Cooperatives' "one-shareholder-one-vote" principle and financial reporting quality

Abstract

Unlike corporations, cooperatives are typically governed by the democratic principle of "one shareholder, one vote," which ensures that every member has an equal say, regardless of the amount of capital they contributed. However, some cooperatives permit members to have multiple voting rights.

Our study, based on a sample from Germany, reveals that cooperatives allowing multiple voting rights tend to exhibit significantly lower financial reporting quality, indicated by higher discretionary accruals, compared to those adhering to the "one-shareholder-one-vote" principle. These results remain robust after employing propensity score matching, using different measures of financial reporting quality, and considering the endogenous choice to allow multiple voting rights.

This paper adds to the emerging literature on the financial reporting practices of cooperatives and explores the relationship between owners' voting power and the quality of financial reporting.

Data availability statement

We gathered data from the statutes of cooperatives, which are accessible at the local court in Hagen, North Rhine-Westphalia (Germany). We also utilized information from the publicly available Dafne database (Bureau van Dijk).

Keywords: cooperatives, financial reporting quality, "one-shareholder-one-vote" principle, democratic member control, agency theory

JEL: L31, M41, G32

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1 Introduction

A cooperative is an association of individuals or entities that voluntarily come together to meet their common economic, social, or cultural needs through a jointly owned enterprise. The individuals or entities within this association are referred to as members and act as shareholders, enjoying certain "special benefits." For example, members of consumer cooperatives can purchase goods and services from the cooperative, often at prices lower than market rates. A housing cooperative is a specific type of consumer cooperative where members benefit from relatively low rents. Producer cooperatives, such as agricultural cooperatives, buy the goods and services of their members at favorable prices or in advantageous quantities.

Cooperatives play a significant economic role[1] and feature a unique corporate governance structure that differs from corporations. Unlike corporations, where decisions are typically made based on a "one-*share*-one-vote" rule, cooperatives operate under the principle of "one-*shareholder*-one-vote" (Toms, 2001). This means that even with hundreds or thousands of members, each member has an equal say in the decision-making process. This governance model can lead to potential conflicts of interest between the members (shareholders) and management (Type I agency problem). However, the principle of "one-shareholder-one-vote" prevents conflicts between members with larger shareholdings and "minority" members (Type II agency problem), since all members possess equal voting power. Some cooperatives, however, do permit members to hold multiple voting rights; this can create disparities in power among members.

[1] There are approximately 250,000 cooperatives in the European Union (EU), with around 163 million members—equivalent to one-third of the EU population—and 5.4 million employees (see https://ec.europa.eu/growth/sectors/social-economy/cooperatives_en). According to the United Nations (2014), there are a total of 2.6 million cooperatives worldwide, encompassing 1 billion members and 100 million employees.

Furthermore, some cooperatives are managed by "honorary" executives who perform their roles without receiving a salary (*Ehrenamt*). These individuals may possibly be strongly intrinsically motivated (Haunert & Hanisch, 2019; Adams & Deakin, 2017; Bastida et al., 2022). Honorary executives do not have any incentive to manipulate earnings for the purpose of increasing their bonus compensation. As a result, the presence of honorary executives may significantly reduce Type I agency problems between members and the management.

We first investigate whether cooperatives that adhere to the "one-shareholder-one-vote" principle demonstrate different financial reporting quality than those that do not. Second, we analyze the marginal impact of the option to hire honorary executives on financial reporting quality.

Consequently, we investigate four scenarios: (1) With cooperatives that follow the "one-shareholder-one-vote" principle and permit honorary executives, conflicts of interest both between the members and the executives as well as among members themselves may possibly be negligible. (2) If "one-shareholder-one-vote" cooperatives are managed by professional executives, only the Type I agency problem may be relevant. (3) When cooperatives allow multiple voting rights and honorary executives, conflicts of interest among the members (Type II) are important, but less so those between members and executives (Type I). (4) When multiple voting rights and professional executives come together, both types of agency problems are likely to be present. Our setting allows us to isolate the impact of different agency problems on financial reporting quality relatively well. Incidentally, this type of analysis would be more challenging in publicly listed and large private corporations, where Type I and Type II agency problems are usually intertwined.

This study assesses financial reporting quality primarily through absolute discretionary accruals, following the methodology outlined by Hutton, Marcus, and Tehranian (2009). Our analysis focuses on a set of German cooperatives that are generally required to disclose audited financial statements. We obtained the cooperatives' statutes from the local court (*Amtsgericht*) in Hagen, North Rhine-Westphalia. The statutes contain provisions on whether multiple voting rights and honorary executives are allowed or not.

Our study reveals several noteworthy findings. First, we report that cooperatives that adhere to the "one-shareholder-one-vote" principle generally demonstrate a higher quality of financial reporting as

the size of the cooperative (as measured by total assets) and the number of members increase. Since the size and number of shareholders reflect the degree of information asymmetries and agency problems, this outcome aligns with evidence found in publicly listed corporations. This result indeed suggests the presence of agency problems, and indicates that the demand for higher financial reporting quality increases when information asymmetries are more pronounced (Beyer, Cohen, Lys & Walther, 2010).

Second, we find that cooperatives permitting members with multiple voting rights exhibit significantly lower financial reporting quality than those that follow the "one-shareholder-one-vote" principle, even after applying propensity score matching. This finding supports the idea that granting multiple voting rights introduces Type II agency problems, where more powerful members may exploit their influence to obscure true performance, potentially to hide the extraction of private benefits (Leuz, Nanda & Wysocki, 2003).

Third, we find that evidence regarding the role of honorary executives is ambiguous. On the one hand, financial reporting quality *improves* in "one-shareholder-one-vote" cooperatives when statutes permit honorary executives, likely due to reduced Type I agency problems. On the other hand, this positive effect diminishes in cooperatives with multiple voting rights, suggesting that Type II agency problems prevail in those situations, and that honorary executives may lack the ability or willingness to counteract the self-serving behavior of powerful members.

This paper contributes to the emerging literature on the financial reporting choices of cooperatives. Although cooperatives are quite common and their unique corporate governance arrangements allow researchers to disentangle Type I and Type II agency problems, their financial reporting has not been thoroughly investigated. Previous research has analyzed the earnings responsiveness of stock prices, by comparing publicly listed cooperative cotton mills in Lancashire during the 19th century with stock corporations listed on the NYSE at that time (Toms 1998, 2001). Other studies have utilized more recent data to explore the factors influencing cooperatives' tendency to avoid reporting small losses (Piccoli, Moreira & Cruz, 2007; Almutairi, 2021; Bigus & Grahn, 2022). However, we are unaware of any literature that examines the influence of multiple voting rights and honorary executives on the financial reporting quality of cooperatives.

In addition, our study contributes to the financial accounting literature on private firms by examining the relationship between ownership structure and financial reporting quality. Since private firms are not generally required to disclose information about their ownership structure, there is very limited evidence available. For examples, see the survey articles by Minnis & Shroff (2017), Bar-Yosef, D'Augusta & Prencipe (2019), and Beuselinck, Elfers, Gassen & Pierk (2021). Hope et al. (2017) found that the quality of accruals in private corporations improved with increased monitoring from shareholders, lenders, and suppliers. In addition, Beuselinck et al. (2009) reported that private firms improved the quality of their financial reporting upon receiving funding from private equity investors.

In our paper, we focus on members of *cooperatives*, who serve a dual role as both shareholders and non-financial beneficiaries, and typically do not aim to maximize profits. We investigate whether the findings commonly observed in publicly listed and larger privately held corporations also apply to cooperatives—specifically, whether greater information asymmetries are associated with higher financial reporting quality. Furthermore, we explore how certain specific characteristics of cooperatives, such as the "one-shareholder-one-vote" principle and the option to hire honorary executives, are related to financial reporting quality.

Moreover, we respond to the call by Beuselinck et al. (2021) to explore privately held firms more deeply. We do not observe the "one-shareholder-one-vote" principle[2] or honorary executives with publicly listed companies. Our setting allows us to model varying degrees of agency problems and examine their implications for the quality of financial reporting.

[2] Our study is also partially linked to the literature that examines the relationship between dual-class structures and earnings management (e.g., Nguyen & Xu, 2010; Lobanova, Mishra, Raghunandan & Aidov, 2019). In dual-class share structures of publicly listed companies, control rights are often separated from cash-flow rights. This is typically not the case for the cooperatives in our sample. However, in some cooperatives, the statutes indicate that control rights may not be proportionate to cash-flow rights. Unfortunately, we were unable to measure the distribution of cash-flow rights and control rights among members, as cooperatives are not required to disclose this information. Moreover, members of cooperatives enjoy additional (non-financial) benefits, which complicates the comparison of our findings with the accounting literature on dual-class structures.

The paper is organized as follows: Section 2 provides institutional information about German cooperatives. Section 3 describes the research design and data selection process. Section 4 presents results on how multiple voting rights and the permission of honorary executives are associated with the financial reporting quality of cooperatives. Finally, Section 5 concludes.

2 The institutional background and hypothesis development

2.1 The development, characteristics, and types of cooperatives in Germany

Since 1847, various types of organizations such as "raw material associations," "food associations," and "lending societies" have been established in Germany to support craftspeople, consumers, and others facing difficult times (DGRV, 2015). As it became increasingly clear that cooperatives were enhancing the social and economic conditions of their members, their numbers grew rapidly, especially after the passage of the Cooperative Societies Act (GenG) in 1889.

Cooperatives, despite their diverse objectives, share five common principles (López-Espinosa, Maddocks & Polo-Garrido, 2012). First, they aim to meet the economic, social, and cultural needs of their members through the creation of a jointly owned enterprise (Section 1 GenG). In addition to being shareholders, members typically benefit from various long-term, often non-financial advantages associated with their membership, such as employment opportunities, consumer and supplier benefits, or access to housing at reduced prices (*fostering principle*, Reifschneider & Doluschitz, 2016). Second, members of cooperatives take on a dual role: they are not only investors but also consumers, suppliers, or employees of the cooperative (*principle of identity*).

Third, members are expected to support one another to enhance the overall social and economic wellbeing of the group (*principle of self-help and self-administration*). Consequently, a cooperative must be governed by its members (owners) (Section 9 II GenG). It is important to note that cooperatives may have executives who work unpaid (*Ehrenamt*, honorary executives) or part-time (*Nebenamt*), but we could not obtain data on executive compensation since privately held firms, including cooperatives, are not required to disclose this information (Section 338 III HGB).

Fourth, each member has the freedom to decide how much they wish to cooperate (*principle of voluntariness*). Members also have the option to redeem their share at face value (Section 65 I GenG), usually equivalent to the purchase price; in this respect, it is similar to a debt instrument.[3]

The fifth principle, which is the *principle of democracy*, is central to this paper. Decisions are made based on the votes of members, with each member having equal voting rights, regardless of how much capital they have contributed. This follows the "one-shareholder-one-vote" principle (Toms, 2001) as outlined in Section 43 III 1 of the GenG. However, the statutes may permit members to have multiple votes as stated in Section 43 III 2 of the GenG.

There are three important institutional characteristics related to financial reporting choices for cooperatives in our sample. First, all cooperative financial accounts must undergo an audit as mandated by Sections 53 I and II of the German Cooperative Act (GenG). The audits are conducted by the Audit Association for Cooperatives (*Genossenschaftlicher Prüfungsverband*). Second, German cooperatives are subject to corporate income taxes at both the federal and local levels (*Körperschaftssteuer* and *Gewerbesteuer*). However, housing cooperatives are exempt from corporate income tax according to Section 5 I No. 10 of the Federal Corporate Income Tax Code (KStG). Lastly, all cooperatives are required to have a supervisory board composed of independent directors, as outlined in Sections 9 and 38 I of the GenG. This supervisory board operates independently from the executive board and is responsible for monitoring its activities.

2.2 Incentives for earnings management in cooperatives

Cooperatives often have hundreds, and sometimes thousands, of members. In the full sample, the median cooperative has 1,779 members. It is possible that individual members lack insight into the cooperative's overall well-being. Since the costs of monitoring are borne by each member individually while the benefits are shared among all, no member has a strong incentive to monitor the cooperative.

[3] Consistently, for a long time, members' shares of cooperatives were classified as a debt instrument under IFRS (López-Espinosa et al., 2012).

This issue is compounded by the "one-shareholder-one-vote" principle, which can lead to a phenomenon known as rational apathy, similar to that observed in publicly listed firms (Hansmann, 1996).

If monitoring does not work perfectly, executives generally have the discretion to extract benefits in various ways (Gopalan & Jayaraman, 2012). Since executives often act in their own self-interest, they may misuse cooperative resources for personal gain (Jensen & Meckling, 1976; Hodder & Hopkins, 2014) or hire inadequately qualified relatives for certain positions. In addition, executives who are also members might disproportionately benefit from the cooperative compared to other members, e.g., by selling significantly more agricultural products to the cooperative at favorable prices. They might also exert insufficient effort when running the cooperative.

