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ORIGINAL ARTICLE

Performance of municipally owned corporations: Determinants and mechanisms

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Abstract

Practitioners often expect service delivery by municipally owned corporations (MOCs) to differ substantially from delivery by municipal bureaucracy. However, research into the circumstances under which municipal corporatization is effective is scarce. We investigate determinants of MOCs' performance based on a questionnaire sent to all Dutch MOCs, finding no evidence that many expected predictors of performance matter for performance. Key factors driving MOCs' performance relate to size, resource access, and the interaction between their multiple principals. We suggest that in studying local corporatization, researchers should look less at traditional principal-agent conflict and more at intermunicipal coordination.

KEYWORDS

corporatization, local service delivery, multiple principal problem, municipally owned corporation

1 | INTRODUCTION

A substantial literature explores predictors of the performance of state-owned enterprises (SOEs) and government agencies (Boardman & Vining, 1989; Nelson & Nikolakis, 2012; Pestieau & Tulkens, 1993; Verhoest & Wynen, 2018; Verhoest, Van Thiel, Bouckaert, & Lægneid, 2012). This literature has demonstrated the importance of factors such as autonomy, trust, steering, and business techniques for SOEs' and agencies' performance, and governance practices have increasingly been developed based on this research (Van Thiel, Van Genugten, & Voorn, 2019). However, at the local level, research into

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corporatization has been largely absent (Cambini, Filippini, Piacenza, & Vannoni, 2011; Lidström, 2017; Torsteinsen, 2019), and perhaps as a consequence, no clear governance practices have been developed for municipally owned corporations (MOCs), and current governance practices are often limited to minimum arrangements (Aars & Ringkjøb, 2011). Multiple problems have been pointed out in the literature that suggest that current governance practices for local at arms' length organizations may be suboptimal, such as worrisome entanglements between government and management (Bergh, Erlingsson, Gustafsson, & Wittberg, 2018), too few checks on management (Garrone, Grilli, & Rousseau, 2013), and conflicts between multiple principals (Voorn, Van Genugten, & Van Thiel, 2019d).

The objective of this study is to analyze to what extent lessons about the governance of SOEs and agencies can be applied at the local level for MOCs. In particular, we study whether the predictors of performance of SOEs and agencies are the same at the municipal level among MOCs. We address the entire population of 809 Dutch MOCs with a questionnaire exploring possible predictors of their performance, based on the literature on SOEs and government agencies and using measures validated in previous studies that explored predictors of performance among government agencies (Van Thiel & Yesilkagit, 2011; Verhoest et al., 2012; Yesilkagit & Van Thiel, 2011). Worryingly, we find no evidence that many expected predictors of the performance of SOEs and government agencies, including autonomy, trust, and several steering techniques, matter for the performance of MOCs. Instead, the key factor driving MOCs' performance is the interaction between their frequent multiple principals, suggesting that to understand local corporatization, researchers should look less at traditional principal-agent conflict and more at the consequences of goal conflict among municipalities, by considering more multi-principal models of governance (Bel & Sebő, 2018; Voorn, 2019a; Voorn, 2019d; Voorn et al., 2019d) and issues of collaborative governance (Ansell & Gash, 2008). Such factors have previously been shown to be very important in SOEs (Bruton, Peng, Ahlstrom, Stan, & Xu, 2015) and local utilities (Grossi & Reichard, 2008). Local corporatization in that sense is fundamentally different from corporatization or agencification at the national level.

An important limitation of our study is that our performance measures are static and short-term oriented, based on perceptions, and absolute rather than relative, and so further research is still required into this pressing topic. Moreover, as recommended by the Dutch government, many MOCs in the Netherlands are based in public law, which have less legal autonomy and more hierarchic controls (Van Genugten, Van Thiel, & Voorn, 2019), and are more politicized (Flinders & Matthews, 2010). This may limit the generalizability of our findings to countries where corporatization is less political.

The remainder is organized as follows. Section 2 describes the background of this study. In Section 3, we review the literature on predictors of the performance of SOEs and government agencies and discuss their relevance for MOCs. Section 4 explains our methodology. In Section 5, we present the results of our analysis and test our data's robustness. Section 6 discusses our findings in light of the theory and limitations. In Section 7, we conclude.

2 | MUNICIPALLY OWNED CORPORATIONS

MOCs are corporations owned by municipalities and founded to provide a local public service. They are different from local bureaucracies in that they are governed by appointed executive boards and have independent corporate status. MOCs' autonomy is a driving force behind their increasing popularity (Ferry, Andrews, Skelcher, & Wegorowski, 2018; Grossi & Reichard, 2008; Tavares, 2017; Voorn, Van Thiel, & Van Genugten, 2018b). Municipalities hope that MOCs, through their autonomy, can

increase efficacy of local public service delivery (Argento, Grossi, Tagesson, & Collin, 2009; Krause & Van Thiel, 2019; Voorn, 2019b), although MOCs are also utilized as a step towards privatization (Cruz, Marques, Marra, & Pozzi, 2014; Marra, 2007), to alleviate fiscal stress (Citroni, Lippi, & Profeti, 2013; Grossi & Reichard, 2008), to build coalitions (Citroni, Lippi, & Profeti, 2015), or to introduce some measure of competition or business techniques in local public service delivery (Leavitt & Morris, 2004, Voorn, Borst, & Blom, 2019a; Voorn, Van Genugten, & Van Thiel, forthcoming). More negatively, MOCs can be vehicles for politicians to avoid blame for problems in public service delivery (Bourdeaux, 2004).

