Received 9 November 2021
Revised 6 March 2022
20 September 2022
9 January 2023
Accepted 10 April 2023

Do fiscal rules of local debt affect municipal off-budget activities? Analysis of various types of municipalities

Anna Białek-Jaworska and Agnieszka Krystyna Kopańska
Faculty of Economic Sciences, University of Warsaw, Warsaw, Poland

Abstract

Purpose – This paper aims to determine whether local governments (LGs) use non-consolidated municipally owned companies (MOCs), excluded from public sector entities and, consequently, from sub-national debt to avoid fiscal debt limits. This paper contributes to the literature by analysing the fiscal debt rule's impact on the off-budget municipal activities in total and separate in different types of local government units.

Design/methodology/approach – This paper uses difference-in-differences and the system general method of moments model with the Blundell–Bond estimator for dynamic panel data analysis of MOCs owned by 866 Polish municipalities in 2010–2018.

Findings – This paper shows that the MOCs' revenues support limited local public debt capacity by indebtedness restrictions imposed on municipalities in 2014. As a result, less indebted municipalities have higher off-budget revenues. The tightening of fiscal rules related to sub-sovereign indebtedness increased off-budget activities, but that effect is much stronger in rural and rural–urban municipalities than in urban municipalities and big cities.

Originality/value – This paper contributes to the literature by exploring the fiscal debt rule's impact on the off-budget municipal activities in total and separate in different types of local government units. In this paper, the authors combine theories relating to private and public finance; this is a novel approach and one that is also necessary – as, in fact, the worlds of public and private actors intersect – as exemplified by the existence of MOC.

Keywords Fiscal rules, Public sector accounting, Fiscal debt constraint, Municipally owned companies, Non-consolidation, Off-budget activity

Paper type Research paper

1. Introduction

Municipally owned companies (MOCs) are organisations *with independent corporate status, managed by an executive board appointed primarily by local governments (LG)'s officials with majority public ownership* (Voorn *et al.*, 2017). The new public management philosophy (Humphrey and Miller, 2012; Lapsley, 2009; Christensen *et al.*, 2008) stimulated the decentralisation of local services provided to citizens through

The authors wish to thank the editor and unnamed reviewers for their insightful and constructive comments that helped to develop their research. Open access has been financed by the University of Warsaw IDUB grant no. BOB-661-558/2023.

Meditari Accountancy Research
Vol. 31 No. 7, 2023
pp. 156-184
Emerald Publishing Limited
2049-372X
DOI 10.1108/MEDAR-11-2021-1491

MOCs (Bastida and Benito, 2006; Shaoul, 1997; Coombs and Edwards, 1992). Although this functional decentralisation requires an appropriate accounting tool, i.e. consolidated financial statements, to provide a complete picture of this cooperation, satisfying external accountability needs with separate rows to distinguish between governmental and business-type activities (Pontoppidan *et al.*, 2014). Albeit, public sector consolidated financial statements have been implemented, on a mandatory or voluntary basis, in various countries, i.e. Spain, Australia and New Zealand (Bergmann *et al.*, 2016), Poland is not the case. This is due to the provisions of the Polish law on public finance (Article 9), which excludes companies (even those operating in the area of public services and owned by the government or LGs) from the list of public sector entities. Thanks to that MOCs are not public sector entities and their assets and liabilities are not included in the consolidated financial statements of Polish LGs and indebted reported by LGs.

This legislator's decision influences the non-consolidation of municipal and MOC reports. It is supported by the accounting theory on the costs and benefits of consolidating complex financial or insurance subsidiaries. In light of the positive approach, Mian and Smith (1990) show that consolidated reporting is more likely when parent–subsidiary activities are not interdependent. They noticed that "consolidated reporting is closer to the end of the organizational spectrum where the activity is performed internally, while reporting on an unconsolidated basis is closer to the subcontracting end". The MOC and local government relationship can be undoubtedly described as closer to subcontracting.

Although MOCs enhance the efficiency of public services, Lorenzo *et al.* (2009), Alijarde *et al.* (2012) and Cuadrado-Ballesteros *et al.* (2013) suggest that MOCs may be used by local politicians for their opportunistic goals . This observation fits in with considerations in the second-generation theories of fiscal federalism/decentralization, which notes politicians do not simply act on behalf of the welfare of their constituents (Oates, 2005). The literature indicates that LGs use MOCs and other autonomous agencies to transfer part of their expenses and debt to avoid fiscal restrictions and especially legal limitations on indebtedness (Bennett and Dilorenzo, 1982; Farnham, 1985; Grossi and Mussari, 2008; Grossi and Thomasson, 2011). These actions are facilitated by a lack of transparency in these firms (Chan, 2003) and not being subject to consolidation. Empirical studies have also shown that the crucial determinants of creating MOCs and other forms of local public service outsourcing include fiscal stress related to a crisis, increasing expenditure needs, decreasing revenues and the over-indebtedness of LGs (Bel and Fageda, 2017; Cuadrado-Ballesteros *et al.*, 2013). In other words, politicians use the MOCs to comply with existing laws but not to give up high spending and low taxes – thus pursuing their opportunistic goals. Therefore, this paper questions the local politicians' behaviour in complying with the public finance law. The phenomenon embraces opportunistic choices made by local politicians. Such behaviour is rooted in formal compliance with fiscal law.

Moreover, unconsolidated financial reporting of MOCs allows for forming biased estimates of the fixed claims in the parent firm's capital structure. Exploiting this bias of debt ratios is aligned with the off-balance-sheet financing hypothesis (Mian and Smith, 1990). Omissions of substantial debt have led to the criticism that not consolidating subsidiaries is an essential factor in "off-balance-sheet financing" (Comiskey *et al.*, 1987). Most unconsolidated investees are "thinly capitalised", having debt/equity ratios above three-to-one (Mohr, 1988). As a result, conventional liquidity, solvency and profitability ratios calculated from reported data will differ depending on whether an investee is consolidated. Thus, investment decisions may be made considering how a consolidated investee would affect the parent companies' debt-to-assets (debt-to-equity) ratios (Copeland and McKinnon, 1987). Beck *et al.* (2017) confirm this incentive for unconsolidated subsidiaries' financial statements, contrary to Mian and Smith (1990).

In the present study, we aim to verify whether LGs use non-consolidated MOCs, excluded from public sector entities and, consequently, from sub-national debt to avoid fiscal debt limits implemented in Poland in 2014. We contribute by testing the off-balance-sheet financing hypothesis and linking it to theories of public finance (namely, fiscal decentralization) on the opportunistic behaviour of politicians. In our paper, we thus apply a novel approach to combine private and public finance theories. This is necessary, as the worlds of public and private actors intersect – as exemplified by the existence of MOC. Our contribution to the financial accounting and public finance literature is through accounting theory on the costs and benefits of consolidating complex subsidiaries and the off-balance-sheet financing hypothesis. We provide evidence by identifying and explaining the fiscal debt rule's impact on the off-budget municipal activities in total and separately in different types of local government units. In practice, all countries have LGs of various types – there are LGs at different tiers with different responsibilities and revenues. The literature on fiscal decentralisation indicates that these differences result in variations in the fiscal policies of LGs (Goodman, 2019; Narbón-Perpiñá and de Witte, 2018; Oates, 2005). Therefore, it can be expected that the response to the introduced debt limits will also differ. However, this problem is not yet recognised in the literature. Our study fills this gap.