Fudenberg & Tirole (1995) argued that executives will reduce interference when they reduce the variability of earnings. Members of cooperatives in particular could be interested in stable modest net profits. Excessive profits could suggest that members have not received adequate benefits. For example, this may indicate that agricultural products could have been sold at higher prices, or that members of a housing cooperative might have leased apartments at lower rents. Conversely, reporting a loss could create concern among members or creditors, which should also be avoided (Burgstahler & Dichev, 1997; Bigus, Georgiou & Schorn, 2016; Jostarndt & Sautner, 2008).

Cooperatives are not obliged to disclose information regarding executive compensation contracts or performance targets. Nevertheless, when modest profits are reported, members may have more trust in executives, and the board of independent directors may be less vigilant in monitoring their activities. Reporting modest and persistent profits might also increase the likelihood of bonus payments or contract renewals (Suk, Lee & Kross, 2021).

As a result, during "bad" years, we may expect executives to utilize positive accruals to create a positive net profit. Conversely, in "good" years, executives might choose to defer income to the future in order to prevent negative reactions from members regarding the disclosure of high profits. Overall, we anticipate observing earnings-smoothing behavior (Tucker & Zarowin, 2006; Filip, Liu & Lui, 2025). Earnings smoothing involves the use of discretionary accruals over a longer period of time, which will be our focus in the following analysis.

2.3 Hypotheses

In the first step, we aimed to analyze the factors influencing financial reporting quality when all members have one vote, regardless of the number of shares they own.

According to the *opportunism hypothesis*, executives may conceal the firm's true performance to be in a better position to extract private benefits (Leuz et al., 2003). Jensen & Meckling (1976) argued that (Type I) agency problems between executives and shareholders become more severe in decentralized organizations and larger firms. In larger firms, the separation of management and ownership is more likely, which can lead to conflicts of interest. In addition, larger firms generally experience greater information asymmetries, providing more opportunities for executives to exploit the situation.

Information asymmetries are especially pronounced when shareholders have limited or no incentive to monitor executives, particularly due to freeriding behavior (Jensen & Meckling, 1976). In this context, a shareholder incurs the cost of monitoring alone, while sharing any benefits with other shareholders equally. As ownership becomes more dispersed, freeriding incentives tend to intensify. Therefore, we expect financial reporting quality to decline as cooperative size increases and ownership becomes more dispersed. There are two caveats. First, cooperatives in Germany are required to implement a board of independent directors. We therefore need to control for its monitoring role. Second, the opportunism hypothesis assumes executives act selfishly, and we do not know the extent to which this assumption applies in the context of cooperatives.

According to the *demand hypothesis*, financial reporting quality is expected to respond efficiently to Type I agency problems (Beyer et al., 2010). Consequently, when information asymmetries increase, possibly in part due to weak monitoring, shareholders are likely to demand higher financial reporting quality. The demand hypothesis suggests that we should observe an increase in financial reporting quality in larger cooperatives and those with more dispersed ownership. In addition, disclosure theory

predicts that financial reporting quality will improve with firm size, as larger companies are better equipped to bear the fixed costs associated with disclosure (Verrecchia, 1983).[4]

To summarize, we present Hypothesis 1 without a specific direction:

> Hypothesis 1: In the absence of multiple voting rights, both the cooperative's ownership dispersion and the size of a cooperative are associated with its financial reporting quality.

In the second step, we explored whether the quality of financial reporting differs in cooperatives that permit multiple voting rights. According to agency theory, shareholders who possess multiple votes have greater power. Given that voting rights are coupled with cash-flow rights, there are also stronger incentives to monitor executives, since the marginal benefits of monitoring increase with the size of the shareholding. Monitoring shareholders can intervene directly (referred to as "voice," as noted by Shleifer and Vishny, 1997) or threaten the executives with exit. It is important to note that members of German cooperatives have the option to redeem their shares.

On the one hand, having powerful members voice their opinions may help mitigate selfish behavior among executives, which could reduce the demand of all members for high-quality financial reporting. On the other hand, these powerful members may have their own incentives to conceal the cooperative's true performance in order to gain private benefits, leading to Type II agency problems. This could occur through activities such as self-dealing, or by trying to secure an (overpaid) position within the cooperative for themselves or their relatives (Jensen & Meckling, 1976; Janakiraman et al., 2010; Nagar, Petroni & Wolfenzon, 2011). Both arguments assume that either the executives or powerful members act in their own self-interest. In conclusion, we propose Hypothesis 2 without specifying a direction:

> Hypothesis 2: Cooperatives that permit multiple votes demonstrate a different financial reporting quality than those that adhere to the "one-shareholder-one-vote" principle.

Third, we highlighted the fact that some cooperative statutes allow for the hiring of "honorary" executives who do not receive a formal salary but are instead given a small expense allowance (Haunert

[4] Note that basic assumptions of disclosure theory do not apply to cooperatives, as they typically do not aim to maximize shareholder value, nor do they possess observable market values.

& Hanisch, 2019). Generally, *volunteers* are considered to be more independent and intrinsically motivated than paid employees, especially when they share the core values of the organization (Farmer & Fedor, 2001). Their engagement is often driven by altruistic motives or a desire to contribute to the organization or profession (Weil & Kimball, 2010). Similarly, *honorary executives* of cooperatives are expected to be highly intrinsically motivated, with a genuine interest in shaping the cooperative and enhancing its economic performance (Haunert & Hanisch, 2019). They may also be concerned about their fellow members and value the social relationships that are supported by norms of reciprocity and trust (Adams & Deakin, 2017; Bastida et al., 2022).

The intrinsic motivation of honorary executives typically reduces conflicts of interest among all members and the executives, which in turn decreases Type I agency problems. As a result, there is less incentive for these executives to manipulate reported performance. In contrast, *professional* executives may have additional motives driven by their compensation contracts. Evidence suggests that bonus contracts can incentivize earnings management even in non-profit organizations (Eldenburg et al., 2011). Since honorary executives do not receive a salary, they lack the incentive to manage earnings to increase bonus compensation. If we assume that Type I problems are negligible in the case of honorary executives, we can primarily focus on Type II agency problems in cooperatives with multiple voting rights.

However, we cannot dismiss the possibility that honorary executives engage in earnings management for reasons related to their reputation or to secure their positions. Therefore, we propose Hypothesis 3 without a specific direction:

> Hypothesis 3: Cooperatives that allow for the hiring of honorary (non-paid) executives exhibit a different level of financial reporting quality than cooperatives that employ professional executives.

3 Research design and data

3.1 Data selection

We utilized the Bureau van Dijk's Dafne database to analyze all German cooperatives (eG) from 2008 to 2017, with 2017 being the last year for which complete financial reports were available at the

time of data collection (July 22, 2019). The Dafne database includes financial accounting data and basic information on corporate governance. We excluded bankrupt cooperatives and credit cooperatives from our analysis. Additionally, we required that the cooperatives provide data on basic financials, including sales, total assets, net earnings, and debt, which meant we needed complete financial statements without abbreviations. According to the German Commercial Code (HGB), only larger cooperatives are required to disclose non-abbreviated financial statements (Sections 267, 274a, 276). As a result, we lost some observations because not all cooperatives provided the necessary data on financial reporting quality measures and control variables. Ultimately, our total sample size, without the application of propensity score matching, consisted of 4,203 observations. An overview is provided in Table 1.

--Insert Table 1 about here—

We gathered data on the existence of multiple voting rights and other corporate governance aspects from the statutes of the cooperatives in our initial sample. Most of these statutes were collected from the local court in Hagen, Westphalia, while some cooperatives provided them via email or postal mail. In total, we obtained statutes from approximately 95% of the cooperatives in our sample. Therefore, we do not expect any significant self-selection issues, particularly since the majority of the statutes were sourced from the court.

3.2 Measures of financial reporting quality

We used absolute discretionary accruals as our main dependent variable. Higher levels of absolute discretionary accruals indicate a greater likelihood that reported earnings will diverge from actual performance, suggesting increased earnings management and diminished quality of financial reporting (Van der Bauwhede, de Meyere, & Van Cauwenberge, 2015). According to the Modified Jones Model (Jones, 1991; Dechow, Sloan & Sweeney, 1995), discretionary accruals are represented by the error

term in the following equation, which is based on cross-sectional regressions that require a minimum of 15 observations per industry and year cluster:[5]

$$(1) \qquad \frac{TA_{i,t}}{A_{i,t-1}} = \beta_1 \cdot \frac{1}{A_{i,t-1}} + \beta_2 \cdot \frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}} + \beta_3 \cdot \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t},$$

where TA = total accruals,[6] A = total assets, ΔREV = change in revenues, ΔREC = change in receivables, and PPE = property, plant, and equipment.

Absolute discretionary accruals reflect the degree of discretion used in managing earnings, potentially making them more or less transparent (Hutton et al., 2009). In our study, we aimed to use a proxy that indicated persistent earnings management because executives have an incentive to manage earnings over a longer period of time. To achieve this, we followed the approach of Hutton et al. (2009) and utilized a three-year moving sum of absolute discretionary accruals (DISACC_3yr). This method allowed us to capture both the high accruals during the year of overstatement and the subsequent reversal of prior accrual manipulations (Kim & Zhang, 2014).

In Section 4.5, we utilize one-year accrual-based measures of financial reporting quality, as well as earnings smoothing (SMTH) and whether the financial statement has been restated or some information has been added (RESTATE).

[5] The clusters consist of solvent cooperatives with unconsolidated and non-abbreviated financial statements in Dafne as of July 22, 2019. We have excluded cooperatives from the financial sector.

[6] Total accruals = net earnings − cash flow from operations. Cash flow from operations is determined using the balance sheet approach, as cash-flow statements in the US format are not available for our sample of German private firms. In line with the methodology proposed by Dechow et al. (1995), we calculated the accrual component of earnings as follows: $(\Delta CA_{i,t} - \Delta Cash_{i,t}) - (\Delta CL_{i,t} - \Delta STD_{i,t}) - DEP_{i,t}$, where CA = current assets, CL = current liabilities, STD = short-term debt, and DEP = depreciation. Δ indicates the change from the previous fiscal year. If a cooperative did not provide any information regarding cash or short-term debt, the changes in both variables were assumed to be zero.

3.3 Independent variables

To test Hypothesis 1, we measured the size of the cooperative using the natural logarithm of total assets (SIZE). In some regressions, we also used the natural logarithm of the number of members (lnMEMB), which is highly correlated with SIZE (correlation coefficient: +0.77). For Hypothesis 2, we defined the independent variable MULT_VOTE. This variable is assigned a value of 1 if the cooperative's statutes allow members to have multiple voting rights, and a value of 0 if the principle of "one-shareholder-one-vote" applies. In relation to Hypothesis 3, we employed the dummy variable HONOR, which is assigned a value of 1 if the statutes permit the hiring of honorary executives who work pro bono, and of 0 otherwise.

We controlled for various firm characteristics that are known to be associated with financial reporting quality. According to disclosure theory (Beyer et al., 2010), agency problems related to debt can influence financial reporting choices (Van der Bauwhede et al., 2015; Kim & Yasuda, 2019). Therefore, we included the ratio of financial debt to total assets (DEBT) in our analysis.

We also accounted for operational risk (RISKSALES), as the volatility of sales is thought to be linked to the quality of financial reporting (Demerjian, Lev, Lewis & McVay, 2013; Dou et al., 2018). The occurrence of losses in at least one of the two preceding years (LOSS) may reduce the motivation to engage in earnings management, since the disclosure of losses is likely to have already damaged the firm's reputation (Bigus, Georgiou & Schorn, 2016).

Furthermore, given that there is book-tax conformity for German private firms, tax incentives are expected to influence financial reporting quality. We accounted for this by including the local corporate income tax rate (LOCAL_TAXRATE) in our analysis. We interacted the local income tax rate with NON_HOUSING because housing cooperatives are exempt from corporate income tax. We did not consider federal corporate income tax since it applies the same tax rate to all cooperatives.

Additionally, we controlled for the proprietary costs of disclosure (Bernard, Burgstahler & Kaya, 2018). This is important because competitors can access financial statements and may take actions to diminish the reporting entity's competitive advantages, such as mimicking entries in highly profitable market segments. Although this concern is likely more relevant for corporations than cooperatives, we measured proprietary costs by the level of competition in the relevant industry, using the Hirschman–

Herfindahl Index (HHI). We expected to find lower financial reporting quality in more competitive industries. Furthermore, we accounted for profitability, measured by return on assets (ROA). High profitability may reduce owners' demand for high-quality financial reporting. Additionally, greater sales growth (GROWTH) can provide more opportunities for earnings management activities. We also controlled for factors such as industry, year, and regional affiliations, all of which may influence financial reporting choices.

Furthermore, we included variables related to the corporate governance of cooperatives. The data on these variables comes from the cooperatives' statutes and is time-invariant.[7] HIGH_MEMB_LIAB is a binary variable that takes the value of 1 if personal liability exceeds the third quartile[8] of the sample of cooperatives with member liability and 0 otherwise. We anticipate that cooperatives with high member liability will make greater efforts to alleviate concerns about financial distress, which may result in lower financial reporting quality. NOTICE_PERIOD represents the notice period, measured in months, for returning member shares. A shorter notice period allows members to exit the cooperative more quickly in adverse circumstances, which we also expect to be associated with lower financial reporting quality. MIN_TERM is a binary variable indicating whether there is a minimum duration of membership required before members can cancel their membership. If a minimum duration exists, members cannot leave the cooperative easily, leading to a reduced need for earnings management.