While their autonomy sets them apart, MOCs are otherwise heterogeneous. MOCs can be owned by one municipality or by multiple municipalities, are typically single-purpose but can be multi-purpose (Bognetti & Robotti, 2007), and usually operate under private law, but can operate under public law in various countries (Van Genugten et al., 2019). In some cases, MOCs rely on revenues derived from user fees (Tavares & Camões, 2007); in other cases, they rely on subsidies from their municipal owners. Some MOCs are allowed to make profits, or are even relied upon to do so by their owner-municipalities; others are instructed or mandated by law to break-even (Bel & Fageda, 2010). It is concerning that in the face of such heterogeneity, systematic large-N research into MOCs has lacked, and the literature remains largely dependent on single case studies, often focusing on specific countries, sectors, or types of MOC (Voorn, Van Genugten, & Van Thiel, 2017).

While there is tentative evidence of how MOCs perform compared to local bureaucracies – they can be more efficient, but have high failure rates (Voorn et al., 2017) – there continues to be little knowledge on what contributes to MOCs' performance, the types of governance used for MOCs in practice, and the types of governance that *should* be used. Since MOCs are forms of externalized public organizations, like SOEs and agencies, researchers often apply theory based on that literature to MOCs as well (e.g., Sørensen, 2007). Practitioners may copy governance techniques based on experiences at the national level to MOCs, although they most often follow the minimum legal requirements (Aars & Ringkjøb, 2011). Yet we do not know if this (limited) type of governance is fully appropriate, and whether MOCs behave similarly to other externalized public organizations. Several problems have been pointed out in the governance of MOCs that may demonstrate inefficiencies in current governance practices (Bergh et al., 2018, Garrone et al., 2013).

There are various reasons why MOCs should potentially be governed differently than SOEs and agencies. First, MOCs face lower service expertise among their shareholders (Bel, Dijkgraaf, Fageda, & Gradus, 2010), as municipalities, due to their more limited resources, have less access to service experts than state or national governments do (Brown & Potoski, 2003; Warner, 2011). This deficiency in expertise frequently spills over to boards, as politicians take up board positions in MOCs more frequently than in SOEs, creating entanglements between politics and management (Bergh et al., 2018) and too few checks on management (Garrone et al., 2013). Second, municipalities often have problems in establishing salient contracts (Brown & Potoski, 2003), creating high transaction costs, and requiring (more) active and perhaps more relational governance (Van Genugten et al., 2019). Third, more than SOEs and agencies, MOCs have multiple owners (municipal shareholders), potentially inducing conflicts in governance (Blaeschke & Haug, 2018; Cäker & Nyland, 2017; Carini, Giacomini, & Teodori, 2019, Giacomini, Sancino, & Simonetto, 2018; Sørensen, 2007; Soukopová & Vaceková, 2018; Voorn et al., 2019d). Consequently, the municipalities' ability to monitor management is often limited, encouraging the right governance practices for MOCs becomes more critical, and good governance of MOCs may differ substantially from good governance of SOEs and agencies. Thus, it is important to uncover exactly how predictors of the performance of MOCs differ from those of SOEs and national agencies.

3 | THEORY

3.1 | Performance

Before we can theorize about predictors of performance in MOCs, we must first discuss what it means to perform well in the public sector. Performance in the public sector is often more difficult to measure than it is in the private sector (Kearney, 2018; Van Dooren, Bouckaert, & Halligan, 2015), since public goals are often harder to quantify and public sector organizations operate less in competitive environments, making benchmarking more difficult.

Typically, performance is measured in terms of *output*. Output measures of performance assess organizations' performance in the economic sense: are they effective, efficient, and productive in achieving their goals? Output measurement is frequently challenged in the public sector, largely because it is often used exclusively, crowding out elements of performance that are harder to measure (Bevan & Hood, 2006). Nonetheless, output measurement is critical to assess how well public services are administered, and efficiency, effectiveness, and quality are therefore key measures of public sector performance (Andrews & Van de Walle, 2013). Since MOCs are frequently founded in the belief that they should increase output, we will focus on this dimension of performance in this article, but we would encourage measurement of other important outcomes of MOCs, such as stability, responsiveness, or accountability (see Voorn, 2019c).

3.2 | Predictors of performance

Below, we address the key factors that are predicted to affect performance in the literature on SOEs and agencies, discuss how they relate to MOCs, theorize how they affect MOCs' performance, and form hypotheses.

3.2.1 | Autonomy

One key reason to engage in 'governance at arm's length' is to allow autonomous (non-political) delivery of public services (Bourdeaux, 2008; Citroni et al., 2013). As such, autonomy is considered a key predictor of performance for SOEs and agencies (Lioukas, Bourantas, & Papadakis, 1993; Verhoest, Peters, Bouckaert, & Verschuere, 2004a). Whether this effect is positive or negative is contested. On the one hand, autonomy creates transaction costs, which negatively affect performance: as the distance between an organization and its political principal increases, the principal's objectives are less likely to be satisfied (Brown & Potoski, 2003; Egeberg & Trondal, 2009) and accountability can be lost (Moynihan, 2006), although trust is a mitigating factor (Agranoff & McGuire, 2004). On the other hand, autonomy distances politicians from service delivery, and since politicians may have incentives to sacrifice efficiency for the sake of re-election, this may be beneficial (see Shleifer & Vishny, 1994).

For MOCs specifically, the effects of autonomy on performance seem to be either insignificant or small but positive. Torsteinsen, Van Genugten, Miluka, Mussons, and Puey (2018) find mixed effects of autonomy on performance of municipally owned corporations in five countries. Cambini et al. (2011) and Swarts and Warner (2014) find that autonomization brings cost savings; Pérez-López, Prior, and Zafra-Gomez (2015) find that whether autonomization successful depends on the sector where it takes place. Bourdeaux (2007) finds that many corporatization projects fail because the introduced autonomy leads to steering problems, and Da Cruz and Marques (2011) find that corporatization does not bring desired effects when autonomy is insufficiently granted. Voorn et al. (2017) conclude in a systematic literature review that autonomization in MOCs has the potential to increase efficiency compared to municipal bureaucracy, but can bring high failure rates.