LGs created MOCs, as they can use them to avoid fiscal restrictions and the debt limits imposed by public finance because in Poland; MOCs are excluded from the fiscal debt limit and LGs' financial statements. Using MOCs, municipalities would transfer their expenditures out of their budget and into the MOCs' financial statements. However, MOCs can expect their local public shareholders to compensate for their losses or bail them out. Such expectations may motivate managers not to pursue efficiency or borrow excessively. Hence, it is crucial to determine whether Polish municipalities use the MOCs to avoid fiscal debt constraints and the determinants of such off-budget activity (expenditures and financing).

We exploit the introduction of more restrictive fiscal debt limits in 2014 by using the system general method of moments (GMM) with Blundell–Bond estimator for dynamic panel data analysis of data retrieved from Statistics Poland, the budget statements of LGs and financial and ownership data of MOCs from the Orbis database from 2010 to 2018. Using this information, we can observe the MOCs' revenues in the periods before (2010–2013) and after (2014–2018) new fiscal rules were implemented to assess the effects of these budgetary debt constraints. We expect that tightening limits on sub-national government debt led to expanding off-budget activities to boost MOCs' liquidity and capacity to serve debt borrowed to avoid LGs' fiscal debt constraints. Assuming no change in the relative cost burden of off-budget financing compared to other funding, municipalities with lower debt capacity can shift expenditures out of their budget. This way, LGs raise financing and the ability to serve debt using MOCs' fees for the local public utilities.

Our results confirm that the corporatisation of municipal services is oriented towards overcoming the indebtedness restrictions imposed on municipalities via off-budget revenues gained by MOCs to cover the costs of off-budget debt and the local public utilities. The revenues of MOCs have subsidised LGs' financial needs under local public debt constraints by the restrictive new rules. Consequently, tightening fiscal restrictions related to sub-sovereign indebtedness increases the off-budget municipal activity conducted by MOCs. Notably, LGs with a lower debt per capita (due to lower debt capacity limited by the new fiscal debt rules) have higher off-budget activities. But the strength and significance of these effects vary among types of municipalities.

The remainder of this article is structured as follows. In Section 2, we review the literature on fiscal rules on local debt, their reasons and issues related to their effectiveness.

After that, we provide a brief overview of Polish LGs and MOCs and describe the legal rules pertaining to local debt. In Section 3, we describe the data sources and research design. Thereafter, we present our empirical study in Section 4. Finally, the conclusions, limitations and discussion are shown in Section 5.

2. Literature review

2.1 Fiscal rules and fiscal stress as determinants of municipally owned companies creation

Fiscal rules have been the subject of numerous theoretical and empirical studies. Due to the great financial crisis in 2007–2009, the problem of controlling sub-national debt and spending became even more tangible and present in political and scientific discussions. The effectiveness of such rules is understood as the ability to reduce fiscal imbalances. Most studies related to this problem have focussed on American experiences and highlighted that those limitations on the size of states' deficits are widespread (Alesina and Bayoumi, 1996; Bohn and Inman, 1996; Poterba, 1994). However, in the past decade, there were discussions on the effectiveness of fiscal constraints imposed on sub-national governments in Europe (Delgado-Téllez *et al.*, 2017; Feld *et al.*, 2011; Hopland, 2013; Potrafke *et al.*, 2016) and international comparisons were raised (Ahmad *et al.*, 2017; Foremny, 2014; Kotia and Duarte Lledó, 2016; Wyplosz, 2012).

A significant problem in the literature is that rules may fail to induce fiscal discipline at the subnational level due to complications in local–central fiscal relations (Inman, 2001; Kotia and Duarte Lledó, 2016). One of the fundamental reasons for the defeat of rules is fiscal stress at a local level, related, for example, to vertical fiscal imbalance. The lack of sufficient revenues to cover mandated responsibilities may cause increasing local debt and spending. In such a case, fiscal rules may push LGs to different forms of "creative accounting", wildly off-balance sheet financing. Some authors have noted that the effectiveness of fiscal rules can be illusory, as conventional measures of deficit and public debt are not an appropriate measure of their effectiveness (von Hagen, 1991). It also relates to the problem of legal vs economic analysis of public debt. As Granof (1984) noticed in US practice, judicial interpretation of different forms of public debt was to permit form to take precedence over economic substance. Moreover, the boundaries of what constitutes the public sector are not particularly well-defined, ranging from statistical-based definitions designed to monitor government activities for fiscal stability, to reflecting the diverging needs of a disparate group of users. Heald and Georgiou's (2000) study for England presented that attempts to improve private sector consolidation methods face hurdles when applied in a public sector context due to the added complexity of reporting based on political accountability and economic substance. Therefore, some studies have indicated that the efficacy of such rules is limited:

> In some countries, the application of numerical rules has led to creative accounting practices aimed at circumventing the rules, including reclassification of expenditures, accumulation of arrears, and the use of public entities off-budget to perform government operations (Ter-Minassian, 2007).

It is worth adding that in the private sector, the introduction of numerical rules allowing a choice of reporting methods also leads to creative accounting. Comiskey and Mulford (1986), Ketz (2003) and Psaros and Trotman (2004) proved that the emphasis on bright-line rules for accounting for equity investments motivated companies to keep their ownership levels just below certain thresholds (50%) to avoid consolidation accounting. It allowed managers to create misleading financial statements where liabilities were kept off balance sheets (Duchac, 2004). Although Walker and Mack (1998) ensure that the broader adoption of consolidation accounting has been associated with changes in statutory and other forms of

regulation, Nelson (2003) highlights that imprecise standards (regulations) allow aggressive reporting. The use of unconsolidated MOCs, excluded from the public sector's entities under the legal definition, for off-budget financing is the subject of analysis in our paper.

Hiding the scale of indebtedness or local expenditure through off-budget activity has been observed in many countries with various local financing systems and traditions. The explanation for this phenomenon is the opportunistic behaviour of politicians who thus avoid regulatory or economic limits and are free to pursue a policy of high spending and debt. An important reason for that hiding noticed in many studies was fiscal or debt limits and fiscal stress. For example, Bennett and Dilorenzo (1982) noted that:

> [. . .] state limitations on LG taxing and spending powers have resulted in billions of dollars of debt and expenditures placed off-budget—in various off-budget enterprises—and beyond the direct control and scrutiny of taxpayers in the US during the 1970s.

Furthermore, upon comparing states where new regulations related to local fiscal autonomy were imposed, they determined that MOCs' debts (not consolidated in financial statements and not subject to the budgetary debt limit) were more extensive and growing faster than on-budget debt. Other studies confirm this correlation (i.e. Warner and Hebdon, 2001; Marlow and Joulfaian, 1989; Bifulco *et al.*, 2012). Further analyses in the US context suggest that the popularity of revenue bonds or off-budget debts issued by MOCs are strictly related to the limits imposed on general debt (Bifulco *et al.*, 2012; Bunch, 1991).