The extent of information asymmetries also depends on the monitoring efforts of the board of independent directors which is mandatory for German cooperatives. We proxy the monitoring efforts by the number of board members. BOARD_SIZE refers to the minimum number of independent

[7] The statutes that were available at the time of data collection (July 2019) were often established before the investigation period (2008-2017). Only a few cooperatives have updated their statutes since 2008. For some cooperatives, we have multiple sets of statutes. It became clear that cooperatives generally made only minor modifications to their statutes, leaving the variables under investigation unchanged.

[8] We selected the third quartile (€880) because personal liability needs to be high enough to be deemed a significant financial loss. However, the qualitative results remained unchanged when we controlled for the presence or absence of personal member liability.

supervisory board members required by the statute. Most cooperatives require three independent board members, which is the minimum mandated by Section 36 I of the Cooperative Societies Act (GenG). We do not have any data regarding the characteristics of board members. Additionally, we accounted for whether the cooperative has CHARITY status. The financial reporting incentives may differ for charitable cooperatives, as they may need to avoid reporting excessively high profits to better justify receiving government subsidies (Leone & Van Horn, 2005; Eldenburg, Gunny, Hee & Soderstrom, 2011). CHARITY is a binary variable: it takes the value of 1 if the cooperative's name includes a term suggesting it is a charity, such as "*Gemeinnützige Genossenschaft*" or the designation "geG," where the letter "g" stands for "charitable" (*gemeinnützig*). It is assigned a value of 0 if no such term or designation is present.

3.4 Empirical design: Mundlak random-effects model

Since we worked with a panel data structure, it was important to account for serial correlation. The Hausman test indicated that we should use a firm-fixed effects model rather than a pooled OLS model. However, we could not implement a firm-fixed effects model because there was no within-cooperative variation in MULT_VOTE and other corporate governance characteristics over time, such as HONOR, NON_HOUSING, and HIGH_MEMB_LIAB.

As a result, we conducted a Mundlak (1978) model, which involved a random-effects regression. The Mundlak model relaxes the unrealistic assumption of a random effects model that there is no correlation between unobservable firm-specific effects and the independent variables. This model includes firm-specific group means of control variables as independent variables. The time averages of control variables capture the time-invariant "between" variation across cooperatives, while the controls themselves account for the time-variant variation within each cooperative. It is important to note that the time averages of control variables can only be included if they show variation over time; otherwise, they would be perfectly correlated with the respective control variables. Therefore, for the "sticky" variables mentioned earlier (e.g., MULT_VOTE, HONOR, and HIGH_MEMB_LIAB), we did not include mean values.

In considering industry, year, and regional affiliations, the Mundlak model's random-effects regression analyses are represented by (2):

$$(2) \quad DISACC_{i,t} = \alpha_0 + \alpha_1 MULT_{VOTE_i} + \alpha_2 HONOR_i + \alpha_3 SIZE_{i,t} + \sum_{j=4}^{J} \alpha_j \, Controls_{i,t} + \sum_{k=J+1}^{K} \alpha_k \, group\ means\ of\ control\ variables_i + \rho v_k + \gamma z_t + \vartheta y_s + \varepsilon_{i,t}.$$

We also assess the robustness of our findings by implementing random effects models and pooled OLS models with time fixed effects, using firm-level clustered standard errors. The qualitative results remain consistent, as partly shown in the tables below.

3.5 Empirical design: propensity score matching

Cooperatives with multiple voting rights may have different characteristics compared to other cooperatives, and these differences, rather than the presence of multiple voting rights, might actually influence financial reporting choices. We therefore have run analyses with both the full sample of cooperatives and propensity-score matched samples.

--Insert Table 2 about here--

Table 2 reveals that cooperatives with multiple voting rights are present in specific industries. Additionally, Panel A of Table 3 indicates that these cooperatives tend to display higher levels of discretionary or absolute accruals and engage in more income smoothing. However, they are generally smaller in size, have lower leverage, face higher operational risk, and operate in more concentrated industries.

--Insert Table 3 about here--

We conduct two propensity score matchings based on different matching criteria. With PSM 1, we employ 1:10 nearest neighbor matching based on SIZE and NON_HOUSING status (with a caliper size of $\varepsilon < 0.1$ and with replacement, as described by Rosenbaum & Rubin, 1985). Empirical research has indicated that firm size is a significant predictor of financial reporting quality (Beyer et al., 2010). As discussed earlier, conflicts of interest between executives and shareholders, as well as information asymmetries, tend to escalate as firm size increases. In addition, larger firms are generally better

equipped to absorb the (fixed) costs associated with high-quality financial reporting (Verrecchia, 1983). Moreover, larger firms are more likely to face tax audits or regulatory oversight, which may also influence their financial reporting decisions (Hoopes, Mescall & Pittman, 2012).

Housing cooperatives differ significantly from other types of cooperatives because they are exempt from corporate income tax, which may reduce incentives for earnings management. Furthermore, housing cooperatives appear to be more reluctant than other cooperatives to grant multiple voting rights.[9]

With PSM 2, the matching criterion is SIZE *within* different industry-year clusters. We do this because the incentives and opportunities for earnings management can vary significantly, depending on the particular industry. For instance, if an entire industry is performing poorly, any associated cooperatives may be more inclined to manage their earnings to facilitate bank lending (Mafrolla & D'Amico, 2017). In addition, cooperatives operating in industries with higher levels of tangible assets or accounts receivables generally find it easier to utilize discretionary accrual accounting. Matching by size *within* different industry-year clusters means that we lose observations from industries where multiple voting rights do not exist. In addition, PSM 2 has limited applicability in the "Construction" and "Other Services" industries, so it is primarily based on three industries: Agriculture and Fishing, Manufacturing, and Trade and Garages.

Table 3, Panel A shows that both PSM 1 and PSM 2 matching methods reduce the differences in means between cooperatives with multiple voting rights and those without across all variables

[9] To better understand the reluctance surrounding multiple voting rights in housing cooperatives, we randomly selected 18 such cooperatives and reached out to them via email or phone. The management teams provided the following reasons for their stance: (1) They are concerned that allowing members with multiple voting rights could unfairly influence decisions to the detriment of "minority" members, especially since housing is a fundamental personal need. (2) The principle of "one-shareholder-one-vote" discourages institutional or larger private investors. Indeed, it is conceivable that the potential investor base in the housing sector could be significantly larger than in sectors like agriculture. (3) Multiple voting rights are generally intended for members who contribute significantly to the cooperative's goals. However, it is unclear what would constitute a "significant contribution" in the context of housing cooperatives.

considered, resulting in partially non-significant differences.[10] PSM 1 is likely more representative because it includes a wider range of industries and approximately 30% more observations than PSM 2.

4 Results: Multiple voting rights and financial reporting quality

4.1 Descriptive statistics

Table 4 indicates that the mean value of absolute discretionary accruals accumulated over a three-year period is 9.0% of lagged total assets, while on a one-year basis, it stands at 2.8%. In addition, the mean value of SMTH is -0.5658, implying that approximately 43.4% of the volatility in cash flow from operations is mitigated by accrual accounting. Furthermore, only 2.6% of the financial statements were restated.

--Insert Table 4 about here—

Before the matching process, about 3.1% of all observations pertained to cooperatives that permit members to hold multiple voting rights. Among the 129 observations, 106 allow a maximum of three voting rights per member, three have a maximum of two voting rights, and nine allow up to 100 voting rights per member. 11 observations impose no limit on the number of voting rights a member can possess. Figures A1 and A2 in the Appendix illustrate that the prevalence of cooperatives with multiple voting rights is notably high in Rhineland-Palatinate and the eastern German states, particularly Saxony-Anhalt and Saxony.[11]

In the analyzed statutes, 56.6% allowed for honorary executives, while 65.4% permitted either honorary executives or part-time executives. Most statutes stipulated that the supervisory board must consist of three members. The local corporate income tax rate ranged from 7.7% to 19.3%, with a median rate of 14.4%. Notably, 42.2% of the cooperatives included in the sample were not in the housing sector.

[10] We also tested a third matching method based on the criteria of SIZE, RISKSALES, and industry-year. The matching quality was worse than with PSM 1 or PSM 2; however, the qualitative results remained.

[11] It is worth noting that we did not observe any cooperatives with multiple voting rights in the regions of Berlin, Bremen, Hamburg, Hesse, Mecklenburg-West Pomerania, Lower Saxony, and Saarland.

The median total assets held by a cooperative amounted to €42.1 million. On average, a cooperative is owned by 1,779 members and has a debt ratio of 57.7% and a return on assets (ROA) of 3.5%. The Pearson univariate correlation coefficients are moderate, and similar results were found with Spearman correlations; for further details, please refer to Table A2 in the Appendix.

4.2 Results for Hypothesis 1

Table 5 presents the regression results for "one-shareholder-one-vote" cooperatives only. It demonstrates that the average size of the cooperative (SIZE) has a negative association with the level of discretionary accruals, even though it is only statistically significant in the pooled OLS and random effect models (Columns 3-4). The variable representing the number of members (lnMEMB_mean) shows a negative coefficient (Column 2, $p < 1\%$).

--Insert Table 5 about here--

Cooperatives exhibit 35.6% (= 0.0148 / 0.0416) fewer discretionary accruals than the median value when they allow honorary executives (refer to Column 1). This finding supports the idea that honorary executives have less motivation to manipulate earnings compared to professional executives.

We also introduced an alternative dummy variable, PART_TIME, which is assigned a value of 1 if the statutes permit either honorary or part-time executives. While part-time executives may receive a modest salary, they are unlikely to earn performance-based compensation. As a result, they should have minimal incentives to distort reported performance. The regression analysis in Column 5 indicates that including part-time executives still leads to a decrease in earnings management.

In Column 6, we added the interaction term HONOR × SIZE_mean to the regression. The coefficient of the HONOR variable is statistically and economically stronger than in Column 1. However, the positive sign of the interaction term HONOR × SIZE_mean suggests that honorary executives' effect on improving financial reporting quality decreases as cooperative size increases. We obtained a similar result in Column 7 with the interaction term HONOR × lnMEMB_mean. Note that both the SIZE_mean and the lnMEMB_mean variables are significantly negatively related to DISACC.

Overall, this evidence supports Hypothesis 1 and clarifies its direction. It appears that larger cooperatives exhibit higher financial reporting quality when adhering to the "one-shareholder-one-vote"

principle. Given the strong correlation coefficient between SIZE and lnMEMB (+0.77), we focused on SIZE in the analyses presented from Table 6 onwards.

4.3 Results for Hypotheses 2 and 3

To investigate the marginal effect of multiple voting rights, we introduced a dummy variable called MULT_VOTE and included an interaction term, MULT_VOTE × HONOR. Table 6 demonstrates that MULT_VOTE has a robust and generally significantly positive coefficient. The regression in Column 1 indicates that absolute discretionary accruals increase by approximately 0.05 in cooperatives that allow multiple voting rights. This economic effect is significant, amounting to roughly 120% (about 56%) of the median (mean) value of DISACC_3yr (0.0416 and 0.0901, respectively). Consequently, the quality of financial reporting tends to be significantly lower in cooperatives allowing multiple voting rights.

This finding remains consistent even when we exclude observations from industries where multiple voting rights are not present (not tabulated). The results are also robust when employing either a pooled OLS or a random effects model (refer to Columns 5 and 6), using the number of votes (#VOTES) instead of MULT_VOTE (Columns 7–9), or when we run the regression with a propensity-score matched sample (Columns 3, 8, and 9). We provide evidence that supports a positive association outlined in Hypothesis 2.

--Insert Table 6 about here--

Interestingly, the presence of an honorary executive is generally linked to reduced earnings management in cooperatives that adhere to the "one-shareholder-one-vote" rule, as indicated by the negative sign of the HONOR variable. However, this effect appears to be reversed by the presence of powerful members, as shown by the positive sign of the interaction term MULT_VOTE × HONOR (or #VOTES × HONOR). Interestingly, with PART_TIME executives, the presence of multiple voting rights does not further decrease financial reporting quality, as indicated by the insignificant sign of the interaction term MULT_VOTE × PART_TIME (see Column 10).

--Insert Table 7 about here--

The subsample analyses in Table 7 offer further insights into the role of honorary executives. Table 7 shows the results for subgroups of cooperatives whose number of members (whose board size) remains below and above the median number (median board size). Column 2 and 4 indicate that the previously mentioned results are consistent for cooperatives with fewer members and smaller supervisory boards. For cooperatives with a larger membership (more than 1,779 members) and larger supervisory boards (more than three board members), we do not observe a negative association with the HONOR variable, nor do we see a significantly positive association with the MULT_VOTE variable (see Columns 3 and 5). This suggests that honorary executives and more professional executives do not significantly differ in their impact on financial reporting quality when the cooperatives and supervisory boards are larger. The enhanced monitoring capabilities of larger supervisory boards may explain why MULT_VOTE does not show a significantly positive association.