H1: Autonomy positively affects MOCs' performance.

3.2.2 | Steering

Another factor with a predicted effect on performance of SOEs and agencies is steering. Ex-post steering can occur in multiple stages. First, objective-setting can help communicate the government's objective to the organization, and benchmark what level of performance is expected. Its effects are contested (Bevan & Hood, 2006; Pollitt, 2005; Radnor & McGuire, 2004; Yesilkagit & Van Thiel, 2008), because too precise objective-setting can lead organizations to try to follow objectives to the letter, rather than in spirit (see Macaulay, 2018). Next, evaluations and monitoring procedures help the government assess whether objectives are actually achieved, which can have positive effects as they can help the government ensure that its objectives are pursued, although they can also come at high costs (Wholey & Hatry, 1992). Finally, sanctions and rewards can ensure that the incentives of the organization's management are aligned with those of the government (Girth, 2012; Melkers & Willoughby, 2005), although the effectiveness of this is frequently challenged because it can again inspire following the government's objectives too little in spirit or can 'crowd out' intrinsic motivation (e.g., Læg Reid, Roness, & Rubecksen, 2006, 2008; Propper & Wilson, 2003).

It does not only matter what procedures are followed, but also *who* is responsible for steering. In the absence of a clearly defined principal for steering, steering may not be effective. Next, it is important that the steering party has expertise and is objective (Brown, Potoski, & Van Slyke, 2006; Hendry, 2002; Marvel & Marvel, 2007; Waterman & Meier, 1998). What is monitored also matters, because what gets measured is typically what gets done (Bevan & Hood, 2006). Finally, there may be strategic steering, where the steering party is only involved with objective-setting, but there may also be operational steering, where the principal is actively involved in day-to-day management (Van Thiel et al., 2019); these strategies may have different outcomes.

H2: Ex-post steering (through performance management) positively affects MOCs' performance.

A key challenge to ex-post steering comes from principal–steward theory (Schillemans, 2013) and network theory (Klijn, Edelenbos, & Steijn, 2010). A focus on extrinsic motivation through incentives can 'crowd out' intrinsic motivation (Benabou & Tirole, 2003) and lead to distrust. In agencies and SOEs, it means that when objectives are embedded in extensive contracts that are precisely measured, this may inspire managerial performance only to the letter of the contract, which is problematic because contracts are unavoidably incomplete (Grossman & Hart, 1986). Network theorists emphasize interdependence between principal and agent and often challenge the hierarchy assumptions made in principal–agent theory (Edelenbos & Klijn, 2007). Principal–steward and network theorists therefore emphasize the importance of relational contracting, intrinsic motivation, and trust. A focus on steering through trust can motivate and lead to information sharing and is therefore an important predictor of SOE and agency performance (Van Thiel & Yesilkagit, 2011).

H3: Trust between MOCs and their owner-municipalities positively correlates with MOCs' performance.

3.2.3 | Multiplicity of principals

One key area in which MOCs are different from agencies and SOEs is in the frequent multiplicity of principals. More than on the national level, MOCs have multiple owners (municipal shareholders), potentially inducing conflicts in steering and monitoring (Bel & Sebó, 2018; Blaeschke &

Haug, 2018; Cäker & Nyland, 2017; Sørensen, 2007; Soukopová & Vaceková, 2018; Voorn et al., 2019d).

Multiplicity of principal–municipalities may be problematic for several reasons (Voorn et al., 2019d). First, when municipalities are homogeneous in interests, a potential coordination problem exists. Municipalities are not necessarily aware of each other's behavior, and may face a collective action problem in steering and monitoring that may lead to an absence of steering (free-riding) or to duplicate steering, both creating inefficiency. Second, when municipalities are heterogeneous in interests, they may have incentives to lobby MOCs to pursue their interests above those of other municipalities, and the result is that MOCs face a lot of different directives, which is detrimental for performance (Garrone et al., 2013).

We thus expect that differences in steering between principal–municipalities negatively affect MOCs' performance.

H4: Differences between principal-municipalities in steering MOCs negatively affect MOCs' performance.

3.2.4 | Background factors

Beyond the aforementioned elements that affect performance, some background factors also matter. Organization size in terms of budget and number of employees may affect performance (Gooding & Wagner III, 1985). The sector in which organizations operate may matter, because some sectors can be more technical than others, and regulators have more difficulty regulating more technical services because of lack of expertise or capacity (Brown & Potoski, 2003; Tavares & Camões, 2010); on the other hand, MOCs may have access to more technical expertise (Correlje, Francois, & Verbeke, 2007). Having access to enough resources matters, as organizations that are not endowed with enough resources may struggle to perform. Organization age may also affect performance, but we do not know how: settled organizations are more likely to have established salient governance practices, but may also be more entrenched (Ahuja & Majumdar, 1998). Corporate status may have an effect, but we do not know how, and it largely affects performance through its effect on autonomy, although different legislation may apply.

H5a: MOCs' size positively affect their performance.

H5b: The technicality of a service affects MOCs' performance.

H5c: MOCs' access to resources positively affects their performance.

H5d: Older MOCs have higher performance.

H5e: MOCs' corporate status affects their performance.