Notably, recent studies' findings for some European countries are very similar. For example, in Spain, the number of regional public enterprises increased by over 70% between 2000 and 2008 – a "shift effect" caused by the stringent 2001 budgetary stability law (Llera and Garcia Valiñas, 2013). Likewise, a study in Portugal conducted by Cuadrado-Ballesteros *et al.* (2016) noted that more indebted municipalities use more off-budget enterprises. Also, for Spain, Brusca *et al.* (2012) and Lorenzo *et al.* (2009) noticed that LGs more indebted use MOCs more likely. Furthermore, Andrews *et al.* (2020) found that in England, governments with higher grant and debt dependence are more involved in creating and using MOCs. In Italy, the growing share in the equity (ownership) and control of firms by municipalities has been defined as "municipal capitalism" and said to help the municipalities elude the hard budget constraints imposed by a law implemented in 1998 (Boggio, 2011, 2012). International studies also confirm conclusions from analyzes of individual countries. Fiscal stress or high local debt make the creation of MOCs more likely. Bel and Fageda (2017) noted that the recession after 2008 had a substantial positive impact on different forms of contracting out in Europe.

According to the above literature review, MOCs are used by LGs under fiscal stress and budgetary debt limits. This is an expression of opportunistic behaviours – LGs try to limit the negative impact of fiscal stress and fiscal limits on their expenses volume. As shown above, such actions were undertaken by LGs in various countries. However, the research conducted so far does not show whether and how these opportunistic behaviours of LGs differ among various types of subnational government (Zambrano-Gutiérrez and Avellaneda, 2021). Meanwhile, in each country, there are sub-national governments of various kinds – different tiers as well as at a given level with a diverse scope of tasks and responsibilities. Fiscal targets are defined by fiscal rules that address government deficits and debt as indicators of the sustainability of public finances. However, they raise coordination problems among the different levels of government, necessitating the adoption of domestic fiscal rules considering the trade-off between public finance consolidation and economic growth fostering (Monacelli *et al.*, 2016). Therefore, knowing whether and what

the differences in LGs policy are in response to fiscal stress and fiscal limits is vital for coordinating complex budgetary relationships.

There is discussion in the literature on fiscal decentralisation relating to the efficiency and, more broadly, the budgetary activities of local governments according to their type (Goodman, 2019; Narbón-Perpiñá and de Witte, 2018; Oates, 2005). When analysing the types of local governments, it is worth referring to their vertical and horizontal structures. The former refers to the number of levels of sub-national governments and the latter to the number and scope of tasks of local units at the same level. LGs at a given level may be fragmented (when there are many units) or consolidated (when there are few units). Governments at a given level may also differ in their degree of concentration – that is, in the range of tasks and revenues for which they are responsible. There is a fairly obvious correlation between the degree of horizontal fragmentation and the scope of tasks of local governments – the more units there are, and the smaller they are, according to the Oates' correspondence principle, they will carry out fewer tasks (Oates, 1972). Small municipalities are traditionally considered more efficient due to a better allocation of public expenditure. That is possible thanks to a closer authority–citizen relationship which generates competition among municipalities (Tiebout, 1956) or active participation in local civic life (Ostrom, 1972). At the same time, these LGs have a smaller (than bigger LGs) range of revenues and expenditures at their disposal. They are more transfer-dependent, which means their flexibility to act within existing incomes and spending is lower. That is why we can expect that smaller municipalities and those with fewer tasks and revenues will reach for MOC to a greater extent under conditions of reforms tightening their debt limits than larger municipalities with a greater range of tasks and incomes. In contrast, economies of scale and scope occur in large local governments responsible for many public tasks and revenues (Dollery and Fleming, 2006). Their budgets are more elastic and less liable to external changes. Moreover, the scale and range of activity of these local governments are conducive using different forms and ways of performing tasks, including the use of MOCs. MOCs are more present in these bigger units in their everyday activity, especially related to technical services. (Cuadrado-Ballesteros *et al.*, 2016; Foged, 2016; Petersen *et al.*, 2015) Thus, it can be expected that, compared with smaller and fewer responsibilities and revenues LGs, the introduction of tighter debt limits will not translate into sharp changes in the off-budget activity of bigger LGs.

2.2 Local government and fiscal rules on local indebtedness in Poland

The most important sub-sovereign governments in Poland are municipalities – gminas (2,412 units) and cities with county status (66 units). These governments are responsible for critical public services, including primary schools, social protection, primary health care, culture preservation, local transport and roads, water and sewage services and waste management. Moreover, the cities with county status are responsible for municipal and county services (secondary schools, hospitals, etc.) – so their scope of obligations is much bigger.

To finance their obligations, LGs impose local taxes (the same for municipalities and cities); they also receive a fixed percentage of the central taxes (on personal and corporate incomes) collected in their respective areas, whereas cities receive municipal and county shares. The most crucial portion of local budgets is covered by central government transfers.

There are three administrative types of municipalities in Poland. Urban municipalities where only metropolitan areas are located. Rural municipalities, where areas are rural in class, and urban–rural municipalities are mixed in the kind of regions. All these

municipalities undertake, according to law, the same obligations and are subject to the same revenue sources. But in practice, differences in the size of the population and type of local economy make them different types of units. Notably, significant differences can be seen in the revenue structure of these units. Urban municipalities are the most autonomous – they have the most own revenues and taxes. Rural municipalities, on the other hand, are the most dependent on grants and subsidies. As Table 1 shows, the most outstanding group are cities with county status. Not only are they the units with the largest population, but they also combine the city and county rights, autonomy and responsibilities, as has been said. As a result, their budgets per capita are considerably larger, and at the same time, they are the most revenue-independent sub-governments in Poland.

Studies on the effectiveness of fiscal rules related to LGs and their off-budget activity typically use comparative analysis. Two dimensions of comparison have been used: the spatial differentiation of these rules (between municipalities in one country or internationally) (Johnson and Kriz, 2005; Feld and Kirchgässner, 2008; Foremny, 2014; Kotia and Duarte Lledó, 2016) and comparisons over time (i.e. in the periods before and after new regulations are imposed) (Banaszewska, 2018; Grembi *et al.*, 2012; Llera and Garcìa Valiñas, 2013). We contribute to this literature by analysing such a change in the fiscal rules concerning LG's debt and Poland's recent deficit.

In Poland, LGs could legally borrow from 1990, when they were established. Until 2014, the level of debt was limited by two simple indicators – the same for every local authority. The first rule said that the planned repayment of debt (sum of instalments and interests) could not exceed 15% of LG revenue, and the second stated that the total outstanding debt could not exceed 60% of annual revenue. In addition, the law on public finance tied from 1998 LGs' debt legal capacity (rights to go into debt) to the borrowing practices of the national government once the consolidated public debt exceeded 50% of the gross domestic product. It should be noted that the law on public finance has also regulated what is precisely included in public debt. According to this law (Article 72), only liabilities of public sector entities are included. Among these entities, local governments and their associations are listed. However, an explicit provision (in Article 9 of public finance law) has been introduced that commercial law companies are not considered public entities. It is worth adding that such a definition of government debt is inconsistent with the rules for calculating general government debt in European Union regulations. According to European System of Accounts 2010 paragraph 2.111, the general government "consists of institutional units which are non-market producers whose output is intended for individual

Characteristics	Urban	Municipalities Urban–rural	Rural	Cities with county status
Average number of citizens	25 061.2	14 300.7	7 062.3	190 657.2
Structure of main revenue categories in LGs budgets (%)				
Own local revenues (taxes, charges)	30.2	26.1	22.2	32
Share in taxes	23.4	18.3	14.9	29.3
General grants	16.7	22.5	27.4	18
Specific grants	29.7	33.1	35.5	20.7
LGs revenues per capita (in PLN)	4 540.3	4 621.1	4 857.5	6 790.9

Source: Own calculation based on Local Data Bank, Statistics Poland

Table 1. Comparison of different types of LGs in Poland (data for 2018)

and collective consumption, and are financed by compulsory payments made by units belonging to other sectors, and institutional units principally engaged in the redistribution of national income and wealth" (EU, 2019).