The interaction term MULT_VOTE × HONOR is only relevant for smaller cooperatives and supervisory boards, where it shows a significantly positive association.[12]

4.4 Interpretation of results

Table 5 presents the results for cooperatives that adhere to the "one-shareholder-one-vote" principle. In these cooperatives, the members tend to be quite homogeneous, which likely reduces the potential for Type II conflicts of interest among them (Toms, 1998; Hansmann, 1996; Adams & Deakin, 2017). However, conflicts of interest may arise between the members and the executives (Type I). Executives may engage in earnings management to obscure true performance, allowing them to extract private benefits (Gopalan & Jayaraman, 2012).

If executives acted in the best interest of the members, we should (1) not observe that the extent of information asymmetries and (2) the honorary status indeed matter for financial reporting quality. In fact, the SIZE and lnMEMB variables exhibit significantly negatively signs in many regressions, as does the HONOR variable. Cooperatives that follow the "one-shareholder-one-vote" principle tend to

[12] In Columns 3 and 5, the interaction term MULT_VOTE x HONOR is excluded because a high number of members or larger supervisory boards perfectly predict the interaction term.

improve financial reporting quality with more pronounced information asymmetries. This aligns with the demand hypothesis of financial disclosure theory (Beyer et al., 2010) and suggests that Type I agency problems also exist in cooperatives.

Table 6 presents additional findings regarding cooperatives that permit multiple voting rights. In these cooperatives, two types of conflicts of interest can arise: one between all members and the executives (Type I agency problems), and another between powerful members with multiple voting rights and regular members (Type II agency problems). The consistently positive and statistically significant coefficient for the MULT_VOTE variable can be interpreted in two different ways, depending on the role of powerful members.

From the first perspective, the presence of powerful members helps to reduce the conflict of interest between all members and executives, as these influential members have a greater incentive to oversee the executives. As a result, the demand of all members for high-quality financial reporting diminishes. However, if this interpretation were accurate, we would expect to see a negative coefficient for the interaction term MULT_VOTE × HONOR, rather than a positive one. This is because honorary executives tend to act less selfishly than professional executives—since they are not driven by compensation-related incentives for earnings management—leading to fewer conflicts between all members and the executives. Consequently, the influence of powerful members on the quality of financial reporting should be less pronounced, not greater.

We observe positive signs of MULT_VOTE and the interaction term MULT_VOTE × HONOR. This aligns with the second perspective, namely with the hypothesis that powerful members possessing multiple voting rights may opportunistically hide their true performance to extract personal benefits. Research by Nagar, Petroni, and Wolfenzon (2011) on closely held corporations suggested that controlling shareholders can exploit minority shareholders. Our findings indicate that members with multiple votes find it easier to conceal true performance when honorary executives are in charge compared to when professional executives are in place. So far, we argued that honorary executives may lack the motivation to manage earnings themselves. But they may also lack the necessary accounting skills and ambition to identify or curb any attempts to manipulate earnings. Consequently, members with multiple voting rights appear to have a greater opportunity to influence earnings management when

honorary executives lead the cooperative. This supports the idea that multiple voting rights can lead to Type II agency problems in cooperatives, particularly when Type I agency problems are negligible (such as when the cooperative employs honorary executives).

As the size of the supervisory board increases and oversight potentially improves, the MULT_VOTE variable consistently becomes insignificant (as seen in Column 5 of Table 7). When we account for part-time executives, owners with multiple voting rights do not significantly influence discretionary accruals (refer to the coefficient of MULT_VOTE × PART_TIME in Column 10 of Table 6). This may suggest that part-time executives are either more qualified or more willing to resist the pressures from powerful members. Importantly, the findings in Table 7 continue to hold true even after conducting propensity score matching (not shown in the tables).

4.5 Additional robustness checks: Alternative specifications of the DISACC variable and alternative measures of financial reporting quality

In line with the approach taken by Whited, Swanquist, Shipman, and Moon (2022), we examined whether our results remained consistent after excluding specific groups of dummy variables, such as industry and region dummies, as well as certain control variables. As shown in Table A4 in the Appendix, the results were not impacted by the removal of these controls.

We also examined the robustness of our results with respect to different specifications of the DISACC variable and various measures of financial reporting quality. In our main analyses, DISACC was measured as the three-year moving sum of absolute discretionary accruals, calculated over the period from t–2 to t. Accordingly, Table 8 presents robustness analyses where DISACC is instead measured over the period from t–1 to t+1, with independent variables assessed at time t (Columns 3 and 4). In addition, we investigated scenarios where both DISACC and control variables are measured over the period from t–2 to t (Columns 5 and 6).

The results indicate that the coefficients for MULT_VOTE and the interaction term MULT_VOTE × HONOR remain significantly positive, while the HONOR variable continues to exhibit a significantly negative sign. Notably, the results remain robust even when DISACC is measured over the period from t–2 to t and control variables are assessed at t–3 (though these results are not tabulated).

--Insert Table 8 about here--

We also conducted robustness tests using various measures of financial reporting quality, including: (a) discretionary accruals measured over one year (DISACC_1yr); (b) discretionary accruals calculated according to the performance-adjusted Jones model (Kothari et al., 2005; DISACC_ROA); (c) total accruals while controlling for the independent variables noted in (1), as suggested by Chen, Hribar, and Melessa (2018); (d) absolute working capital accruals (ABS_WCA; Dechow & Dichev, 2002); (e) earnings smoothing (Burgstahler et al., 2006); and (f) the incidence of restatements (Demerjian et al., 2013).

The change in working capital ($\Delta WCA_{i,t}$) is calculated as the difference between the change in non-cash current assets and the change in current liabilities. The earnings management component is defined as the absolute value of the residual from the following regression equation (OCF: cash flow from operations; all variables are scaled by lagged total assets):

$$\Delta WCA_{i,t} = \beta_0 + \beta_1 OCF_{i,t-1} + \beta_2 OCF_{i,t} + \beta_3 OCF_{i,t+1} + \varepsilon_{i,t} \quad (3)$$

Earnings smoothing is proxied by the ratio of the volatility of net income to the volatility of cash flow from operations, where both net income and cash flow are standardized by total assets (Burgstahler et al., 2006):

$$SMTH_{i,t} = (-1) \cdot \frac{SD\left(\frac{net\ income\ before\ taxes_{i,t}}{total\ assets_{i,t-1}}\right)}{SD\left(\frac{cash\ flow\ from\ operations_{i,t}}{total\ assets_{i,t-1}}\right)}. \quad (4)$$

SD stands for standard deviation and is calculated over a period of three years. SMTH indicates the extent to which the volatility of cash flow from operations is reflected in net income. A ratio of 1 means that net income fully reflects the volatility of cash flow, while a ratio of 0 indicates that all cash-flow volatility is masked by earnings management. We multiply by (–1) so that higher values of SMTH signify more earnings smoothing.

RESTATE is a dummy variable that equals 1 if the financial statement has been restated or if additional information has been included; it equals 0 otherwise. In this dataset, only 3% of the observations involved restatements or additions, and less than 1% featured restatements alone.

--Insert Table 9 about here—

Table 9 indicates that the MULT_VOTE variable typically shows a positive and often significant sign, whether we analyze the entire sample or the propensity-score-matched sample. We observe a significantly negative sign for the HONOR variable when earnings management is assessed using one-year discretionary or total accruals. However, this coefficient is not significant when using SMTH or RESTATE as dependent variables. The interaction term MULT_VOTE × HONOR generally displays a significantly positive sign across various accrual measures, but this is not the case for the earnings smoothing regressions. For the RESTATE analysis, the coefficient of the interaction term is not reported due to multicollinearity issues.

The robustness analyses confirm the hypothesis that cooperatives with multiple voting rights demonstrate higher levels of discretionary or total accruals. However, the evidence regarding earnings smoothing and the likelihood of restatements is less compelling. While the presence of multiple votes is consistently linked to various indicators of lower financial reporting quality, we do not find as robust evidence concerning the HONOR variable.

4.6 Additional robustness checks: Endogeneity of MULT_VOTE status

Cooperatives do not randomly permit multiple voting rights; this is a deliberate choice made by the organization. However, this decision was often established many years ago. For many executives, the provisions for multiple voting rights were already in place when they made decisions regarding earnings management. This indicates that endogeneity resulting from reverse causality is not likely to be a significant issue in our setting.

Nevertheless, we utilize a treatment effect model to control for otherwise uncontrolled differences between the group that allows multiple voting rights and the group that follows the “one-shareholder-one-vote” principle. This model is specifically designed for situations where an endogenously chosen binary variable is expected to influence the dependent variable—in this case, the financial reporting quality measured by DISACC. In addition, it accounts for the factors influencing the decision to allow multiple voting rights, leading to the inclusion of two sets of independent variables.

Along with the regression outlined in (2), we estimate a second regression. Since MULT_VOTE is the potentially endogenous variable, the binary decision to permit multiple voting rights is modeled as

the outcome of an unobserved latent variable, MULT_VOTE* (Bharath et al., 2011). In the first stage, MULT_VOTE* is expressed as a function of the instrumental variable and cooperative characteristics:

$$(2) \quad DISACC_{i,t} = \alpha_0 + \alpha_1 MULT\_VOTE_i + \alpha_2 HONOR_i + \alpha_3 SIZE_{i,t} + \sum_{j=4}^{J} \alpha_j \, Controls_{i,t} + \sum_{k=J+1}^{K} \alpha_k \, Control\,means_i + \rho v_k + \gamma z_t + \vartheta y_s + \varepsilon_{i,t}.$$

$$(5) \quad MULT\_VOTE_i^* = \beta_0 + \beta_1 Instrument_{i,t} + \sum_{j=2}^{J} \beta_j \, Controls_{i,t} + \sum_{k=J+1}^{K} \beta_k \, Control\,means_i + \varepsilon_{i,t}.$$

A treatment effect model simultaneously estimates Equations (2) and (5). The control variables used are the same as those in the basic regression analyses outlined in Equation (2). However, we exclude NON_HOUSING and CHARITY from this analysis because there is no variation in these variables when MULT_VOTE equals 1.[13]

The instrumental variables must be correlated with the structural variable of interest, MULT_VOTE, while remaining uncorrelated with the error term of the structural (second) equation (Larcker & Rusticus, 2010). For our instrumental variable, we use the regional propensity of cooperatives to permit multiple voting rights (RATIO_MV_STATE). This choice is grounded in the New Institutionalism approach to organizational theory, which posits that firms' decisions are influenced by rational and effective peer firms that serve as role models (Tempel & Walgenbach, 2007). Czarniawska (2005) notes that, similar to the New Institutionalism perspective, organizations tend to adapt practices from their peers, which leads to the convergence of organizational practices. We anticipate similar trends in cooperatives. Therefore, we expect that the regional propensity for specific corporate governance choices may impact cooperatives' decisions to allow multiple voting rights.

We do not find compelling reasons to believe that the regional propensity for multiple votes would be related to the financial reporting choices of individual cooperatives. In fact, the correlation coefficient between RATIO_MV_STATE and DISACC_3yr is –0.01, which is not statistically significant ($p > 10\%$, see Table A2). We expect that the regional preference for specific legal forms will likely satisfy

[13] When MULT_VOTE equals 1, all corresponding NON_HOUSING (CHARITY) realizations also equal 1 (0). Therefore, these two variables do not affect the estimation of the probability of having multiple voting rights.

the exclusion restriction. To address concerns about multicollinearity, we eliminate regional dummies from the first regression.

-- Insert Table 10 about here –

Table 10 presents the results of the treatment effect models. In the left column of each model, we show the estimated impact of the instrumental variable and the cooperative's characteristics on the MULT_VOTE variable. Across various analyses, RATIO_MV_STATE displays a positive coefficient, which is significant at the $p < 0.1\%$ level (see Columns 1 and 3).

The right columns of each model present the endogeneity-adjusted estimate of MULT_VOTE in relation to the financial reporting quality measure, DISACC. The coefficient for MULT_VOTE is significantly positive for both the full sample and the propensity-score-matched sample (see Columns 2 and 4). The coefficients and standard errors associated with MULT_VOTE are similar to those of the baseline model in Column 1.

After controlling for potential endogeneity, we find that the presence of multiple voting rights is generally negatively correlated with the quality of financial reporting. Additionally, honorary executives tend to be linked with lower levels of earnings management.

A treatment effect model is necessary when the estimated correlation between the error terms of the two regressions, ρ, is sufficiently high. The Wald test of independent equations helps determine whether the null hypothesis—that this correlation is zero—can be rejected. In the case of the propensity score matching (PSM) specification, the correlation is quite low and statistically insignificant (see Table 10). As a result, the Wald statistic does not reject the null hypothesis, indicating that a treatment effect model may not be necessary. The Durbin–Wu–Hausman test generally suggests that the treatment effect model does not provide more reliable inferences than the estimates obtained from the baseline random effects model.

We also evaluated the appropriateness of the instrumental variable. For the full sample, the pseudo R^2 in the first stage increases from 11.0% to 15.7% when the instrument is included; for the propensity score matched samples, this effect is even more pronounced.