We do not add variables on corporate governance because these are highly collinear with corporate status and because differences on key factors are too limited to warrant inclusion. For instance, performance management is not used in virtually all MOCs (Voorn, Nolden, Van Genugten, & Van Thiel, 2019b), board size and composition is similar across MOCs (Voorn, Van Genugten, & Van Thiel, 2019c), and board meeting frequencies vary little and are highly correlated with corporate status (Voorn & Van Genugten, 2020). While we do not include these variables here, we know from the literature that corporate governance mechanisms matter in at arm's length organization (Grossi, Papenfuß, & Tremblay, 2015), and so we encourage further research on this topic.

4 | METHOD

4.1 | Case selection

To study the antecedents of MOCs' performance, we focus our research specifically on the Netherlands. In the Netherlands, MOCs are heterogeneous, and vary immensely in number of municipal owners, sectors, corporate status, budgets, and revenue sources. Both private-law and public-law options exist for MOCs, and using MOCs to institutionalize public–private partnerships or cooperation between multiple levels of government is also possible. This heterogeneity allows us to collect a broad dataset and makes our findings more generalizable. Moreover, by law, Dutch municipalities are obligated to include a section 'Verbonden partijen' (translated: 'attached entities') in their annual budgets outlining (partial or complete) ownership of any organization, allowing straightforward and reliable data collection on our population.

The Netherlands differs from some other countries in a few aspects. First, the Netherlands has strict legislation for public-law MOCs, where the *Wet gemeenschappelijke regelingen* mandates the presence of politicians on supervisory boards, which may limit MOCs' autonomy and may cause boards to become caught up in intermunicipal conflicts. This may cause the public-law MOCs in The Netherlands to perform worse than they would in other countries, although some other countries, such as Germany, have similar legislation (Papenfuß, Van Genugten, De Kruijf, & Van Thiel, 2018). Second, cooperation of many varieties is possible, but multi-purpose MOCs and public–private partnerships are less common in the Netherlands than in many other European countries (Bel et al., 2010). It is unclear how this may affect predictors of performance, but these factors may limit generalization of our findings, and we revisit these in the discussion.

4.2 | Procedure

We sent a survey to directors of all Dutch municipally owned corporations in February 2018. Directors were sent a letter through postal mail that contained links (shortened and complete) to an online survey administered through Qualtrics. The letter contained a deadline of two weeks from the date of submission, as well as a request from the Vereniging voor Nederlandse Gemeenten (the *Association of Dutch Municipalities*, an umbrella organization for Dutch municipalities), both intended to bolster response. After the deadline expired, we sent a second letter in March 2018, again with a two-week deadline.

4.3 | Population and sample

From November 2017 to January 2018, we systematically went through the most recent budgets of all 390 Dutch municipalities and included all independent organizations they owned in a database. We omitted 'empty' holding companies and organizations with no listed address. In total, this yielded a database of 809 MOCs. We sent letters requesting survey participation to this entire population; 10 letters were returned indicating inability to deliver, and we removed these MOCs from our database, leaving a total population of 799 MOCs.

To allow us to compare our respondents with the population, we also tracked a few general statistics for this population. We collected information on all organizations' corporate status, sector, and website presence. We also attempted to collect information about organization size (number of employees (in ftes) and budget size), but data were often inaccessible or outdated. This leaves us with no perfect measure to compare organization sizes in our sample with those in the population, although the presence of a website may be an imperfect indicator.

TABLE 1 Some descriptive statistics for the population and our sample

	Population (799)	%	Sample (177)	%
Corporate status				
Corporation	279	34.9	55	31.1
Foundation	189	23.7	38	21.5
Public-law organization	309	38.7	82	46.3
Other	22	2.8	2	1.1
Sector				
Economy & Housing	158	19.8	27	15.3
Education & Culture	121	15.1	18	10.2
Finance & General	67	8.4	11	6.2
Infrastructure & Refuse collection	132	16.6	25	14.1
Nature & Agriculture	64	8.0	24	13.6
Security & Health	78	9.8	18	10.2
Social Affairs & Employment	117	14.6	37	20.9
Sports & Recreation	61	7.6	17	9.6
Website presence	688	86.1	164	92.6

TABLE 2 Descriptive statistics of our sample

	Mean	SD	Skewness	Kurtosis	Range
Ownership					
Intermunicipal	0.71	0.45	-0.94	-1.12	0-1
Public-private	0.14	0.34	2.15	2.64	0-1
Public (multi level)	0.23	0.42	1.32	-0.25	0-1
Background					
Size (budget) (×1000)	33,192	88,574	6.13	43.45	0-800,000
Size (employees)	229.19	489.08	4.12	21.22	0-3,800
Age	17.17	17.31	1.79	2.82	0-82
Performance					
Efficiency	7.28	1.03	-0.78	2.62	2-10
Effectiveness	7.45	1.13	-0.94	3.33	2-10
Quality	7.66	1.32	-0.92	1.73	3-10
Performance (factor)	0	1	-1.15	4.24	-4.74-2.52

In total, 243 surveys were returned (response rate 30.4%). Of those 243 surveys, 61 were incomplete (all with under 30% completion); these were excluded for our research. Five more respondents suggested they had no budget or no employees, and upon further reflection were not independent organizations and were excluded. That left 177 complete surveys (completion rate 73.7%, net response rate 22.2%) for analysis. Table 1 shows descriptive statistics for the population (799) and for our sample (177). It shows that our sample is slightly skewed towards public-law organizations and larger organizations (judged by website presence), but is on the whole quite representative.

Table 2 shows more descriptive statistics for our sample. Of all MOCs, 71% were intermunicipal, 14% were public-private, and 23% had an additional higher-tier government as principal. The average

age of the organization was 17.17 years; budgets ranged from 0 to 800 million euros with a mean of 33.19 million; the number of employees ranged from 0 to 3,800 with an average of 229 employees. Our organizations were thus highly heterogeneous. They rated themselves, on average, 7.28 out of 10 in efficiency, 7.45 in effectiveness, and 7.66 in product or quality.

