely to distribute profits than smaller savings banks. Savings banks related to a town differ even in another respect. Loans to the local authorities are irrelevant for their payout decision, whereas they have a significant and positive effect on the level of payouts for other savings banks.

As the external factors are concerned, we find some evidence for our assumption that the external factors are less relevant for savings banks related to an alliance of both towns and districts. Whereas the indebtedness of the local authorities is highly significant for the payout decision of savings banks related to districts and the personnel expenses per inhabitant are strongly relevant for savings banks related to a town,<sup>14</sup> we find no evidence that these variables are important determinants for savings banks related to both towns and districts as well. We only find some meagre evidence that the local authorities' net income might have some influence on the savings banks' payout decision. This finding supports our assumption that the local authorities try to influence the savings banks payout decision if they can. In contrast to model specification 1 the savings banks are assigned to the local authorities in a different way according to model specification 2. Instead of calculating the arithmetic mean of the financial data of the relevant towns and districts, the data of the savings banks related to both towns and districts were exclusively assigned to the financial data of the single local authority, whose financial situation is comparatively worst. However, the different models show robust results.

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Wuerttemberg and Schleswig-Holstein. However, *DEBTS* even remains insignificant for savings banks in Lower Saxony if *PEXP* is excluded from the regression.

**Table 9: Tobit results for the different types of savings banks**

|                       | TOBIT                              |            |                                |            |   |            |              |            |
|-----------------------|------------------------------------|------------|--------------------------------|------------|---|------------|--------------|------------|
|                       | Savings banks related to districts |            | Savings banks related to towns |            | Savings banks related to both towns and districts |            |              |            |
|                       |                                    |            |                                |            | (1)   |            | (2)          |            |
|                       | Coef.                              | Marg. eff. | Coef.                          | Marg. eff. | Coef.   | Marg. eff. | Coef.        | Marg. eff. |
| ROA                   | 184.9383 ***                       | 31.6795    | 302.0700 ***                   | 59.5656    | 226.8138 ***                                      | 18.3074    | 234.3285 *** | 19.2051    |
|                       | (2.80)                             |            | (3.73)                         |            | (3.07)  |            | (3.23)       |            |
| CAP                   | -3.3460                            | -5.7317    | 8.5292                         | 1.6819     | 112.9629 ***                                      | 9.1178     | 111.2886 *** | 9.1210     |
|                       | (-0.35)                            |            | (0.60)                         |            | (5.22)  |            | (5.06)       |            |
| RISK                  | -6.0475 ***                        | -1.0359    | -1.8258 ***                    | -0.3600    | 2.1798  | 0.1759     | 1.9334       | 0.1585     |
|                       | (-5.66)                            |            | (-3.38)                        |            | (1.29)  |            | (1.18)       |            |
| SIZE                  | 0.3000 **                          | 0.0514     | 0.0117                         | 0.0023     | 0.5147 **   | 0.0415     | 0.5658 **    | 0.0464     |
|                       | (2.21)                             |            | (0.14)                         |            | (2.34)  |            | (2.42)       |            |
| LA-LOANS              | 3.3812 *                           | 0.5792     | -0.1492                        | -0.0294    | 10.3635 **  | 0.8365     | 10.4137 **   | 0.8535     |
|                       | (1.88)                             |            | (-0.62)                        |            | (2.23)  |            | (2.16)       |            |
| INC                   | -0.5802                            | -0.0994    | -0.4323                        | -0.0852    | -0.1395 *   | -0.0113    | -0.0702 *    | -0.0058    |
|                       | (-0.66)                            |            | (-1.23)                        |            | (-1.70)   |            | (-1.66)      |            |
| PEXP                  | 2.1185                             | 0.3629     | 3.5411 ***                     | 0.6983     | 0.5327  | 0.0430     | -0.2897      | -0.0237    |
|                       | (1.51)                             |            | (4.32)                         |            | (0.29)  |            | (-0.35)      |            |
| DEBTS                 | 0.7409 ***                         | 0.1269     | 0.2897                         | 0.0571     | 0.0113  | 0.0009     | 0.1004       | 0.0082     |
|                       | (4.19)                             |            | (1.36)                         |            | (0.06)  |            | (0.60)       |            |
| Constant              | -5.0682                            |            | -2.9454 *                      |            | -18.4622 ***                                      |            | -19.1757 *** |            |
|                       | (-1.51)                            |            | (-1.77)                        |            | (-3.24)   |            | (-3.22)      |            |
| Observations          | 280                                |            | 171                            |            | 130   |            | 130          |            |
| Uncensored            | 62                                 |            | 45                             |            | 36  |            | 36           |            |
| Pseudo R <sup>2</sup> | 0.2301                             |            | 0.3388                         |            | 0.4948  |            | 0.4974       |            |
| Log-Likelihood        | -121.77                            |            | -76.04                         |            | -46.26  |            | -46.02       |            |
| P-val.(LR test)       | 0.0000                             |            | 0.0000                         |            | 0.0000  |            | 0.0000       |            |

**Note:** \*, \*\*, and \*\*\* indicate significance on the 10 %, 5 % and 1 % level, respectively. z-values on the basis of robust standard errors are in parentheses. Time dummies are included but not reported. Indicated are both the total number of observations and those observations being uncensored (non-zero profit distributions). The log-likelihood ratio tests whether the log-likelihood in the unrestricted model (with explanatory variables) differs significantly in the restricted model (with constant only). The log-likelihood is the relevant test value.