As a part of the consolidation policy, the law on public finance was revised in 2009, and new regulations related to local debt were established. Local budgets were eventually divided into two parts: operational and capital. Since 2011, the debt issue has been limited to the capital budget. LGs' debt size limits were also cancelled, and a new rule was added.

The debt amount allowed legally has been limited since 2014 by the individual debt ratio (IDR), which is equal to the borrower's capacity to repay it. LG's debt capacity is the maximum amount an LG can borrow and repay. In Polish law on public finance, LG's debt capacity is measured proportionally to its total budgetary revenues by the maximum possible annual debt repayment ratio that LG can incur. The latter is a sum of instalments and interests to repay as a share of its total budgetary revenues (Białek-Jaworska, 2021). This new rule relates to the possible extent of debt repayment for every local unit given by the following formula (Art. 243 of the law on public finance of 27 August 2009):

$$\frac{RI_n + I_n}{R_n} \leq \frac{1}{3}\left(\frac{Rc_{n-1} + Rs_{n-1} - Ec_{n-1}}{R_{n-1}} + \frac{Rc_{n-2} + Rs_{n-2} - Ec_{n-2}}{R_{n-2}} + \frac{Rc_{n-3} + Rs_{n-3} - Ec_{n-3}}{R_{n-3}}\right) \quad (1)$$

where:

RI = the total amount of principal payments for loans, borrowings and bonds planned for the financial year;
I = interest on loans, borrowings and bonds planned for the financial year;
R = total revenue of the budget for a given financial year;
Rc = current revenues;
Rs = revenue from the sale of property;
Ec = current expenditures; and
n = the financial year for which the relationship is established.

This change was related to criticism of the previous legislation, which similarly treated LGs with different debt repayment capacities. The IDR is designed to calculate this capacity for each entity. The idea of the IDR refers to the literature and international practice of the past decades on assessing the creditworthiness of local governments (Iacuzzi, 2021). This literature emphasises that LGs should incur debt in such a way that it does not prevent them from fulfilling their obligations, especially the current ones (Rivenbark *et al.*, 2010). The three years average calculated in the IDR relates to this idea. It shows how much the LG could generate funds in previous periods after meeting these obligations. Obviously, this figure will be different for each entity. The previous limit, which stated that the debt repayment for each LG unit should not exceed 15% of its revenue, did not make such a differentiation. LGs have been given time to prepare for this limit, which has been obligatory since 2014. According to the Regional Chamber of Accounts (RIO) calculations, at the end of the old rules (late 2013), for 95% of LGs, the new limits were more restrictive if they were already in force in 2013. Furthermore, in the case of 18% of municipalities and 17% of cities with county status, the calculated IDR was below 5% – which means, in practice, there is almost no possibility of incurring new debt (RIO, 2014). The fact that the IDR is more restrictive provided the basis for the research conducted in our study. The emergence of such a restrictive limit allows us to expect that, in line with the presented literature review, LGs will seek a way to circumvent it, including using MOCs.

LGs in Poland can use various organisational forms to provide their services.

- public – consolidated in the budget – direct delivery of services by a municipality and municipal establishment or local budgetary establishment; or
- private – off budget – by MOCs and contract services out to private entities.

In 2000, after ten years of transformation, there were 2,292 local budgetary establishments in operation and approximately 1,345 MOCs with a municipality as the sole or principal owner (MSP, 2002). The popularity of MOCs increases yearly, and over 2,100 MOCs were operating in 2009. Most MOCs work in the sewage and water sector (ca. 26%) and communal housing (21%) (MSP, 2010). In Poland, as noted above, MOCs are not subject to consolidation under public finance law because of exclusion from public sector entities, but the Commercial Companies Code regulates them. Therefore, their debt is not included in the fiscal debt limit and the local public debt, nor is it limited by fiscal debt constraints. Thus, the more indebted an LG is, the more it feels to seek additional funds beyond the fiscal debt constraints. It is because MOCs can borrow as much as they need and charge users (inhabitants) to cover local public utility costs free of any fiscal restrictions imposed by the public finance law on LGs. Consequently, LGs may consider MOCs as an opportunity to avoid fiscal debt constraints via off-balance sheet financing or as a tool to diversify revenues due to the user charges collected by MOCs for local public services provided to inhabitants. Notably, the limits on sub-national government debt are expected to expand off-budget activity using MOCs. Still, taking the differences in types of LGs in Poland, this expansion may differ for various kinds of units. Through the analysis, we verify the following hypotheses:

H1. Introducing the fiscal debt rule increases the municipality's off-budget activity through MOCs.

H1A. The resistance to introducing the fiscal debt rule varies for different types of municipalities (including cities with county status, urban, rural and urban–rural municipalities).

Considering the conclusions from the literature review, we expect that the use of MOCs will be more intensive the more severe the new limits for local government's budget – that is, when their own debt is greater:

H2. There is a substitution between municipal budget debt and off-budget activity (revenues gained by MOCs).

Finally, in our study, we want to investigate the relationship between off-budgetary activity and the debt of the MOCs themselves:

H3. Off-budget activity (revenues gained by MOCs) complements off-budget debt (measured by MOC debt share in total municipal debt).

3. Research design

We aimed to verify whether LGs use non-consolidated MOCs, excluded from public sector entities and-consequently-sub-national debt to avoid fiscal debt limits. It can be done by off-budget borrowing and raising off-budget revenues to cover urgent financial needs of serving off-budgetary debt and their inhabitants' needs. Therefore, we first compare local authorities that have (treated) and do not have MOC (control group) to check whether they respond differently to introducing the fiscal debt limit. Furthermore, we focus on a subsample of LGs owning MOCs to determine how the fiscal debt limit affects subsidiaries'

off-budget activity in different municipalities, including cities with county status, urban, rural and urban–rural municipalities.

3.1 Data

To achieve the goal, we used data from the Ministry of Finance, the Orbis database for Polish MOCs (the ownership structure and revenue volume) and population size retrieved from the Local Data Bank for 2010–2018. The former data source offers municipal financial reports – LG's surplus/deficit report – statement of LG's surplus/deficit, LG's revenue report – RB27 and LG's consolidated balance sheet – B-Cons. Using this data, we observed MOCs' revenues (that measure the off-budget activity size) before (2010–2013) and after (2014–2018) new fiscal rules were implemented. We excluded health-care MOCs. Finally, our total sample contains data for unique 2,050 enterprises owned by 1,028 municipalities; however, their numbers and ability to gain revenues varied over time (Table 2).

Table 3 presents detailed definitions and data sources of the variables used, whereas Table 4 provides their descriptive statistics and correlation matrix.

3.2 Econometric model

To check whether the structural change occurred because of the new regulation or, for example, because of changes over time in one of the included control variables, we perform Difference-in-Differences (DiD) analyses. They measure the cause–effect relationship by considering the mediation role resulting from the time trend of the other variables entered as controls. Municipalities owning MOCs are treated, whereas those with no MOC create control groups. It allows testing if the structural change occurs because of the new legislation or, for example, a trend also observed in the other municipalities with no MOC included in the sample. The other municipalities with no MOC (not being shareholders of any MOC) experience no enforcement to increase off-budget revenues and gain off-budget debt. Therefore, they have a *having MOC* dummy of zero. This approach creates different subsamples of enforcement from year to year.