4.4 | Survey basis and measures

We based our survey partially on earlier surveys by the COBRA network sent to agencies and quasi-autonomous government organizations in a variety of countries (COBRA, 2010, Verhoest et al., 2004b). The COBRA network, or the Comparative Public Organization Data Base for Research and Analysis, is an academic research network in the field of public management which aimed to develop and replicate a common questionnaire in order to survey senior managers of public sector organizations, with a focus on, in particular, issues of autonomy and control in (semi-)autonomous national-level government agencies (COBRA, 2011). Given that municipally owned corporations, like national-level government agencies, are semi-autonomous public sector organizations, we found many questions in the COBRA survey are also applicable to MOCs.

To ensure that our measures were indeed applicable also at the local level, we adjusted our survey to target specifically MOCs in terminology, and conducted a pilot study of our survey among local government experts and former MOC directors. We also used this pilot study to test the terminology used in the survey. Our measures, with some terminological changes, were also deemed applicable at the local level by our pilot study respondents. We revisit the limitation of the COBRA survey in the conclusion.

In particular, we used items measuring autonomy and performance from the COBRA survey based on the fact that the factor loadings found in those earlier studies support their use (see Christensen & Lægread, 2006; MacCarthaigh, 2007; Van Thiel, Steijn, & Allix, 2007; Van Thiel & Yesilkagit, 2011; Verhoest et al., 2004a; Verhoest et al., 2004b; Verhoest, Verschuere, Peters, & Bouckaert, 2004c; Verhoest, Verschuere, & Bouckaert, 2007b; Verhoest et al., 2012; Verhoest, Bouckaert, & Peters, 2007a; Wettenhall, 2005; Yesilkagit & Van Thiel, 2008, 2011). Our Dutch translations were based partially on earlier COBRA-based surveys in the Netherlands (Van Thiel & Yesilkagit, 2011; Yesilkagit & Van Thiel, 2008, 2011); the factor loadings of those translations validate our factors as well. We discuss our key measures below. All specific survey items can be found in the Appendix, and the full survey is published as Voorn, Van Genugten, and Van Thiel (2019e).

The construct *autonomy* was divided in *financial autonomy*, *personnel autonomy*, and *budget source autonomy*, three concepts found as defining sources varying in intensity among MOCs (Voorn et al., 2017) and all validated in the original COBRA-survey (COBRA, 2010). For *financial* and *personnel* autonomy, respondents were given a list of types of autonomy they could have (10 items for financial autonomy, 9 items for personnel autonomy), which they could answer as “yes”, “only with prior consent of shareholders”, or “no”. For measuring *budget source autonomy* respondents were asked to estimate the percentage of their budgets derived from various sources (municipal budgets, other public budgets, other private budgets, municipality tariffs, general tariffs, private assignments, and other). Higher scores indicate a higher percentage of budgets derived from each source. We also measured the frequency of direct contact between daily board and the municipality and the content of the discussions.

The existence of *multiple principals* was measured by asking for the number of owner municipalities, as well as for the presence of private or other public shareholders, and for steering differences between principals. We also asked respondents if they perceived one of the municipalities to be the dominant steering actor on a five-point Likert scale.

We also measured *background factors* with single items. We measured (i) size of organizations, both in number of employees and in size of budget; (ii) age of organizations; (iii) corporate status of organizations; (iv) sector, which we asked as an open question and then recoded ourselves by sector based on the ministries they would fall under if they were national organizations (to allow national-local comparisons); and (v) self-assessed access to resources of the organization. We recoded a few of these variables. For the indicator organization size, we included both the log and the square root for our modeling to account for non-linear effects. We also created a measure “labor intensity” by dividing the square root of the number of employees by the square root of budget size to serve as a measure of service technicality.

Lastly, *performance* was measured through self-assessment on a 10-point scale with three items, following our theoretical section, validated in the original COBRA-survey (COBRA, 2010) and with acceptable factor loadings in our data (performance KMO = 0.725, sig 0.000). The items were efficiency, effectiveness, and quality.

A key limitation of our study is that our performance measures are limited in various ways. One, they are static and short-term oriented. They do not include long-run “dynamic” indicators such as long-run sustainability, profit margins, indebtedness, or capacity to renew assets. Moreover, our measures are based on perceptions, and while several procedural remedies were used in the survey design to limit common source bias (see MacKenzie & Podsakoff, 2012; Saris, Revilla, Krosnick, & Shaeffer, 2010), including reducing the potential for social desirability bias in item wordings, reducing ambiguity in scale items by using pre-validated scale items, and eliminating common scale properties (by using different scales both among independent variables and between independent and dependent variables), we cannot rule out common source bias. Finally, our measures are absolute and not relative, and thus our findings are not comparative in any way.

The reason that we nonetheless use these measures is the fact that for municipally owned corporations, the usual “performance metrics” are unreliable. Commonly, the performance of public sector organizations and private firms is measured through some combination of (i) profitability matrices and (ii) efficiency matrices, usually derived from financial reports. The use of these matrices for municipally owned corporations is problematic, because municipalities can shift relatively freely in their contributions to the municipal company or in the tariffs they allow the MOCs to charge. In response to a profitable year for the municipal company, local governments often respond by lowering tariffs in a way that makes the profitability or efficiency of the company invisible in its financial books; the opposite tends to occur in lesser-performing years. Using perceptions as a measure instead avoids this problem. Nonetheless, we welcome further research using alternative approaches to measure the performance of MOCs.