5 Conclusion

We analyzed the quality of financial reporting in cooperatives and found evidence supporting the idea that different agency problems are associated with financial reporting quality in various ways. For cooperatives with a homogeneous ownership structure that follow the "one-shareholder-one-vote" principle, the quality of financial reporting improves with the size of the cooperative and the number of owners (members). In situations where there are conflicts of interest between executives and members — known as the Type I agency problem — the quality of financial reporting appears to adapt to meet the greater information needs of the members. Additionally, cooperatives led by honorary executives tend to demonstrate even higher quality in financial reporting.

Cooperatives that permit multiple votes have a more diverse ownership structure, which can result in conflicts of interest between members who have multiple voting rights and those who have single voting rights (referred to as Type II agency problems). Our research indicates that the presence of owners with multiple voting rights is linked to lower quality in financial reporting, particularly when these cooperatives may be managed by an honorary executive and Type I agency problems are possibly negligible. This suggests that owners with multiple voting rights may exploit accounting discretion to hide true performance and obscure the extraction of private benefits.

This paper represents an initial attempt to analyze the impact of the "one-shareholder-one-vote" principle on financial reporting choices. Additionally, it contributes to the limited literature on financial reporting in cooperatives. It is important to note that we are unable to observe the actual shares held by owners with multiple voting rights, as cooperatives are not required to disclose information about their ownership structures. Although we utilize propensity score matching, employ a Mundlak approach, and account for the endogenous choice of ownership structure, we cannot entirely eliminate the possibility that our results are influenced by unobserved variables, such as patterns of executive compensation. Future research may be better positioned to address the limitations identified in this paper.

Appendix

Table A1: Definition of variables

	Definition	Data source
Dependent variables: measures of (the lack of) financial reporting quality		
DISACC_3yr	Firm-level three-year moving sum of the absolute value of discretionary accruals, in accordance with Hutton et al. (2009), based on the Modified Jones Model (Dechow et al., 1995). A higher value of DISACC_3yr indicates lower financial reporting quality.	Dafne
DISACC_1yr	Absolute value of discretionary accruals, based on the Modified Jones Model (Dechow et al., 1995). A higher value of DISACC_1yr indicates lower financial reporting quality.	Dafne
DISACC_ROA	Firm-level three-year moving sum of the absolute value of discretionary accruals, in accordance with Hutton et al. (2009), based on the performance-adjusted Jones Model (Kothari et al., 2005). A higher value of DISACC_ROA indicates lower financial reporting quality.	
TOTACC_3yr	Firm-level three-year moving sum of the absolute value of total accruals, controlled for the independent variables of the Modified Jones Model (Dechow et al., 1995), as suggested by Chen, Hribar, and Melessa (2018), excluding the interaction with year dummies due to multicollinearity. A higher value of TOTACC_3yr indicates lower financial reporting quality.	Dafne
ABS_WCA	Absolute value of discretionary accruals, based on the working capital accrual model by Dechow and Dichev (2002). A higher value of ABS_WCA indicates lower financial reporting quality.	Dafne
SMTH	Standard deviation of (net income before taxes divided by lagged total assets) divided by the standard deviation of (cash flow from operations divided by lagged total assets), each calculated over three years, multiplied by -1. A higher value of SMTH indicates lower financial reporting quality.	Dafne
RESTATE	Dummy variable: 1 if the financial statement was restated or information was added, and 0 if not.	Federal Gazette
Variables concerning cooperatives' corporate governance		
MULT_VOTE	Dummy variable: 1 if members are allowed to have multiple voting rights, and 0 if not.	Statutes
#VOTES	The maximum number of voting rights per member.	Statutes
HONOR	Dummy variable: 1 if the cooperative's statutes allow it to hire honorary executives, and 0 if not.	Statutes
PART_TIME	Dummy variable: 1 if the cooperative's statutes allow it to hire either honorary executives or part-time executives, and 0 if not.	Statutes
HIGH_MEMB_LIAB	Dummy variable: 1 if members are liable with their private assets in the event of a cooperative's bankruptcy, with an amount per share exceeding the third quartile, and 0 if at least one of these two criteria is not met. The MEMB_LIAB variable takes the value of 1 if there is member liability, and 0 if not.	Federal Gazette, Statutes
MIN_TERM	Dummy variable: 1 if there is a minimum period to hold the share, and 0 if not.	Statutes

NOTICE_PERIOD	Number of months of the notice period for members to be able to return their shares.	Statutes
BOARD_SIZE	Minimum number of supervisory board members required by the cooperative's statutes.	Statutes
CHARITY	Dummy variable: 1 if the cooperative's name includes a term indicating a charity, e.g., "*Gemeinnützige Genossenschaft*" or the addendum "geG," where the letter "g" stands for "charitable," and 0 if there is no such term or addendum.	Dafne
LOCAL_TAXRATE	Local corporate income tax rate (*Gewerbesteuer*).	Federal Statistical Office
NON_HOUSING	Dummy variable: 1 if the cooperative does not belong to the real estate and housing sector, and 0 otherwise.	Dafne
lnMEMB	Natural logarithm of the number of members.	Federal Gazette
Other control variables		
SIZE	Natural logarithm of total assets.	Dafne
DEBT	Financial debt divided by total assets.	Dafne
GROWTH	Changes in sales growth in the current year's sales scaled by lagged sales, averaged over three years.	Dafne
LOSS	Dummy variable: 1 if the cooperative reported a net loss in the current year or in at least one of the two preceding years, and 0 otherwise.	Dafne
ROA	(EBIT + extraordinary income) divided by lagged total assets.	Dafne
RISKSALES	Standard deviation of sales divided by lagged total assets, computed over three years.	Dafne
HHI	Herfindahl–Hirschman Index to measure competition within an industry, based on the sales for all firms included in the Dafne database that operate within the same single-digit WZ (*Wirtschaftszweige*) industry code.	Dafne
Year dummies	Binary variable for the year of observation.	
Industry dummies	Binary variable based on the single-digit WZ code classification.	Dafne
Region dummies	Binary variable based on the German state in which the cooperative is domiciled.	
Instrumental variable		
RATIO_MV_STATE	Ratio of cooperatives that allow multiple voting rights to all cooperatives in this region, for each year.	Statutes

Table A2: Pearson correlation table (full sample, without PSM)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
(1)	DISACC_3yr	1																						
(2)	TOTACC_3yr	0.89**	1																					
(3)	SMTH	0.35**	0.31**	1																				
(4)	RESTATE	0.00	-0.00	0.01	1																			
(5)	SIZE	-0.46**	-0.42**	-0.12**	0.05**	1																		
(6)	DEBT	0.02	-0.01	0.15**	0.02	0.22**	1																	
(7)	GROWTH	0.27**	0.22**	0.11**	0.01	-0.14**	0.09**	1																
(8)	RISKSALES	0.58**	0.52**	0.25**	0.01	-0.42**	0.07**	0.29**	1															
(9)	ROA	0.15**	0.14**	-0.02	0.02	-0.11**	-0.07**	0.17**	0.15**	1														
(10)	LOSS	-0.03	-0.01	-0.24**	-0.00	-0.10**	0.01	-0.07**	-0.07**	-0.23**	1													
(11)	HHI	0.08**	0.11**	-0.04**	-0.03	-0.19**	-0.28**	0.09**	-0.03	0.05**	0.06**	1												
(12)	MEMBERS	-0.32**	-0.27**	-0.04**	0.07**	0.70**	0.14**	-0.10**	-0.29**	-0.08**	-0.05**	-0.06**	1											
(13)	MULT_ VOTE	0.19**	0.23**	0.08**	0.02	-0.10**	-0.05**	0.05**	0.11**	0.01	0.01	0.14**	-0.11**	1										
(14)	HONOR	-0.38**	-0.35**	-0.17**	0.01	0.33**	0.12**	-0.13**	-0.35**	-0.12**	-0.00	-0.23**	0.15**	-0.18**	1									
(15)	PART_TIME	-0.47**	-0.42**	-0.18**	-0.01	0.46**	0.18**	-0.14**	-0.44**	-0.14**	-0.01	-0.24**	0.29**	-0.21**	0.83**	1								
(16)	NOTICE_PERIOD	0.26**	0.22**	0.14**	-0.01	-0.22**	0.05**	0.06**	0.27**	0.00	-0.01	0.04**	-0.24**	0.06**	-0.20**	-0.29**	1							
(17)	MIN_TERM	0.19**	0.15**	0.11**	-0.03*	-0.16**	-0.06**	0.09**	0.24**	-0.04**	0.02	-0.03	-0.12**	0.16**	-0.17**	-0.22**	0.06**	1						
(18)	BOARD_SIZE	-0.15**	-0.14**	-0.00	0.01	0.31**	0.03	-0.05**	-0.13**	-0.00	-0.09**	-0.07**	0.36**	-0.01	-0.02	0.10**	-0.05**	-0.04**	1					
(19)	HIGH_MEM_LIAB	0.19**	0.15**	0.11**	-0.00	-0.08**	0.08**	0.03	0.11**	0.01	-0.03	0.01	-0.08**	0.04*	-0.05**	-0.07**	0.09**	0.07**	0.02	1				
(20)	LOCAL_TAXRATE	-0.27**	-0.27**	-0.12**	0.01	0.35**	0.14**	-0.10**	-0.22**	-0.02	-0.07**	-0.21**	0.30**	-0.10**	0.24**	0.33**	-0.10**	-0.27**	0.18**	-0.03	1			
(21)	NON_HOUSING	0.61**	0.53**	0.29**	0.00	-0.59**	-0.15**	0.20**	0.59**	0.18**	-0.05**	0.28**	-0.41**	0.21**	-0.58**	-0.70**	0.38**	0.27**	-0.17**	0.18**	-0.37**	1		
(22)	CHARITY	-0.13**	-0.12**	-0.10**	-0.04*	0	-0.00	-0.04*	-0.11**	-0.05**	0.01	-0.05**	-0.01	-0.04*	0.14**	0.16**	-0.00	-0.04*	-0.04*	-0.04	0.11**	-0.16**	1	
(23)	RATIO_MV_STATE	-0.01	0.01	-0.05**	-0.02	-0.08**	-0.23**	-0.06**	-0.10**	-0.06**	0.11**	0.17**	-0.12**	0.14**	-0.05**	-0.11**	0.09**	0.06**	-0.16**	-0.03*	-0.23**	0.07**	-0.04*	1

* and ** indicate significance at the 5% and 1% levels, respectively.

Table A3: Results of propensity score matching regression

	MULT_VOTE PSM 1 (z-value) Probit (1)
SIZE	0.0256 (1.60)
NON_HOUSING	1.5728*** (16.50)
Industry-year predictors	Included
Constant	-3.3688*** (-11.52)
N =	12,229
Pseudo R^2 in %	17.2
LR chi^2	657.5

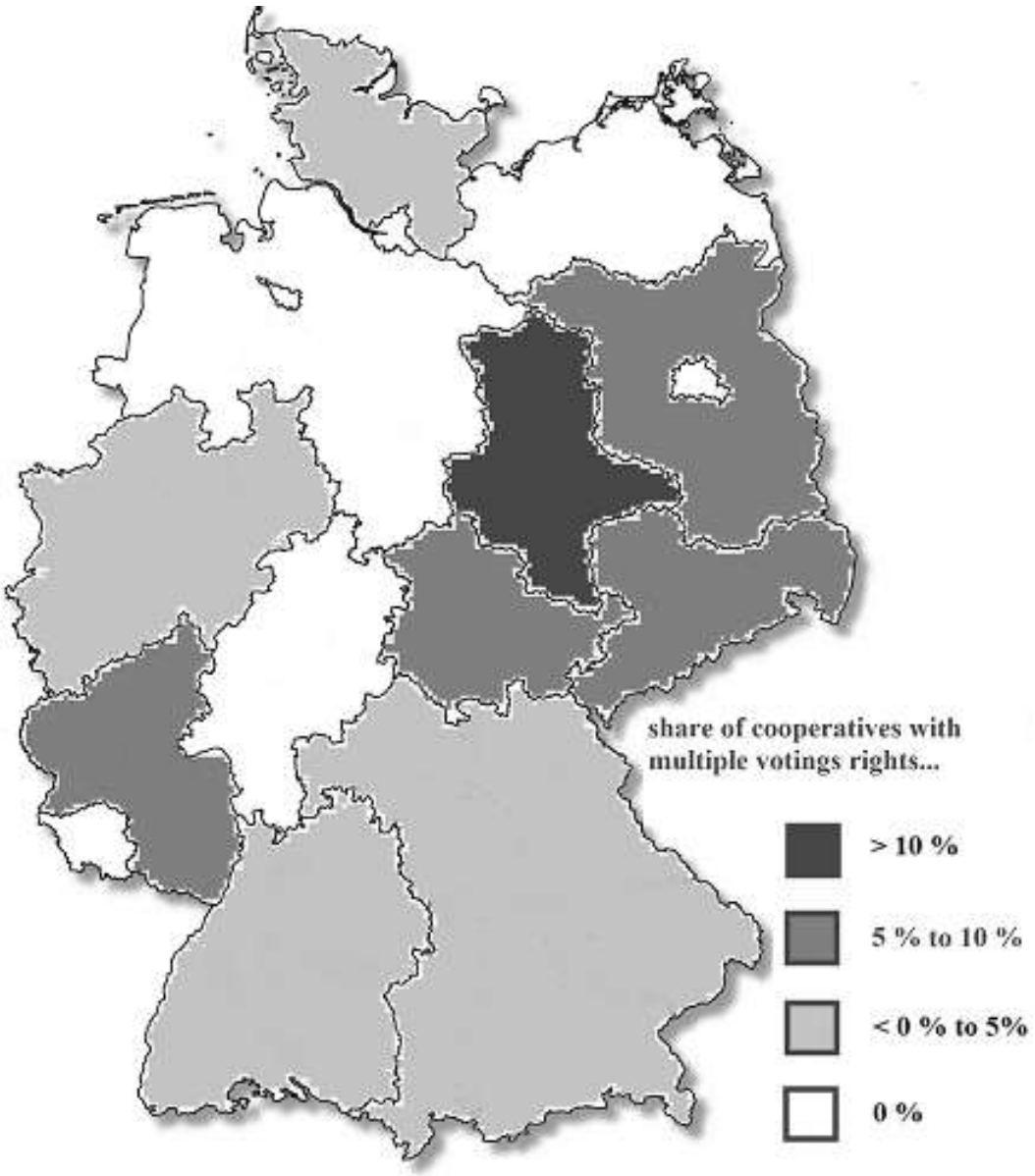
This table shows the results of propensity score matching regression (PSM 1) with MULT_VOTE as the dependent variable. The matching is based on the initial sample of 15,622 cooperatives. Actual sample size is smaller due to missing data on the respective independent variables. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, using a two-tailed test. MULT_VOTE takes the value of 1 if members are allowed to have multiple voting rights, and 0 if not. SIZE is the natural logarithm of total assets. NON_HOUSING is a dummy variable that takes the value of 1 if the cooperative does not belong to the real estate and housing sector, and 0 otherwise. SIZE is winsorized at the 1st and 99th percentiles.