Next, we estimated the following equation at the municipality level using the Blundell and Bond (1998) system estimator of the GMM for linear dynamic panel-data analysis:

$$\begin{aligned} OFF\_ONlessgrantsOFF_{it} = {} & \alpha_0 + \sum_{k=1}^{3} \propto_k OFF\_ONlessgrantsOFF_{it-k} + \beta_1 ON\_pop_{it} \\ & + \beta_2 Grants_{it} + \beta_3 Debt\_per\_capita_{it} + \beta_4 Debt\_fiscal\_limit_{it-1} \\ & + \beta_5 Growth_{it} + \beta_6 time\_dummy_{it} + year + v_i + \varepsilon_{it} \end{aligned} \quad (2)$$

where:

i	= indicates the municipality;
t	= time, $t = 2010, \ldots, 2018$;
$\alpha_0, \alpha_1, \alpha_2, \alpha_3, \beta_1, \ldots, \beta_6$	= the parameters to be estimated;
time_dummy	= binary time effects variables for the following years from 2010 to 2018;
year	= discrete variable equals 2010, 2011, . . ., 2018;
ε_{it}	= the independent idiosyncratic error; and
v_i	= the variance of the panel-level effects.

To verify *H1*, *H1A* and *H2*, the key test variables were *Debt_fiscal_limit* and *Debt_per_capita*. *Debt_fiscal_limit* is a dummy variable that identifies years before and after

Table 2.
Number of MOCs by municipalities

Municipality type	*No. of municipalities*		*Municipalities that own municipal company*					
			Number			%		
		2018(b)	2018(a)	2013(a)	2018(b)	2018(a)	2013(a)
Cities with county status	66	66	64 (a)	63 (a)	100%	97%	95%
Urban	236	199	187 (a)	174 (a)	84%	79.2%	73.7%
Rural	1,533	349	244 (a)	163 (a)	23%	15.9%	10.6%
Urban–rural	642	414	358 (a)	291 (a)	64%	55.8%	45.3%
Total	*2477*	*1028*	*853 (a)*	*691(a)*	*41.5%*	*34.4%*	*27.9%*

No. of municipal companies	*No. of municipalities that own municipal company*		
	Urban	Rural	Urban–rural
1	54	283	233
2	46	44	92
3	48	16	56
4	38		23
5	32	4	8
6	12	1	2
7	10		
8	6	1	
9	9		
10	3		
11	2		
12	1		
13	1		
15	1		
18	2		
Total	*265*	*349*	*414*

No. of municipalities with at least one municipal company (MOC)

Year	Number of MOCs by LG with positive revenues (a)	Cities with county status	Urban LGs	Rural LGs	Urban–rural LGs	LGs without county status
2010	604	63	168	123	250	541
2011	628	63	172	128	265	565
2012	673	63	175	152	283	610
2013	691	63	174	163	291	628
2014	720	64	173	176	307	656
2015	732	64	167	186	315	668
2016	725	64	173	181	307	661
2017	850	65	186	244	355	785
2018	853	64	187	244	358	789

(*continued*)

Number of municipalities by number of owned municipal companies (MOCs) (a)																
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	15	18	Total MOCs(a) × LG
2010	339	126	68	40	17	7	3	1	1	1	0	1	0	0	0	1,142
2011	351	131	72	40	20	5	4	2	1	1	0	1	0	0	0	1,194
2012	391	135	71	41	20	5	6	0	0	2	1	1	0	0	0	1,253
2013	415	139	60	44	18	7	3	2	0	2	0	1	0	0	0	1,250
2014	427	159	59	40	21	5	4	1	1	2	0	1	0	0	0	1,294
2015	435	152	70	41	19	7	3	1	1	2	0	1	0	0	0	1,320
2016	435	142	71	42	20	7	1	2	1	3	0	1	0	0	0	1,316
2017	519	155	81	50	24	10	3	3	1	2	1	0	1	0	0	1,550
2018	517	162	79	50	25	7	6	3	0	2	1	1	0	1	1	1,587

Notes: Increase in the number of MOCs; (a) MOCs with positive revenues; (b) MOCs also with zero revenues
Source: Authors' work

Table 2.

Variable	Definition	Data sources
Dependent variable		
OFF_ONless grantsOFF	Size of off-budget activities measured as the sum of revenues of municipal companies (MOC) owned by the municipality *i* scaled by a sum of the off-budget activities and the size of the municipality's budgetary Activity less transfers (grants)	Orbis Ministry of Finance RB-NDS (statement of LG's surplus/ deficit) Local Data Bank
Test variables		
Debt_per capita	Logarithm of municipal debt scaled by the total population	Ministry of Finance RB-NDS (statement of LG's surplus/ deficit) B-Cons (LG's consolidated balance sheets)
Debt fiscal limit	Dummy variable that equals 0 in the years before the new limits came to force (2010–2013) and one after the new limits were implemented (2014–2018)	
MOC debt share	MOC's debt share in a sum of municipal debt and MOC's debt	Ministry of Finance RB-NDS (statement of LG's surplus/ deficit), Orbis
Control variables		
ON_pop	Logarithm of the volume of budgetary activity size measured as the sum of current expenditure and capital expenditure scaled by the size of the population of the municipality *i*	Ministry of Finance: RB-27 (statement of LG's revenues) B-Cons (LG's consolidated balance sheets) Local Data Bank
Grants	A share of grants from the central budget in municipal revenues	Ministry of Finance RB-27 (statement of LG's revenues) Local Data Bank
Growth	Growth in total revenue of municipality *i* over time = total revenue for year *t*/total revenue for year *t-1*	Ministry of Finance: RB-27 (statement of LG's revenues)
Dependent variables in difference-in-differences models		
Debt_all_rev_all	Total on-budget and off-budget debt to total on-budget and off-budget revenues ratio	Ministry of Finance RB-NDS (statement of LG's surplus/ deficit) B-Cons (LG's consolidated balance sheets)
Debt_per capita	Logarithm of municipal debt scaled by the total population	
Change	Total on-budget and off-budget debt to total on-budget and off-budget revenues ratio less on-budget debt to on-budget revenues ratio	
Change/Debt_rev	Change variable scaled by on-budget debt to on-budget revenues ratio	
Debt_all_rev lessgrants_all	Total on-budget and off-budget debt to total on-budget and off-budget revenues less grants	
Test variables in DiD		
did	Interaction of the *having_MOC* dummy and *Debt fiscal limit* binary variable	Orbis
Control variables in DiD		
Having MOC	Dummy variable that equals one if municipality owns at least one MOC and 0 otherwise	Orbis

Table 3.
Definitions of variables

Source: Authors' work

No.	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Obs	Mean	SD	Min	Max
(1)	OFF_ONlessgrantsOFF	*1*							6,476	0.1717	0.1056	0.0000	0.8106
(2)	ON_pop	−0.0916*	1						6,476	8.2071	0.2918	7.5511	10.7670
(3)	Grants	−0.1644*	−0.1156*	1					6,465	0.4191	0.1293	0.0233	0.8137
(4)	Debt_per capita	−0.0577*	0.1129*	−0.07*	1				6,476	6.7625	1.1671	0.0000	8.2339
(5)	MOC debt share	0.5147*	0.0282*	−0.2287*	−0.4784*	1			6,476	0.3251	0.2704	0.0000	1.0000
(6)	Debt fiscal limit	−0.0328*	0.4168*	0.1664*	0.0014_	0.0504*	1		6,476	0.5991	0.4901	0.0000	1.0000
	L.Debt fiscal limit	−0.0249_	0.4518*	0.2502*	−0.025_	0.0559*	0.7723*	1	5,404	0.5368	0.4987	0.0000	1.0000
(7)	Growth	−0.0719*	0.3710*	0.0955*	−0.0438*	0.0491*	0.3417*	0.3034*	1 5,235	1.0682	0.1264	0.2575	1.4200

Note: *$p < 0.05$
Source: Authors' work

Table 4.
Descriptive statistics of variables and correlation matrix

a new law on local debt limits comes into force, and *Debt_per_capita* informs on the level of municipality indebtedness in relation to the total local population.