4.5 | Strategy of analysis

Given the large amount of variables in our dataset, using a manual approach to decide which independent variables to include or exclude in our regressions would risk type II errors and researcher bias. To combat this, we opt for stepwise regression (Henderson & Denison, 1989), a more automated and efficient approach for multi-hypothesis research that prevents type II errors and observer bias. Stepwise regression works by feeding all independent variables to the computer, which uses backwards elimination to discard the variable whose loss gives the most statistically insignificant deterioration of model fit, continuing to do so until the model reaches a specified criterion. We use the ‘standard’ criteria (probability of F for entry = .05, probability of F for removal = .10).

A downside of stepwise regression is that it can be prone to overfitting errors (type I errors) (Thompson, 1995). However, this limitation is mitigated by the fact that our independent variables were

TABLE 3 The results of stepwise OLS regressions on performance of MOCs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log employees	-.155*** (.038)	-.164*** (.038)	-.133*** (.036)	-.156*** (.038)	-.149*** (.040)	-.163*** (.039)	-.154*** (.038)	-.155*** (.040)
Enough resources	.278*** (.073)	.274*** (.074)	.291*** (.075)	.276*** (.072)	.283*** (.074)	.277*** (.073)	.269*** (.074)	.282*** (.076)
Differences in steering	-.210*** (.063)	-.205*** (.064)	-.194*** (.065)	-.216*** (.062)	-.208*** (.063)	-.204*** (.063)	-.203*** (.064)	-.198*** (.064)
Square root budget size	.001** (.001)	.001** (.001)		.001** (.001)	.001** (.001)	.001** (.001)	.001** (.001)	.001** (.001)
Sanctions: autonomy	-.572** (.260)			-.559** (.259)	-.584** (.262)	-.535** (.262)	-.557** (.262)	-.542** (.265)
Number of municipalities				.073 (.048)				
Personnel Autonomy					-.047 (.094)			-.075 (.097)
Financial Autonomy						.078 (.071)		.088 (.076)
Trust							-.044 (.077)	-.021 (.080)
R ²	.327	.296	.264	.341	.328	.335	.329	.339
N	112	112	112	112	112	112	112	112

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reported are B-statistics (standard deviations).

collected in a hypothesis-driven way (we only collected data on factors of which we had reason to predict they affected performance, as opposed to the data-mining for which stepwise regression is more typically used). A second downside of stepwise regression is the assumption of linear relationships between dependent and independent variables (Henderson & Denison, 1989). We take various steps to support our assumption of linearity, primarily by normalizing the dependent variables budget size, number of employees, and organization age, and by removing 2 strong outliers for the performance variable.

5 | RESULTS

5.1 | OLS regressions on performance

Table 3 reports the results of stepwise ordinary least-squares (OLS) regressions on performance.

Column (1) shows the key predictors of performance following our stepwise regression. Some key background variables are strongly related to performance at the $p < 0.01$ level. Access to resources is strongly positively related to performance, while the logarithm of the number of employees is negatively related to performance. Budget size is positively related to performance at the $p < 0.05$ level. The most critical non-background predictor seems to be differences in steering between MOCs with multiple owners, significant at the $p < 0.01$ level. One other factor is a less strong predictor of performance: the threat of autonomy loss following bad performance.

Columns (2) and (3) show the same model with fewer predictors to test the model's robustness. When we remove the two weakest predictors from the model, the R^2 of the model drops from 0.327 to 0.264, indicating these predictors' relevance, but the other four predictors lose little predictive power and remain strongly significant.

Column (4) shows the key model when controlled for the number of municipal owners of the organizations. Given that our model indicates differences in steering to be a key predictor of performance, it is worth testing whether this effect increases as the number of municipal owners increase, but this only marginally the case.

Columns (5), (6), and (7) show the model tested for the three key factors personnel autonomy, financial autonomy, and trust. None of these factors seems to have a significant effect on performance. In column (8), we include them all together, but they continue to have no significant effect on performance.

Overall, the results in Table 3 show a strong correlation between five key factors and performance. The factors are quite robust to the inclusion and elimination of other factors. Nevertheless, there is reason for not interpreting all relationships as causal. An endogeneity problem can arise from the fact that performance may be inversely correlated with budget size, as MOCs that perform well may see their budgets increase, although in the public sector that is not a given. However, personnel autonomy and financial autonomy can be instruments for budget size (although not significant at $p = 0.144$ and $p = 0.067$ respectively), and columns (5) through (8) show that budget size continues to be a strong predictor of performance when they are included, lending evidence against the possible endogeneity problem. A further endogeneity problem arises from the fact that performance and sanctions can be inversely correlated. MOCs that perform badly are more likely to deal with sanctions and are thus more likely to report their existence. Unfortunately, we found no good instruments for sanctions that do not similarly face this endogeneity problem, and so we cannot establish a causal direction for the correlation between sanctions threatening autonomy loss and performance.

We thus find strong evidence for two hypotheses: that differences between municipalities in steering MOCs negatively affect performance (H4) and that access to resources positively affects performance (H5c). We find mixed evidence for the hypothesis that MOCs' size positively affects performance (H5a), specifically finding a positive effect for size in terms of budgets and a negative effect for size in terms of employee numbers. Next, while we find evidence for the correlation between performance and a particular type of steering (H2a) that involves taking away autonomy in the event of bad performance, we cannot disprove the existence of an endogeneity problem for that correlation, and thus do not consider this hypothesis supported. We further find no evidence for the relevance of autonomy (H1), trust (H3), and many background factors (H5) for performance.