Finally, we also utilised alternative definitions of the dependent variable as a robustness check. In order to circumvent biased coefficients, we continued to focus on these savings banks, which are allowed to distribute profits by law. Table 10 presents the results. On the one hand, we defined the dependent variable as the level of payout divided by the net income of the savings banks, and ignored the maximum payout level determined by law. Consequently, this ratio measures, which share of the total profits are actually distributed. However, since the maximum payout level usually refers to the savings banks net income, the results are expected to be similar to these obtained earlier. Indeed, we obtained very similar results like before. On the other

<sup>14</sup> If *PEXP* is excluded from the regression, we find that *DEBTS* is significant and positive in case of savings banks related to towns as well.

hand, we defined the payout ratio as the payout level divided by total assets. Again, the conclusions from the findings are very similar to those obtained before.<sup>15</sup>

**Table 10: Alternative dependent variables**

|                       | TOBIT                  |           |                        |           |
|-----------------------|------------------------|-----------|------------------------|-----------|
|                       | Payout/Profit          |           | Payout/Total assets    |           |
|                       | Coef.                  | Marg. eff | Coef.                  | Marg. eff |
| ROA                   | 39.2314 ***<br>(6.35)  | 8.6904    | 159.4668 ***<br>(7.86) | 33.8711   |
| CAP                   | 0.1685<br>(0.70)       | 0.0373    | 0.6002<br>(0.77)       | 0.1275    |
| RISK                  | -0.3683 ***<br>(-5.54) | -0.0816   | -1.2482 ***<br>(-5.74) | -0.2651   |
| SIZE                  | 0.0325 ***<br>(3.98)   | 0.0072    | 0.1076 ***<br>(4.02)   | 0.0229    |
| LA-Loans              | -0.0188<br>(-0.85)     | -0.0042   | -0.0579<br>(-0.82)     | -0.0123   |
| TOWN                  | -0.0614 ***<br>(-2.62) | -0.0116   | -0.0002 ***<br>(-3.18) | 0.0000    |
| DISTRICT              | 0.1813<br>(0.96)       | 0.0040    | 0.0000<br>(0.54)       | 0.0000    |
| INC                   | -0.0232<br>(-1.54)     | -0.0051   | -0.0706<br>(-1.45)     | -0.0150   |
| PEXP                  | 0.2756 ***<br>(3.55)   | 0.0611    | 0.9254 ***<br>(3.64)   | 0.1966    |
| DEBTS                 | 0.0504 ***<br>(2.90)   | 0.0112    | 0.1697 ***<br>(2.99)   | 0.0360    |
| Constant              | -0.8063 ***<br>(-4.57) |           | -0.0027 ***<br>(-4.64) |           |
| Observations          | 581                    |           | 581                    |           |
| Uncensored            | 143                    |           | 143                    |           |
| Pseudo R <sup>2</sup> | 0.7145                 |           | -0.1174                |           |
| Log-Likelihood        | -28.8964               |           | 794.96                 |           |
| P.-val.(LR test)      | 0.0000                 |           | 0.0000                 |           |

**Note:** \*, \*\*, and \*\*\* indicate significance on the 10 %, 5 % and 1 % level, respectively. z-values on the basis of robust standard errors are in parentheses. Time dummies are included but not reported. Indicated are both the total number of observations and those observations being uncensored (non-zero profit distributions). The log-likelihood ratio tests whether the log-likelihood in the unrestricted model (with explanatory variables) differs significantly in the restricted (with constant only) model. The log-likelihood is the relevant test value.

<sup>15</sup> Since the dependent variable is much smaller by construction, the coefficients of the explanatory variables would be much smaller as well. In order to obtain presentable coefficients, we decided to divide all explanatory variables by 1.000. The only effect is that the coefficients of the explanatory variables become larger by the factor 1.000.

## 6 Conclusions

We analyse the payout decision of German savings banks. Due to their special institutional characteristics, savings banks heavily rely on retained earnings in order to fund their business growth. Therefore, they are expected to be reluctant to distribute profits to the local authorities which represent the savings banks' responsible bodies. However, German savings banks have a public mandate, which could call for distributing profits to the local authorities.

According to the laws by the federal states, the savings banks are free to distribute profits, but have to observe a maximum amount, which they are not allowed to exceed. Within these limits, German savings banks are expected to determine their payout level depending on their financial situation. Indeed, our results confirm that profitability has a positive and portfolio risk a negative effect on the savings banks' payout decision. Furthermore, results suggest that larger savings banks are less reluctant to distribute profits.

Given that the beneficiaries of the payouts, the towns and districts, are seriously indebted, it could be argued, that the relevant local authorities might lobby for payouts being as high as possible. Lobbying might be possible, since a board finally decides on the payout decision, which is dominated by persons elected by the local authorities. Therefore, the financial situation of the local authority may play a certain role in the determination of the payout level.

Indeed, we find evidence that the distribution of profits is not only influenced by internal factors related to the individual savings bank, but also by external factors related to the local authorities. Results suggest that the worse the financial situation of the related local authority, the more likely is the savings bank to distribute profits and to increase payouts, respectively. More specifically, we find that both the indebtedness per inhabitant and the personnel expenses per inhabitant do have a significant and positive impact on the savings banks' payout decision. Furthermore, we find some meagre evidence that local authorities try to smooth their net income with the help of the payouts from the savings banks. Interestingly, the local authorities' indebtedness and personnel expenses do not play a significant role in case of savings banks being related to an alliance of both towns and districts. These savings banks are expected to be less influenced by the towns and districts, since the dependence on a single local authority is lower.

In total, the results rather suggest that there is a significant influence of the local authorities on the payout decision of German savings banks, although savings banks could voluntarily determine their payout level according to the financial situation of the relevant local authority. However, since the overall payout level of the savings banks to their local authorities is quite low by size and only a few savings banks actually distribute profits, the extent of exerting an influence is either limited or little successful. At any rate, there seems to be no menace for the savings banks' funding.

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