We also use a *MOC debt share* ratio, replacing *Debt* per capita, to test *H3* using the system estimator of the GMM for linear dynamic panel-data analysis (Blundell and Bond, 1998). For this purpose, we estimate the model with lagged explained variables aligned with the following equation (3):

$$OFF\_ONlessgrantsOFF_{it} = \alpha_0 + \sum_{k=1}^{3} \propto_k OFF\_ONlessgrantsOFF_{it-k} + \beta_1 ON\_pop_{it} + \beta_2 Grants_{it} + \beta_3 MOC\ \ debt\ \ share_{it} + \beta_4 Debt\_fiscal\_limit_{it-1} + \beta_5 Growth_{it} + \beta_6 time_{dummy_{it}} + year + v_i + \varepsilon_{it} \quad (3)$$

Control variables considered in the analysis (Table 2) refer to municipalities' characteristics (i.e. budgetary activity size, grants from the central budget share in municipal revenues and revenue growth).

Since the functional forms of the estimated models have the structure described by equations (2) and (3), we will use the significance and sign of the β coefficients standing by the respective variables to verify the hypotheses. Table 5 presents the expected relationships required to confirm the hypotheses.

4. Results

Table 6 provides the results of DiD analyses confirming the fiscal debt limit leads to an increase in debt ratios in treatment. Although the fiscal debt rule seems efficient because it reduces debt ratios calculated based not only on budgetary data (*Debt_per_capita*) but also on hypothetical consolidated data (*Debt_all_rev_all*, *Debt_all_revlessgrants_all*), including off-budget debt and revenues gained by MOCs, it increases debt ratios in the treated group. Thus, this proves an expected structural change exists only in the control group, contrary to a treated group of municipalities owning MOCs. Significant positive coefficients at *having MOC* and *DiD* variables prove that the fiscal debt limit introduced in 2014 increases debt ratios based, including also off-budget debt and revenues. Furthermore, positive coefficients at *DiD* variables in models for differences between consolidated (a sum of on-budget and off-budget debt-to-revenue ratios) and parent's debt-to-revenue ratios (*Change* and *Change/Debt_rev* variables) are also positive and significant. They confirm that this fiscal rule motivates municipalities' boards to extend their debt capacity by MOCs' debt capacity, i.e. their off-budget revenues and debt. As a result, the off-budget debt-to-revenue ratios grow more contrary to fiscal debt restrictions.

Table 7 presents the panel data analysis where the municipalities' financial condition characteristics explain the municipal off-budget activity. We controlled for the years after the new

Hypothesis	Test variable	Expected sign
H1, H1A	*Debt fiscal limit*	+
H2	*Debt_per capita*	−
H3	*MOC debt share*	+

Source: Authors' work

Table 5. Expected signs at coefficients used to verify hypotheses

Variable	Debt_all_rev_all Coef. (Std. err.)	Debt_per capita Coef. (Std. err.)	Change Coef. (Std. err.)	Change/Debt_rev Coef. (Std. err.)	Debt_all_revlessgrants_all Coef. (Std. err.)
Having MOC	0.1535 (0.0048)***	0.8531 (0.0298)***	0.0907 (0.0027)***	*0.3897* (0.0122)***	0.1510 (0.0062)***
Debt fiscal limit	−*0.0597* (0.0033)***	−0.0579 (0.0208)***	0.0000 (0.0019)	0.0000 (0.0086)	−0.0615 (0.0043)***
Did	*0.0182* (0.0063)***	*0.1538* (0.0391)***	*0.0198* (0.0035)***	*0.1264* (0.0160)***	*0.0330* (0.0081)***
_cons	0.2935 (0.0024)***	6.3867 (0.0153)***	0.0000 (0.0014)	0.0000 (0.0063)	0.3906 (0.0032)***
N of observations	22,259	22,295	22,255	21,677	22,259
F test	1035.69***	803.04***	1174.83***	1185.01***	661.49***
R-squared	0.1225	0.0975	0.1367	0.1409	0.0819

Source: Authors' work

Table 6.
Difference-in-differences results for the debt fiscal limit impact on the debt to revenues ratios

Table 7.
Results for the debt fiscal limit impact on the off-budget municipal activities

Variable	OFF_ONlessgrantsOFF Coef. (Std. Err.)	WC-Robust OFF_ONlessgrantsOFF Coef. (Std. Err.)	OFF_ONlessgrantsOFF Coef. (Std. Err.)	WC-Robust OFF_ONlessgrantsOFF Coef. (Std. Err.)
L1.OFF_ONlessgrantsOFF	−0.1136 (0.0335)***	−0.1136 (0.1918)	−0.1046 (0.0310)***	−0.1046 (0.1861)
L2.OFF_ONlessgrantsOFF	−0.0527 (0.0172)***	−0.0527 (0.0420)	−0.0614 (0.0155)***	−0.0614 (0.0387)
L3.OF_ONlessgrantsOFF	0.0107 (0.0159)	0.0107 (0.0410)	0.0045 (0.0155)	0.0045 (0.0572)
ln_ON_pop	*−0.1306 (0.0094)***	*−0.1306 (0.0250)****	*−0.1188 (0.0097)****	*−0.1188 (0.0275)****
Grants	−0.0057 (0.0177)	−0.0057 (0.0223)	0.0005 (0.0175)	0.0005 (0.0234)
L1.Debt fiscal limit *H1*	*0.0274 (0.0025)****	*0.0274 (0.0037)****	*0.0237 (0.0025)****	*0.0237 (0.0043)****
Debt_per capita *H2*	*−0.0018 (0.0008)***	*−0.0018 (0.0010)**		
MOC debt share *H3*	*0.0808 (0.0148)****	*0.0808 (0.0243)****		
Growth	0.0015 (0.0057)	0.0015 (0.0231)	−0.0034 (0.0056)	−0.0034 (0.0227)
year2013	−0.0024 (0.0010)**	−0.0024 (0.0012)**	−0.0006 (0.0011)	−0.0006 (0.0014)
year2015	−0.0225 (0.0020)***	−0.0225 (0.0027)***	−0.0205 (0.0020)***	−0.0205 (0.0031)***
year2017	0.0107 (0.0018)***	0.0107 (0.0048)**	0.0082 (0.0019)***	0.0082 (0.0054)
year2018	0.0145 (0.0027)***	0.0145 (0.0071)**	0.0111 (0.0028)***	0.0111 (0.0079)
year	0.0007 (0.0000)***	0.0007 (0.0001)***	0.0006 (0.0000)***	0.0006 (0.0001)***
Number of observations	3,480	3,480	3,480	3,480
Number of groups	719	719	719	719
Number of instruments	41	41	41	41
Wald test	1683.27***	1023.81***	1897.66***	1220.24***
Sargan test	85.3442	85.3442	85.9331	85.9331
	0.0000	0.0000	0.0000	0.0000
Arellano–Bond test AR(1)	−2.1216	−1.5052	−2.1316	−1.5527
	0.0339	0.1323	0.0330	0.1205
AR(2)	0.8294	0.1971	1.5269	0.3807
	0.4069	0.8438	0.1268	0.7034