Table A4: Earnings management in the presence of multiple voting rights: DISACC (Mundlak model), without various controls

Regression analyses without a single group of dummies and without single control variables										
	Pred. sign	DISACC_3yr full sample (z-value)								
		Full model (1)	w/o industry dummies (2)	w/o year dummies (3)	w/o region dummies (4)	w/o ROA (5)	w/o LOSS (6)	w/o HHI (7)	w/o GROWTH (8)	w/o RISKSALES (9)
MULT_VOTE	−/+	0.0423***	0.0439***	0.0418***	0.0371***	0.0411***	0.0423***	0.0432***	0.0445***	0.0472***
		(2.91)	(3.02)	(2.87)	(2.59)	(2.82)	(2.91)	(2.97)	(2.99)	(3.17)
HONOR	−/+	-0.0156**	-0.0169***	-0.0156**	-0.0147**	-0.0156**	-0.0156**	-0.0158**	-0.0158**	-0.0162**
		(-2.44)	(-2.69)	(-2.44)	(-2.33)	(-2.44)	(-2.45)	(-2.48)	(-2.41)	(-2.47)
MULT_VOTE × HONOR		0.169***	0.173***	0.167***	0.167***	0.164**	0.169***	0.169***	0.161**	0.150**
		(2.65)	(2.69)	(2.61)	(2.61)	(2.56)	(2.65)	(2.64)	(2.46)	(2.28)
Other controls		Included	Included	Included	Included	Included	Included	Included	Included	Included
Other dummies		Included	Included	Included	Included	Included	Included	Included	Included	Included
N =		4,203	4,203	4,203	4,203	4,203	4,203	4,203	4,203	4,203
Overall R^2 in %		51.5	50.3	51.0	51.0	51.3	51.5	51.5	50.7	49.0
Wald chi^2		1,400	1,360	1,330	1,376	1,388	1,400	1,396	1,308	1,189

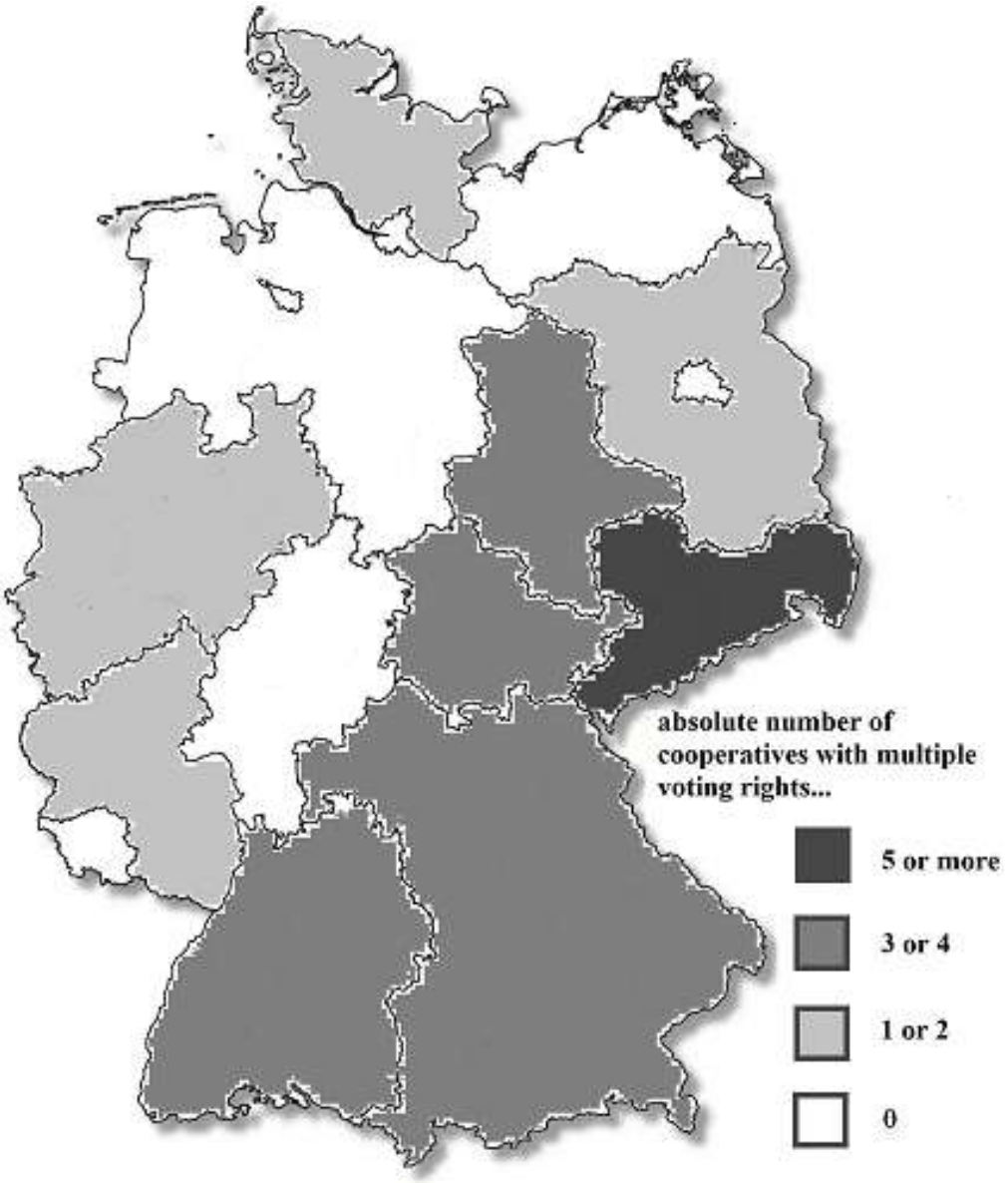
This table shows the robustness of the results in Table 6 when a specific group of dummies or specific control variables are dropped from the regression analysis. MULT_VOTE takes the value of 1 if members are allowed to have multiple voting rights, and 0 if not. HONOR is a dummy variable that takes the value of 1 if the statutes allow honorary executives to run the cooperative, and 0 otherwise. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, using a two-tailed test. DISACC_3yr is a measure of (the lack of) financial reporting quality. DISACC_3yr is the firm-level three-year moving sum of the absolute value of discretionary accruals, in accordance with Hutton et al. (2009), based on the Modified Jones Model (Dechow et al., 1995). Other controls include all controls included in the baseline regression in Table 7 except for the respective control variable that was dropped. For a definition of the variables, see Table A1 in the Appendix.

Figure A1: Proportion of multiple-vote cooperatives in different German states



Source of the map: GeoBasis-DE / BKG (2024)

Figure A2: Number of multiple-vote cooperatives in different German states



Source of the map: GeoBasis-DE / BKG (2024)

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Tables

Table 1: Sample selection

Selection criteria for the Dafne database	Number of cooperatives	Firm-year observations 2008–17
Number of solvent, unconsolidated, non-listed cooperatives in Dafne (Bureau van Dijk) with basic financial information (sales, total assets, net earnings, debt), excluding credit cooperatives	3,029	15,622
Minus observations with missing data for required dependent and control variables (especially on *RISKSALES* and *GROWTH*)		(11,419)
Final sample (without PSM)	765	4,203

This table provides information about the sample selection process. For a definition of RISKSALES and GROWTH, see Table A1 in the Appendix. PSM: propensity score matching.

Table 2: Sample distribution across industries, sample with and without propensity score matching

Industries	Without PSM		With PSM 1		With PSM 2	
	One-shareholder-one-vote principle	Multiple votes	One-shareholder-one-vote principle	Multiple votes	One-shareholder-one-vote principle	Multiple votes
A: Agriculture and fishing	244	38	164	38	161	38
C: Manufacturing	202	23	111	23	57	22
D: Energy supply	25	0	10	0	0	0
F: Construction	70	2	19	2	0	0
G: Trade and garages	1,007	58	600	58	434	57
L: Real estate	2,431	0	2	0	0	0
M: Freelance work, scientific and technical services	45	0	24	0	0	0
N: Other business services	18	0	12	0	0	0
S: Other services	32	8	9	8	0	0
Total	4,074	129	951	129	652	117

This table shows the distribution across industries for the full sample without propensity score matching and for the sample with propensity score matching based on the matching criteria SIZE and NON_HOUSING (PSM 1) and SIZE within different industry-year clusters (PSM 2), see Table 3. In our sample, there are no cooperatives in the industries B (mining, mineral resources), E (water supply, waste disposal, recycling), H (transportation), I (accommodation & restaurants), J (information & communication, P (education), Q (health and welfare services), and R (arts, recreation, and entertainment).

Table 3: Descriptive statistics for cooperatives with and without the "one-shareholder-one-vote" principle, full sample without PSM

Panel A: Cooperative characteristics							
	Cooperatives with the "one-shareholder-one-vote" principle		Cooperatives that allow multiple voting rights		Difference in mean (t-stat., unequal var.)		
	N =	Mean	N =	Mean	Without PSM	With PSM 1	With PSM 2
DISACC_3yr	4,074	0.087	129	0.209	-0.122*** (-9.0)	-0.042*** (-3.0)	-0.035** (-2.3)
DISACC_1yr	4,074	0.027	129	0.066	-0.038*** (-6.5)	-0.013** (-2.1)	-0.012* (-1.8)
DISACC_ROA	3,584	0.088	113	0.193	-0.105*** (-7.6)	-0.028* (-1.9)	-0.031** (-2.1)
TOTACC_3yr	4,074	0.128	129	0.263	-0.135*** (-9.45)	-0.068*** (-4.6)	-0.042*** (-3.0)
ABS_WCA	2,400	0.026	71	0.052	-0.025*** (-3.9)	-0.011* (-1.7)	-0.005 (-0.9)
SMTH	3,609	-0.573	113	-0.335	-0.239*** (-6.2)	-0.067* (-1.7)	-0.024 (-0.6)
RESTATE	4,047	0.026	128	0.039	-0.013 (-0.8)	-0.011 (-0.6)	-0.013 (-0.8)
SIZE in thousands of €	4,074	17.52 40,629	129	16.804 19,856	0.717*** (10.15)	-0.220*** (-3.0)	0.034 (0.5)
DEBT	4,074	0.554	129	0.502	0.053** (2.8)	0.014 (0.7)	0.010 (0.6)
RISKSALES	4,074	0.123	129	0.275	-0.151*** (-6.4)	0.029 (1.25)	-0.056** (-2.5)
LOSS	4,074	0.132	129	0.147	-0.015 (-0.5)	-0.026 (-0.8)	-0.063* (-1.8)
ROA	4,074	0.040	129	0.042	-0.003 (-0.6)	0.003 (0.6)	0.001 (0.2)
HHI	4,074	0.00010	129	0.00032	-0.00022*** (-5.0)	-0.00012** (-2.6)	-0.00011* (-1.9)
LOCAL_TAXRATE	4,074	0.143	129	0.133	0.011*** (7.2)	0.003 (1.65)	0.003** (2.1)
NON_HOUSING	4,074	0.404	129	1	-0.597*** (-77.7)	-0.002 (-1.4)	--

Panel B: Propensity score matching		
Nearest neighbor, $\varepsilon < 0.1$, with replacement, matching criteria:	PSM 1: SIZE, NON_HOUSING	PSM 2: SIZE within different industry-year clusters
T-test:	No significant differences	No significant differences for SIZE and years, but for some industries
Mean/median of standardized percentage bias:	0% / 0%	4.3% / 1.2%
Rubin's B in % / Rubin's R	0 / 1	6.6 / 1.26

This table exhibits descriptive statistics of cooperatives depending on multiple vote status. For a definition of variables, see Table A1 in the Appendix. RISKSALES and SMTH are winsorized at the 5th and 95th percentiles; all other metric variables are winsorized at the 1st and 99th percentiles. PSM 1 and PSM 2 represent propensity score matchings, based on different matching criteria.