5.2 | Robustness

In the previous section we have offered robustness checks in the form of removal of or addition of key independent variables to our model. One valid concern might be the dependency of our model on the factor we choose for our dependent variable; moreover, factorizing performance may have limited the extent to which we can understand the mechanisms behind our correlations. We performed an additional robustness check by splitting up our factor into its three components: efficiency, effectiveness, and quality, and running OLS regressions of our model (2) on the individual factor components (we drop the predictor of sanctions regarding autonomy, for which we could not disprove the endogeneity problem).

Table 4 reports the outcomes of the individual regressions. The outcomes show that our predictors affect performance in different ways that are obscured by using a factor as our dependent variable. Table 4 demonstrates that while having more employees negatively affects all types of performance,

TABLE 4 The results of OLS regression model (2) on individual components of performance

	Efficiency	Effectiveness	Quality
Log employees	-.158*** (.057)	-.181*** (.046)	-.154*** (.043)
Enough resources	.450*** (.109)	.275*** (.089)	.133* (.082)
Differences in steering	-.283*** (.094)	-.153* (.077)	-.194*** (.070)
Square root budget size	.001 (.001)	.002** (.001)	.002*** (.001)
R^2	0.252	0.222	0.194
N	112	112	112

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reported are B-statistics (standard deviations).

TABLE 5 Hypotheses and findings

Hypothesis	Evidence?
H1: Autonomy positively affects MOCs' performance.	No
H2: Ex-post steering (through performance management) positively affects MOCs' performance.	No
H3: Trust between MOCs and their owner-municipalities positively correlates with MOCs' performance.	No
H4: Differences between principal-municipalities in steering MOCs negatively affect MOCs' performance.	Yes
H5a. MOCs' size positively affect their performance.	5a and 5c: Yes.
H5b. For more technical services, MOCs' performance will be lower.	The rest: No.
H5c. MOCs' access to resources positively affects their performance.	
H5d. Older MOCs have higher performance.	
H5e. MOCs' corporate status affects their performance.	

the other predictors show more specific effects. When MOCs lack resources, this affects their efficiency and effectiveness ($p < 0.01$), but we could not find that this was true at the same significance threshold for their quality ($p < 0.1$). Similarly, differences in steering disrupt efficiency and quality ($p < 0.01$), but we could not prove this same effect for effectiveness ($p < 0.1$). Budget size affects effectiveness and quality ($p < 0.01$) but not efficiency. While these differences could be due to sample size (the trend in all is not dissimilar), an alternative interpretation is that they challenge factorization of performance as we did here (despite the fact that our factor loadings for performance were acceptable). Thus we recommend caution in factorizing performance variables.

6 | DISCUSSION

6.1 | Findings and implications

Table 5 lists our hypotheses and indicates which hypotheses are supported. We uncover three key predictors for MOCs' performance.

First, access to resources matters. It appears one cause of worse performance among municipally owned corporations, at least in the view of the directors, is that MOCs are underfunded at a reasonable frequency. It is possible that an endogeneity problem exists here – that worse performance causes MOCs to be underfunded instead – but both directions of the relationship feasibly exist. Future research should look into whether (1) underfunding is a frequent problem in municipally owned corporations, whether (2) it objectively exists, or is only perceived to exist by directors, and whether (3) underfunding is a cause or a consequence of worse performance in MOCs. We recommend policymakers to critically examine the adequacy of funding for MOCs on a case-by-case basis.

Second, organization size matters, but not necessarily in the way that we would predict – budget size positively affects performance, primarily through effectiveness and quality, while the number of employees negatively affects performance across all dimensions. Further research needs to be conducted on why the latter is the case, but one mechanism could be that one cause of bad performance in MOCs could be in the hiring of too much personnel, just like there is evidence of excess employment in SOEs (Boycko, Shleifer, & Vishny, 1996). One interesting finding here from earlier research is that this relatively high amount of personnel particularly exists in municipally owned corporations that fall under public-law, and exists less in MOCs operating under private law (Voorn, Van Genugten, & Van Thiel, 2018a). We encourage policymakers to carefully examine whether excessive personnel can be a source of inefficacy in MOCs, and we encourage researchers to look into whether this is indeed the mechanism that underlies the negative correlation between personnel numbers and perceived performance.

Third, and perhaps the key finding that sets MOCs apart, relates to the effects of the multiplicity of owners that MOCs frequently have. Our stepwise regression confirmed that differences in steering between municipalities are a key cause of reduced performance for MOCs with multiple municipal owners, and in this, MOCs may operate substantially differently from SOEs and agencies. We provisionally find that their multiplicity of principals, more than steering or management types, trust, autonomy, and many background characteristics, is key to understanding their performance. Further research could demonstrate further whether our hypothesis that multiplicity of principals causes a collective action problem in steering and monitoring is indeed true in practice, and what potential solutions exist. For policymakers, we recommend particular attentiveness in coordinating the governance of MOCs when they have multiple shareholders.

6.2 | Limitations

Our study was set in the Netherlands, and as such our findings may be limited by context. Two contextual factors that may particularly affect our findings are Dutch legislation and the Netherlands' relatively high population density. The *Wet gemeenschappelijke regelingen* mandates the presence of politicians on supervisory boards of public-law MOCs, which may prevent potential solutions to the multiple principal problem through delegation, as it mandates a multi-principal board, and indeed many MOCs in the Netherlands are based in public law. Future research should look more at the effects of public and private law in MOCs, which may affect board appointments (Flinders & Matthews, 2010) and corporate governance (Grossi et al., 2015) in MOCs. Moreover, the Netherlands' high population density may make inter-municipal cooperation (and thus jointly-owned MOCs) less effective than it is in other countries (Bel & Warner, 2016). Further research should show whether our findings can be generalized to other countries, and perhaps which lessons the Netherlands can learn from other countries in governing intermunicipal cooperation through MOCs.