Notes: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$; Std. Err. in brackets
Source: Authors' work

fiscal rules were implemented. Notably, the off-budget activity scaled by a sum of the off-budget activities and the size of the municipality's budgetary activity excluding transfers (grants) (*OFF_ONlessgrantsOFF*) was statistically higher after 2012 (a year before the new fiscal debt limit was in force) across all municipalities. This finding supports *H1* with lagged effects. A negative coefficient for *Debt_per_capita* confirms the substitution between municipal debt and off-budget activity, supporting *H2*. The lower the municipal debt per capita, the higher the off-budget municipal activity measured by a share of revenues from local public services provided by MOCs to total municipal revenues, excluding transfers. This outcome implies that restrictive fiscal debt constraints cause municipalities to seek funds out of the budget via revenues earned by MOCs. This is possible because MOCs are not consolidated with LG's budgetary revenues and expenditures under Polish public finance law and are included in the fiscal debt limit.

It was shown that the magnitude of off-budgetary activity of local governments to total municipal budgetary and off-budget activity excluding transfers ratio is positively related to the MOC's debt share in a sum of municipal budgetary and off-budget (MOC's) debt. It aligns with *H3*. So it confirms that off-budget revenues and debt are used complementarily. The findings show a negative relationship between municipal budgetary and off-budget revenues that reflect demand for local government activity. So it seems that on- and off-budget activity is at least partly substitutive. The importance of off-budget activity increases with a lower municipality's operational budgetary revenue and debt. The latter relation is explained by insufficient debt capacity under the restricted fiscal debt limit.

The following Tables 8–9 present the results for analysis separately for the off-budget activity of urban, rural and urban–rural municipalities (LGs), non-county municipalities and cities with county status. Our database covers 2,477 municipalities, including 66 cities with county status, 236 towns, 642 urban–rural and 1,533 rural municipalities (Table 2). For clarity of presentation, we show two-step system GMM estimation results and with Windmeijer's (2005) WC–robust estimator.

Table 8 suggests that decentralisation through MOCs increases off-budget municipal activity in rural and urban–rural municipalities after 2012, especially with lower fiscal stress, i.e. lower grants share in the municipality's operational budgetary revenue (*Grants*). The former supports *H1A* significantly for rural and urban–rural LGs, contrary to urban LGs where coefficients at the lagged *debt fiscal limit* variable are insignificant at a 5% *p*-value level. A negative coefficient at the *Debt_per_capita* variable supports the substitution between municipal debt and off-budget activity only in rural municipalities, aligning with *H2*. However, at a deficient 10% significance level. Results in Table 8 point out that the magnitude of off-budgetary activity of urban, rural and urban–rural local governments negatively relates to the budget's demand for local public services. This adds to the substitution between budgetary and off-budget revenues. Only urban–rural municipalities experiencing higher growth in total revenue have relatively less need to increase the off-budget activity volume. Faster growth in total revenue is associated with lower use of off-budget activity only in the case of urban–rural LGs, contrary to urban LGs. The latter are in higher demand for off-budget MOCs' revenues to support an increase in budgetary expenditures.

The results shown in Table 9 align with the findings mentioned above. Moreover, Table 9 provides weak evidence that urban municipalities with higher fiscal stress, i.e. higher grants' share in the municipality's budgetary revenue (*Grants*), increase off-budget municipal activitythrough MOCs. Positive coefficients at the *MOC debt share* variable confirm *H3*, regardless of the type of municipality. It affirms that off-budget activity (revenues gained by MOCs) complements off-budget debt (issued by MOCs).

Table 10 presents the analysis of determinants of off-budget activity provided by MOCs in non-county municipalities and cities with county status. Again, the positive coefficient sign at the *Debt fiscal limit* lagged dummy variable gives no basis to reject *H1A*. Tightening

Table 8.
Results for the debt fiscal limit impact on the off-budget activities of urban, rural and urban–rural municipalities (LGs)

	Urban LGs		Rural LGs		Urban–rural LGs	
	WC-Robust		WC-Robust		WC-Robust	
Variable	OFF_ONlessgrantsOFF Coef. (Std. Err.)	OFF_ONlessgrantsOFF Coef. (Std. Err.)	OFF_ONlessgrantsOFF Coef. (Std. Err.)	OFF_ONlessgrantsOFF Coef. (Std. Err.)	OFF_ ONlessgrantsOFF Coef. (Std. Err.)	OFF_ ONlessgrantsOFF Coef. (Std. Err.)
L1.OFF_ONlessgrantsOFF	−0.3253 (0.0276)***	−0.3253 (0.0850)***	−0.1287 (0.0225)***	−0.1287 (0.1723)	0.1829 (0.0591)***	0.1829 (0.1930)
L2.OFF_ONlessgrantsOFF	−0.1667 (0.0177)***	−0.1667 (0.0524)***	0.0595 (0.0178)***	0.0595 (0.1240)	−0.0919 (0.0249)***	−0.0919 (0.0546)*
L3.OFF_ONlessgrantsOFF	−0.0951 (0.0173)***	−0.0951 (0.0529)*	0.3011 (0.0363)***	0.3011 (0.2214)	−0.0113 (0.0208)	−0.0113 (0.0430)
ln_ON_pop	*−0.1843* (0.0130)***	*−0.1843* (0.0327)***	*−0.1276* (0.0133)***	*−0.1276* (0.0349)***	*−0.0825* (0.0159)***	*−0.0825* (0.0399)**
Grants	0.0389 (0.0343)	0.0389 (0.0766)	−0.0932 (0.0278)***	−0.0932 (0.0709)	−0.0446 (0.0276)	−0.0446 (0.0385)
L1.Debt fiscal limit *H1A*	0.0036 (0.0022)*	0.0036 (0.0038)	*0.0346 (0.0046)***	*0.0346 (0.0130)***	*0.0269 (0.0038)***	*0.0269 (0.0058)***
Debt_per capita *H2*	−0.0011 (0.0010)	−0.0011 (0.0041)	−0.0038 (0.0020)*	−0.0038 (0.0053)	−0.0004 (0.0012)	−0.0004 (0.0018)
Growth	0.0376 (0.0063)***	0.0376 (0.0162)**	−0.0017 (0.0066)	−0.0017 (0.0229)	−0.0382 (0.0105)***	−0.0382 (0.0311)
year2013	−0.0008 (0.0020)	−0.0008 (0.0031)	0.0011 (0.0023)	0.0011 (0.0051)	−0.0020 (0.0013)	−0.0020 (0.0026)
year2015	0.0217 (0.0035)***	0.0217 (0.0069)***	−0.0317 (0.0037)***	−0.0317 (0.0102)***	−0.0233 (0.0034)***	−0.0233 (0.0050)***
year2017	0.0388 (0.0051)***	0.0388 (0.0095)***	0.0083 (0.0023)***	0.0083 (0.0056)	0.0034 (0.0029)	0.0034 (0.0070)
year2018	0.0460 (0.0058)***	0.0460 (0.0108)***	0.0093 (0.0041)***	0.0093 (0.0108)	0.0013 (0.0041)	0.0013 (0.0100)
year	0.0009 (0.0001)***	0.0009 (0.0001)***	0.0006 (0.0001)***	0.0006 (0.0002)***	0.0004 (0.0001)***	0.0004 (0.0002)***
Number of observations	901	901	744	744	1,487	1,487
Number of groups	172	172	175	175	311	311
Number of instruments	41	41	41	41	41	41
Wald test	1279.53***	275.53***	1813.54***	351.45***	1550.02***	673.82***
Sargan test	57.6353	57.6353	46.9452	46.9452	64.1502	64.1502
	0.0008	0.0008	0.0139	0.0139	0.0001	0.0001
Arellano–Bond test AR(1)	−0.7697	−0.6296	−1.3910	−1.2548	−1.5209	−1.3726
	0.4415	0.5289	0.1642	0.2095	0.1283	0.1699
AR(2)	0.8884	0.6254	−1.6153	−0.5564	0.6878	0.5710
	0.3743	0.5317	0.1062	0.5779	0.4916	0.5680