Table 4: Descriptive statistics for cooperatives, full sample (without PSM)

Variable	N	Mean	Stand. dev.	1st quartile	Median	3rd quartile
DISACC_3yr	4,203	0.0901	0.1089	0.0197	0.0416	0.1273
DISACC_1yr	4,203	0.0282	0.0444	0.0044	0.0108	0.033
DISACC_ROA_3yr	3,697	0.0906	0.1067	0.0205	0.0435	0.1277
TOTACC_3yr	4,203	0.1321	0.1030	0.0699	0.0934	0.1602
ABS_WCA	2,471	0.0274	0.0331	0.0130	0.0173	0.0259
SMTH	3,722	-0.5658	0.5042	-0.8228	-0.4166	-0.1672
RESTATE	4,175	0.0259		0	0	0
MULT_VOTE	4,203	0.0307		0	0	0
#VOTES	4,203	1.3143	4.6949	1	1	1
HONOR	4,203	0.5658		0	1	1
PART_TIME	4,203	0.6538		0	1	1
#MEMB	4,135	3,284.1	4,125.2	518.0	1,779.0	4364
lnMEMB	4,135	7.1504	1.6767	6.2500	7.4838	8.3811
HIGH_MEMB_LIAB	4,203	0.0538		0.0000	0.0000	0
NON_HOUSING	4,203	0.4216		0.0000	0.0000	1
LOCAL_TAXRATE	4,203	0.1427	0.0182	0.1285	0.1435	0.1575
BOARD_SIZE	4,203	3.92	1.90	3	3	3
NOTICE_PERIOD	4,203	12.29	9.64	3	12	24
MIN_TERM	4,203	0.0516		0.0000	0.0000	0
CHARITY	4,203	0.0445		0.0000	0.0000	0
SIZE	4,203	17.4983	1.2463	16.5821	17.5561	18.4343
in thousands of €	4,203	78,758.79	97,860.82	15,904.75	42,121.45	101374.2
DEBT	4,203	0.5530	0.1908	0.4315	0.5770	0.7026
GROWTH	4,203	0.0285	0.0475	0.0081	0.0212	0.0393
RISKSALES	4,203	0.1278	0.2368	0.0029	0.0083	0.1411
LOSS	4,203	0.1325		0	0	0
ROA	4,203	0.0394	0.0341	0.0246	0.0345	0.0466
HHI	4,203	0.000106	0.000272	0.000028	0.000038	0.000044
RATIO_MV_STATE	4,203	0.0258	0.0226	0.0000	0.0260	0.0368

This table presents descriptive statistics for the full sample of cooperatives (without PSM). For a definition of the variables, see Table A1 in the Appendix. SMTH, GROWTH, and RISKSALES are winsorized at the 5th and 95th percentiles. The instrumental variable RATIO_MV_STATE and the corporate governance characteristics of cooperatives are not winsorized except for #MEMB and lnMEMB. #MEMB, lnMEMB, and other metric controls, as well as the measures of financial reporting quality (DISACC_3yr, DISACC_1yr, DISACC_ROA_3yr, TOTACC_3yr, ABS_WCA), are winsorized at the 1st and 99th percentiles.

Table 5: Earnings management in the absence of multiple voting rights: DISACC (Mundlak model)

Pred. sign	DISACC_ 3yr (z-value) (1)	DISACC_ 3yr (z-value) (2)	DISACC_ 3yr (t-value) Pooled OLS (3)	DISACC_ 3yr (z-value) Random effects (4)	DISACC_ 3yr (z-value) (5)	DISACC_ 3yr (z-value) (6)	DISACC_ 3yr (z-value) (7)
SIZE_mean/*SIZE* −/+	-0.0114 (-1.24)		*-0.0065*** *(-2.91)*	*-0.0082*** *(-3.34)*	-0.0113 (-1.22)	-0.0187** (-1.96)	
lnMEMB_mean −/+		-0.0342*** (-3.02)					-0.0386*** (-3.38)
HONOR −/+	-0.0148** (-2.33)	-0.0142** (-2.29)	-0.0113** (-2.26)	-0.0158** (-2.44)		-0.0230*** (-3.15)	-0.0892** (-3.45)
PART_TIME					-0.0161** (-2.12)		
HONOR × SIZE_mean						0.0124*** (2.96)	
HONOR × lnMEMB_mean							0.0104*** (3.02)
LOCAL_TAX RATE_mean	-0.598* (-1.75)	-0.596* (-1.74)	--	--	-0.586* (-1.72)	-0.623* (-1.83)	-0.627* (-1.83)
ROA_mean	0.120 (0.97)	0.101 (0.81)	--	--	0.113 (0.91)	0.114 (0.93)	0.102 (0.82)
DEBT_mean	0.0204 (0.72)	0.0038 (0.14)	--	--	0.0214 (0.76)	0.0177 (0.63)	0.0026 (0.10)
LOSS_mean	-0.0088 (-0.89)	-0.0045 (-0.46)	--	--	-0.0086 (-0.87)	-0.0073 (-0.74)	-0.0028 (-0.28)
HHI_mean	-72.08 (-1.54)	-69.36 (-1.48)	--	--	-67.33 (-1.43)	-67.28 (-1.45)	-59.99 (-1.29)
GROWTH_mean	0.206** (2.41)	0.236*** (2.70)	--	--	0.212** (2.47)	0.213** (2.49)	0.244*** (2.80)
RISKSALES_mean	0.0120 (0.61)	0.0181 (0.91)	--	--	0.0107 (0.54)	0.0116 (0.59)	0.0184 (0.93)
Controls	Included	Included	Included	Included	Included	Included	Included
Industry, year, and region dummies	Included	Included	Included	Included	Included	Included	Included
N =	4,074	4,008	4,074	4,074	4,074	4,074	4,008
Overall R^2 / *Adj. R^2* in %	50.8	50.7	*50.5*	50.2	50.8	51.2	50.9
Wald chi^2 / *F-Stat.*	1,334	1,317	*27.8*	1,281	1,331	1,356	1,342

This table shows how the characteristics of cooperatives are associated with their discretionary accruals, using a Mundlak random effects model in Columns 1–2 and 5-7, a pooled OLS model with standard errors clustered on the firm level (Column 3) and a random effects model (Column 4). *, **, and *** indicate significance at the 10%, 5%, and 1% levels, using a two-tailed test. DISACC_3yr is the firm-level three-year moving sum of the absolute value of discretionary accruals, in accordance with Hutton et al. (2009), based on the Modified Jones Model (Dechow et al., 1995). HONOR (PART_TIME) is a dummy variable that takes the value of 1 if the statutes allow honorary executives (honorary or part-time executives, respectively) to run the cooperative, and 0 otherwise. Controls include SIZE (lnMEMB), LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, RISK_SALES, NON_HOUSING, LOCAL_TAXRATE × NON_HOUSING, BOARD_SIZE, CHARITY, MIN_TERM, HIGH_MEMB_LIAB, and NOTICE_PERIOD. For a definition of the variables, see Table A1 in the Appendix. GROWTH and RISKSALES are winsorized at the 5th and 95th percentiles; other metric variables are winsorized at the 1st and 99th percentiles.

Table 6: Earnings management in the presence of multiple voting rights: DISACC (Mundlak model)

Pred. sign	DISACC_ 3yr full sample (z-value) (1)	DISACC_ 3yr full sample (z-value) (2)	DISACC_ 3yr PSM 1, (z-value) (3)	DISACC_ 3yr PSM 2 (z-value) (4)	DISACC_ 3yr full sample (t-value), Pooled OLS (5)	DISACC_ 3yr full sample (z-value), Random effects (6)	DISACC_ 3yr full sample (z-value) (7)	DISACC_ 3yr PSM 1 (z-value) (8)	DISACC_ 3yr PSM 2 (z-value) (9)	DISACC_ 3yr full sample (z-value) (10)
MULT_VOTE −/+	0.051*** (3.59)	0.042*** (2.91)	0.054** (2.45)	0.035 (1.42)	0.043** (2.11)	0.045*** (3.07)				0.0457*** (3.07)
#VOTES							0.0169*** (3.68)	0.0141** (2.00)	0.0130* (1.86)	
HONOR −/+	-0.014** (-2.21)	-0.016** (-2.44)	-0.030** (-1.86)	-0.013 (-0.65)	-0.012** (-2.38)	-0.017** (-2.53)	-0.120*** (-3.74)	-0.155*** (-3.19)	-0.118** (-2.24)	
PART_TIME										-0.0172** (-2.24)
MULT_VOTE × HONOR		0.169*** (2.65)	0.193** (2.13)	0.173* (1.80)	0.174*** (6.75)	0.152** (2.32)				
#VOTES × HONOR							0.104*** (3.35)	0.123*** (2.79)	0.104** (2.24)	
MULT_VOTE × PART_TIME										0.0531 (1.07)
SIZE_mean / *SIZE*	-0.022** (-2.36)	-0.022** (-2.38)	-0.093*** (-3.63)	-0.124*** (-3.78)	*-0.007*** (-3.19)*	*-0.008*** (-3.17)*	-0.021** (-2.26)	-0.087*** (-3.39)	-0.119*** (-3.61)	-0.022** (-2.34)
Other control means	Included	Included	Included	Included	--	--	Included	Included	Included	Included
Controls	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Industry, year, and region dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N =	4,203	4,203	1,080	769	4,203	4,203	4,203	1,080	769	4,203
Overall R^2 / *Adj. R^2* in %	50.9	51.5	32.1	31.7	*51.0*	50.8	51.7	32.3	32.5	51.1
Wald chi^2 / *F-Stat.*	1,386	1,400	255.6	167.2	90.31	1,330	1,415	257.2	172.7	1,385

This table shows how the presence of multiple voting rights is associated with the cooperatives' discretionary accruals, using a Mundlak random effects model in Columns 1–4 and 7–8, a pooled OLS model with standard errors clustered on the firm level (Column 5), and a random effects model (Column 6). MULT_VOTE takes the value of 1 if members are allowed to have multiple voting rights, and 0 if not. #VOTES is the maximum number of voting rights per member. HONOR (PART_TIME) is a dummy variable that takes the value of 1 if the statutes allow honorary executives (honorary or part-time executives, respectively) to run the

cooperative, and 0 otherwise. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, using a two-tailed test. PSM 1 indicates propensity score matching with matching criteria: SIZE and NON_HOUSING; PSM 2 matches by SIZE within different industry-year clusters; see Table 3, Panel B. DISACC_3yr is a measure of (the lack of) financial reporting quality. DISACC_3yr is the firm-level three-year moving sum of the absolute value of discretionary accruals, in accordance with Hutton et al. (2009), based on the Modified Jones Model (Dechow et al., 1995). Controls include SIZE, LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, RISK_SALES, NON_HOUSING, LOCAL_TAXRATE × NON_HOUSING, BOARD_SIZE, CHARITY, MIN_TERM, HIGH_MEMB_LIAB, and NOTICE_PERIOD. Other control means include the means of LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, and RISK_SALES. For a definition of the variables, see Table A1 in the Appendix. GROWTH and RISKSALES are winsorized at the 5th and 95th percentiles; other metric variables are winsorized at the 1st and 99th percentiles.

Table 7: Earnings management in the presence of multiple voting rights: DISACC, subsample analyses (Mundlak model)

	Pred. sign	DISACC_3yr full sample (z-value) (1)	DISACC_3yr #MEMB ≤ Median (z-value) (2)	DISACC_3yr #MEMB > Median (z-value) (3)	DISACC_3yr BOARD_ SIZE ≤ Median (z-value) (4)	DISACC_ BOARD_ SIZE > Median (z-value) (5)
MULT_VOTE	−/+	0.0423*** (2.91)	0.0474*** (2.64)	0.0143 (0.19)	0.0526*** (3.51)	0.0417 (0.97)
HONOR	−/+	-0.0156** (-2.44)	-0.0384*** (-3.22)	-0.0040 (0.67)	-0.0225*** (-3.18)	0.0055 (0.38)
MULT_VOTE × HONOR		0.169*** (2.65)	0.164** (2.21)		0.159*** (2.67)	
Controls		Included	Included	Included	Included	Included
Control means		Included	Included	Included	Included	Included
Industry, year, and region dummies		Included	Included	Included	Included	Included
N =		4,203	1,986	2,149	3,169	1,034
Overall R^2 / *Adj.* R^2 in %		51.5	43.4	43.3	55.0	48.6
Wald chi^2 / *F-Stat.*		1,400	656.0	381.9	1,287	324.7

This table shows subsample analyses how the presence of multiple voting rights is associated with the cooperatives' discretionary accruals, using a Mundlak random effects model. MULT_VOTE takes the value of 1 if members are allowed to have multiple voting rights, and 0 if not. HONOR is a dummy variable that takes the value of 1 if the statutes allow honorary executives to run the cooperative, and 0 otherwise. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, using a two-tailed test. DISACC_3yr is the firm-level three-year moving sum of the absolute value of discretionary accruals, in accordance with Hutton et al. (2009), based on the Modified Jones Model (Dechow et al., 1995). Controls include SIZE, LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, RISK_SALES, NON_HOUSING, LOCAL_TAXRATE × NON_HOUSING, BOARD_SIZE, CHARITY, MIN_TERM, HIGH_MEMB_LIAB, and NOTICE_PERIOD. Control means include the means of SIZE, LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, and RISK_SALES. For a definition of the variables, see Table A1 in the Appendix. GROWTH and RISKSALES are winsorized at the 5th and 95th percentiles; other metric variables are winsorized at the 1st and 99th percentiles.