Moreover, our study, in addressing the entire population of MOCs, dealt with a large variety of respondents in organization types, sectors, sizes, and ages. In the context of such heterogeneous data

and the relatively high number of variables, although they provide more information, Type I errors (errors related to overfitting the data) become more likely. We tried to mitigate these by building our theoretical model before collecting the data, so that no more data was collected than necessary, but Type I errors can never be fully avoided. However, the heterogeneity of our population is simultaneously a benefit, enabling us to generalize our findings further than previous (case study based or sector based) research of MOCs.

A last limitation of the study is that all findings are based on survey data and thus on self-assessment, which we opted for because other performance measures in MOCs are likely unreliable. This means that common-method bias cannot be ruled out. Several procedural remedies were used in the survey design to limit common source bias (see MacKenzie & Podsakoff, 2012; Saris et al., 2010), including reducing the potential for social desirability bias in item wordings, reducing ambiguity in scale items by using pre-validated scale items, and eliminating common scale properties (by using different scales both among independent variables and between independent and dependent variables). However, we cannot fully rule out the possibility of common source bias. Moreover, our performance measures are limited in that they do not take into account long-run 'dynamic' performance indicators, such as sustainability and stability, profitability, indebtedness and capacity to renew assets, and are absolute rather than relative, thus they should not be used in a comparative light. For this reason, we encourage further research into this pressing topic.

7 | CONCLUSION

There has been much research into the predictors of performance of state-owned enterprises (SOEs) and government agencies, and many policies have been implemented to try to guarantee performance of national-level external public service organizations. However, much less research has been conducted at the local level among MOCs, and governance of local at arms' length organizations has often been limited to the minimum legal requirements (Aars & Ringkjøb, 2011). We do not know whether this is appropriate, and multiple problems have been pointed out for the governance of MOCs, such as entanglements between government and management (Bergh et al., 2018), too few checks on management (Garrone et al., 2013), and conflicts between multiple principals (Voorn et al., 2019d).

Since MOCs are becoming increasingly numerous, it is vital to understand what makes them perform. We provisionally find that many of the predictors deemed important for the performance of SOEs and government agencies do not seem to be predictors for MOCs. We also find no evidence of the effectiveness of steering, management, trust, autonomy, and background variables other than organization size and access to resources, and we caution researchers and practitioners to use literature on externalization on the national level to draw conclusions about the local level, as theories on SOEs and genericification do not fully grasp the complexities MOCs face.

That said, our findings are still tentative, and our measure of performance is limited, based in perceptions, and does not take into account long-term effects; our model therefore has limited explanatory power. Future research should be done using other measures of performance; in particular more dynamic, long-term, and objective measures of performance would contribute to the current literature. Future research could also demonstrate how municipally owned corporations perform in a comparative light, i.e., vis-à-vis local bureaucracies. However, for reasons outlined in our methodology section, we caution researchers not to rely too much on traditional profitability and efficiency indices, as they are subject to municipal policy decisions that can strongly skew these numbers. Future research could also consider the effects of cross-country differences in legislation, which are currently not yet sufficiently mapped in the literature, and look into the effects of specific corporate governance mechanisms. The

tentative finding of our paper is that the best predictor of performance of MOCs, beyond characteristics related to their size and access to resources, relates to the multiplicity of their owners. Differences in steering between municipalities provisionally seem to be a cause of reduced performance for MOCs with multiple municipal owners. We encourage scholars on local corporatization and intermunicipal cooperation to focus among others on this problem of multiple principals, as it potentially is a key determinant of the success of local corporatization.

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APPENDIX: MEASUREMENT SCALES (SINGLE ITEM INDICATORS EXCLUDED)

Indicator	Measures	Items	Measurement
Autonomy	Personnel autonomy	7 items (KMO .867, sig .000) Can your organization make decisions regarding: <ul style="list-style-type: none"> (i) Deciding on hiring policies regarding new personnel (ii) Hiring temporary personnel (iii) Hiring permanent personnel (iv) Advancing personnel (v) Firing personnel (vi) Setting wages for personnel (vii) Deciding on pension arrangements for personnel 	Yes (2), With Consent Shareholders (1), No (0)
	Financial autonomy	6 items (KMO .776, sig .000) Can your organization make decisions regarding: <ul style="list-style-type: none"> (i) Setting tariffs or prices for products or services (ii) Making investments (iii) Taking loans (iv) Shifting funds between years (v) Shifting funds between material budgets and personnel budgets (vi) Participating in private-law organizations 	Yes (2), With Consent Shareholders (1), No (0)
	Budget source autonomy	6 items Please estimate the percentage of your organization's budget derived from: <ul style="list-style-type: none"> (i) Municipal budgets (ii) Tariffs or prices charged to municipalities (iii) Tariffs or prices charged to private parties (iv) Tariffs or prices charged to consumers (v) Other public funds (vi) Other, namely... 	Percentage of budget (0–100), items must add up to 100
Trust	N/A	5 items (KMO .617, sig .000) To what extent do you agree with the following statements? <ul style="list-style-type: none"> (i) The organization aligns itself with the goals of the municipal owner(s) (ii) The organization shares all information with the municipal owner(s) (iii) The organization is flexible towards the municipal owner(s) 	Strongly agree (5) – Strongly disagree (1)

(Continues)

APPENDIX: (Continued)

Indicator	Measures	Items	Measurement
		(iv) There is a high degree of trust between the organization and the municipal owner(s) (iv) The way the organization interacts with the municipal owner(s) displays trust	
Performance	Output	3 items (KMO .725, sig .000) What grade would you assign the organization regarding: (i) Effectiveness (ii) Efficiency (iii) Quality	Self-assessment (1–10)