Table 8: Earnings management in the presence of multiple voting rights: Different specifications of DISACC (Mundlak model)

Pred. sign	DISACC_3yr full sample (z-value) (1)	DISACC_3yr PSM 1, (z-value) (2)	DISACC_3yr (t-1; t+1), full sample (z-value) (3)	DISACC_3yr (t-1; t+1), PSM 1, (z-value) (4)	DISACC_3yr Controls averaged (t-2; t), full sample (z-value) (5)	DISACC_3yr Controls averaged (t-2; t), PSM 1 (z-value) (6)
MULT_VOTE −/+	0.0423*** (2.91)	0.0538** (2.45)	0.0444*** (2.85)	0.0497** (2.23)	0.0451*** (2.77)	0.0593*** (2.47)
HONOR −/+	-0.0156** (-2.44)	-0.0284** (-2.52)	-0.0164** (-2.42)	-0.0302*** (-1.93)	-0.00890 (-1.32)	-0.0320* (-1.93)
MULT_VOTE × HONOR	0.169*** (2.65)	0.199*** (3.15)	0.114** (2.159)	0.204*** (2.76)	0.250*** (4.23)	0.215*** (2.52)
SIZE_mean	-0.0221** (-2.38)	-0.0928*** (-3.63)	0.0038 (0.35)	-0.0559* (-1.89)	0.0216 (1.470)	0.0160 (0.38)
Other control means	Included	Included	Included	Included	Included	Included
Controls	Included	Included	Included	Included	Included	Included
Industry, year, and region dummies	Included	Included	Included	Included	Included	Included
N =	4,203	1,080	3,632	940	2,693	711
Overall R^2 in %	51.5	32.1	53.1	36.0	53.6	36.5
Wald chi^2	1,400	255.6	1,290	247.1	1,054	209.7

This table shows additional analyses with different measures of discretionary accruals on how the presence of multiple voting rights is associated with the cooperatives' discretionary accruals, using a Mundlak random effects model. MULT_VOTE takes the value of 1 if members are allowed to have multiple voting rights, and 0 if not. HONOR is a dummy variable that takes the value of 1 if the statutes allow honorary executives to run the cooperative, and 0 otherwise. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, using a two-tailed test. DISACC_3yr is the firm-level three-year moving sum of the absolute value of discretionary accruals, in accordance with Hutton et al. (2009), based on the Modified Jones Model (Dechow et al., 1995). In Columns 1 and 2, DISACC_3yr is measured from t-2 to t and independent variables in t; in Columns 3 and 4, DISACC_3yr is measured from t-1 to t+1 and independent variables in t; in Columns 5 and 6, independent variables are averaged from t-2 to t. PSM 1 indicates propensity score matching with matching criteria: SIZE and NON_HOUSING. Controls include SIZE, LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, RISK_SALES, NON_HOUSING, LOCAL_TAXRATE × NON_HOUSING, BOARD_SIZE, CHARITY, MIN_TERM, HIGH_MEMB_LIAB, and NOTICE_PERIOD. Control means include the means of SIZE, LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, and RISK_SALES. For a definition of the variables, see Table A1 in the Appendix. GROWTH and RISKSALES are winsorized at the 5th and 95th percentiles; other metric variables are winsorized at the 1st and 99th percentiles.

Table 9: Earnings management in the presence of multiple voting rights: alternative financial reporting quality measures (Mundlak model)

Panel A: Alternative accruals measures

	Pred. sign	DISACC_1yr full sample (z-value) (1)	DISACC_1yr PSM 1 (z-value) (2)	DISACC_ ROA_3yr full sample (z-value) (3)	DISACC_ROA _3yr PSM 1 (z-value) (4)	TOTACC_3yr full sample, (z-value) (5)	TOTACC_3yr PSM 1 (z-value) (6)
MULT_VOTE	−/+	0.0140***	0.0181***	0.0348**	0.0437**	0.0546***	0.0624***
		(3.52)	(3.00)	(2.36)	(1.98)	(3.68)	(2.72)
HONOR	−/+	-0.0057***	-0.0143***	-0.0074	-0.0218	-0.0114*	-0.0185
		(-3.40)	(-3.02)	(-1.150)	(-1.40)	(-1.69)	(-1.11)
MULT_VOTE × HONOR		0.0703***	0.0801***	0.172***	0.172**	0.0338	0.0840
		(4.79)	(4.05)	(2.85)	(2.08)	(0.63)	(1.03)
Controls and their means		Included	Included	Included	Included	Included	Included
Industry, year, and region dummies		Included	Included	Included	Included	Included	Included
N =		4,309	1,116	3,697	986	4,348	1,151
Overall R^2 in %		31.0	21.6	52.2	33.6	41.6	26.4
Wald chi^2		1,598	291.2	1,308	270.1	1,070	214.6

Panel B: Additional measures on financial reporting quality

	Pred. sign	ABS_WCA full sample (z-value) (7)	ABS_WCA PSM 1 (z-value) (8)	SMTH full sample (z-value) (9)	SMTH full sample (z-value) (10)	SMTH PSM 1 (z-value) (11)	SMTH full sample (t-value) Pooled OLS (12)	RESTATE, full sample (z-value) (13)	RESTATE PSM 1 (z-value) (14)
MULT_VOTE	−/+	0.0094*	0.0096	0.104*	0.0901	0.110*	0.0833*	0.333*	0.261
		(1.74)	(1.31)	(1.68)	(1.39)	(1.74)	(1.80)	(1.72)	(1.20)
HONOR	−/+	-0.0002	-0.0044	-0.0300	-0.0323	0.0306	-0.0264	0.141	-0.0341
		(-0.10)	(-0.77)	(-1.06)	(-1.14)	(0.07)	(-1.02)	(1.34)	(-0.12)
MULT_VOTE × HONOR		0.0487**	0.0404*	--	0.142	-0.0194	0.151*	--	--
		(2.44)	(1.72)		(0.67)	(-0.09)	(1.76)		
Controls		Included	Included	Included	Included	Included	Included	Included	Included
Control means		Included	Included	Included	Included	Included	--	--	--
Industry, year, and region dummies		Included	Included	Included	Included	Included	Included	Included	Included
N =		2,557	698	3,962	3,962	1,099	3,962	4,320	998
Overall R^2/*Adj. R^2* / *Pseudo R^2* in %		25.3	22.7	22.6	22.7	28.4	*21.0*	*7.3*	*17.6*
Wald chi^2 / *F-Stat.*		499.4	165.8	655.4	655.3	245.8	*20.9*	101.0	50.9

This table shows how the characteristics of cooperatives are associated with their financial reporting quality in the presence of multiple voting rights, with alternative measures of financial reporting quality, including DISACC_1yr, DISACC_ROA, TOTACC_3yr, ABS_WCA, SMTH and RESTATE. Generally, a Mundlak random effects model is applied; we only employ a probit model with the RESTATE analysis, because demeaning does not remove unobserved fixed effects in nonlinear models. DISACC_1y is the absolute value of discretionary accruals, based on the Modified Jones Model (Dechow et al., 1995). DISACC_ROA is the firm-level three-year moving sum of the absolute value of discretionary accruals, in accordance with Hutton et al. (2009), based on the performance-adjusted Jones Model (Kothari et al., 2005). TOTACC_3yr is the firm-level three-year moving sum of the absolute value of total accruals, controlled

for the independent variables of the Modified Jones Model (Dechow et al., 1995), as suggested by Chen, Hribar & Melessa (2018), excluding interactions with year dummies due to multicollinearity. ABS_WCA is the absolute value of discretionary accruals, based on the working capital accrual model by Dechow and Dichev (2002). SMTH is the standard deviation of (net income before taxes divided by lagged total assets) divided by the standard deviation of (cash flow from operations divided by lagged total assets), each calculated over three years, multiplied by -1. RESTATE is a dummy variable that takes the value of 1 if the financial statement has been restated or information has been added, and 0 if not. PSM 1 indicates propensity score matching with matching criteria: SIZE and NON_HOUSING. Controls include SIZE, LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, RISK_SALES, NON_HOUSING, LOCAL_TAXRATE × NON_HOUSING, BOARD_SIZE, CHARITY, MIN_TERM, HIGH_MEMB_LIAB, and NOTICE_PERIOD. Control means include the means of SIZE, LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, and RISK_SALES. For a definition of the variables, see Table A1 in the Appendix. SMTH, GROWTH, and RISKSALES are winsorized at the 5th and 95th percentiles; other metric variables are winsorized at the 1st and 99th percentiles.

Table 10: Multiple voting rights and earnings management, dependent variable: DISACC, treatment effect model (Mundlak model)

		Without treatment effects	Treatment effects model		Treatment effects model	
			Full sample		PSM 1 sample	
Dep. variable		DISACC_3yr Coeff. (z-value), full sample	MULT_ VOTE Coeff. (z-value)	DISACC_3yr Coeff. (z-value)	MULT_ VOTE Coeff. (z-value)	DISACC_3yr Coeff. (z-value)
	Pred. sign		(1)	(2)	(3)	(4)
MULT_VOTE	−/+	0.0510*** (3.59)		0.0518*** (3.893)		0.0600* (1.70)
RATIO_MV_STATE	+		14.65*** (7.77)		18.10*** (7.99)	
HONOR	−/+	-0.0141** (-2.21)	-0.614*** (-4.86)	-0.0093*** (-2.99)	-0.453** (-2.57)	-0.0224** (-2.28)
SIZE_mean		-0.0220** (-2.36)	0.539 (1.27)	-0.0146 (-0.88)	0.748 (1.41)	-0.0830** (-2.56)
NON_HOUSING, CHARITY		Included	Included	Included	--	Included
Other controls		Included	Included	Included	Included	Included
Control means		Included	Included	Included	Included	Included
Year dummies		Included	Included	Included	Included	Included
Industry dummies		Included	Included	Included	Included	Included
Region dummies		Included	--	Included	--	Included
N =		4,203	4,203		1,080	
Wald chi^2 / prob. > chi^2		1,386 / 0.0000	3,579 / 0.0000		475.7 / 0.0000	
Pseudo R^2 of MULT_VOTE regression without/with IV			0.275 / 0.315		0.114 / 0.175	
Wald test of $\rho = 0$, chi^2 / prob. > chi^2			3.82 / 0.051		0.18 / 0.669	
Durbin–Wu–Hausman: prob. > F			1		1	

This table presents the results of an endogeneity-adjusted regression analysis that examines the relationship between cooperatives that allow multiple voting rights and discretionary accruals, using a Mundlak model. We utilize RATIO_MV_STATE as the instrumental variable in the first-stage regression, which models the choice of multiple voting rights. RATIO_MV_STATE is the ratio of cooperatives that allow multiple voting rights to all cooperatives for each region. In the first-stage regression, we exclude the variables NON_HOUSING, LOCAL_TAX × NON_HOUSING, CHARITY as well as region dummies, due to multicollinearity issues. In the second stage, all variables of the baseline regression in Table 6, Column 1 are included. DISACC_3yr is the firm-level three-year moving sum of the absolute value of discretionary accruals, in accordance with Hutton et al. (2009), based on the Modified Jones Model (Dechow et al., 1995). MULT_VOTE takes the value of 1 if members are allowed to have multiple voting rights, and 0 if not. HONOR is a dummy variable that takes the value of 1 if the statutes allow honorary executives to run the cooperative, and 0 if not. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, using a two-tailed test. PSM 1 indicates propensity score matching with matching criteria SIZE and NON_HOUSING; see Table 3, Panel B. Controls include SIZE, LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, RISK_SALES, NON_HOUSING, LOCAL_TAXRATE × NON_HOUSING, BOARD_SIZE, CHARITY, MIN_TERM, HIGH_MEMB_LIAB, and NOTICE_PERIOD. Control means include the means of SIZE, LOCAL_TAXRATE, ROA, DEBT, LOSS, HHI, GROWTH, and RISK_SALES. For a definition of the other variables, see Table A1 in the Appendix. GROWTH and RISKSALES are winsorized at the 5th and 95th percentiles; other metric variables are winsorized at the 1st and 99th percentiles.