Notes: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$; Std. Err. in brackets
Source: Authors' work

Variable	Urban LGs		Rural LGs		Urban–rural LGs	
	OFF_ONlessgrantsOFF Coef. (Std. Err.)	WC-Robust OFF_ONlessgrantsOFF Coef. (Std. Err.)	OFF_ONlessgrantsOFF Coef. (Std. Err.)	WC-Robust OFF_ONlessgrantsOFF Coef. (Std. Err.)	OFF_ONlessgrantsOFF Coef. (Std. Err.)	WC-Robust OFF_ONlessgrantsOFF Coef. (Std. Err.)
L1.OFF_ONlessgrantsOFF	−0.3056 (0.0249)***	−0.3056 (0.0739)***	−0.1415 (0.0231)***	−0.1415 (0.2937)	0.1462 (0.0488)***	0.1462 (0.1685)
L2.OFF_ONlessgrantsOFF	−0.1519 (0.0178)***	−0.1519 (0.0461)***	0.0392 (0.0182)**	0.0392 (0.0558)	−0.0883 (0.0239)***	−0.0883 (0.0471)*
L3.OFF_ONlessgrantsOFF	−0.1054 (0.0166)***	−0.1054 (0.0470)**	0.2838 (0.0361)***	0.2838 (0.1654)*	−0.0092 (0.0196)	−0.0092 (0.0427)
ln_ON_pop	*−0.1689* (0.0098)***	*−0.1689* (0.0353)***	*−0.1158* (0.0136)***	*−0.1158* (0.0421)***	*−0.0863* (0.0152)***	*−0.0863* (0.0381)**
Grants	0.0556 (0.0305)*	0.0556 (0.0746)	−0.0729 (0.0273)***	−0.0729 (0.0816)	−0.0416 (0.0265)	−0.0416 (0.0391)
L1.Debt fiscal limit *H1A*	0.0023 (0.0022)	0.0023 (0.0035)	*0.0308* (0.0049)***	*0.0308* (0.0122)**	*0.0026* (0.0012)**	0.0026 (0.0019)
MOC debt share *H3*	*0.1191* (0.0175)***	*0.1191* (0.0367)***	*0.0838* (0.0224)***	*0.0838* (0.0457)*	*0.0466* (0.0115)***	*0.0466* (0.0198)**
Growth	0.0327 (0.0061)***	0.0327 (0.0180)*	−0.0070 (0.0075)	−0.0070 (0.0240)	−0.0331 (0.0096)***	−0.0331 (0.0280)
year2013	0.0012 (0.0018)	0.0012 (0.0030)	0.0046 (0.0022)**	0.0046 (0.0041)	−0.0012 (0.0013)	−0.0012 (0.0029)
year2015	0.0178 (0.0029)***	0.0178 (0.0062)***	−0.0289 (0.0037)***	−0.0289 (0.0106)***	0.0224 (0.0033)***	0.0224 (0.0053)***
year2017	0.0316 (0.0043)***	0.0316 (0.0091)***	0.0056 (0.0025)**	0.0056 (0.0075)	0.0263 (0.0053)***	0.0263 (0.0105)**
year2018	0.0404 (0.0046)***	0.0404 (0.0113)***	0.0048 (0.0045)	0.0048 (0.0157)	0.0246 (0.0061)***	0.0246 (0.0128)*
year	0.0008 (0.0000)***	0.0008 (0.0001)***	0.0006 (0.0001)***	0.0006 (0.0002)***	0.0004 (0.0001)***	0.0004 (0.0002)***
Number of observations	901	901	744	744	1,487	1,487
Number of groups	172	172	175	175	311	311
Number of instrumenits	41	41	41	41	41	41
Wald test	1615.44***	334.87***	1819.25***	537.51***	1622.37***	706.93***
Sargan test	54.5232	54.5232	48.2405	48.2405	64.3587	64.3587
	0.0019	0.0019	0.0101	0.0101	0.0001	0.0001
Arellano–Bond test AR(1)	−0.6724	−0.5838	−1.3634	−1.0912	−1.4102	−1.3120
	0.5013	0.5593	0.1728	0.2752	0.1585	0.1895
AR(2)	1.1787	0.8688	−1.3797	−0.5811	0.7062	0.6193
	0.2385	0.3850	0.1677	0.5612	0.4800	0.5357

Notes: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$; Std. Err. in brackets
Source: Authors' work

Table 9.
Results for the debt fiscal limit impact on the off-budget activities of urban, rural and urban–rural municipalities (LGs)

Table 10.
Results for the debt fiscal limit impact on the off-budget activities of cities with county status

	LGs excl. cities with county status		cities with county status	
	OFF_ONlessgrantsOFF	WC-Robust OFF_ONlessgrantsOFF	OFF_ONlessgrantsOFF	WC-Robust OFF_ONlessgrantsOFF
Variable	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
L1.OFF_ONlessgrantsOFF	−0.1322 (0.0324)***	−0.1322 (0.1891)	0.0469 (0.0412)	0.0469 (0.1721)
L2.OFF_ONlessgrantsOFF	−0.0278 (0.0188)	−0.0278 (0.0547)	−0.1398 (0.0222)***	−0.1398 (0.0568)**
L3.OFF_ONlessgrantsOFF	0.0134 (0.0164)	0.0134 (0.0422)	−0.0769 (0.0135)***	−0.0769 (0.0736)
ln_ON_pop	*−0.1417* (0.0094)***	*−0.1417* (0.0234)***	*−0.1041* (0.0142)***	*−0.1041* (0.0548)*
Grants	−0.0064 (0.0187)	−0.0064 (0.0247)	0.0704 (0.0382)*	0.0704 (0.0867)
Debt_per capita	*−0.0017* (0.0008)**	−0.0017 (0.0011)	*−0.0070* (0.0027)***	−0.0070 (0.0128)
L1.Debt fiscal limit	*0.0280* (0.0028)***	*0.0280* (0.0040)***	*0.0053* (0.0023)**	0.0053 (0.0053)
Growth	0.0091 (0.0053)*	0.0091 (0.0230)	−0.0107 (0.0077)	−0.0107 (0.0373)
year2013	−0.0026 (0.0010)**	−0.0026 (0.0013)**	−0.0008 (0.0020)	−0.0008 (0.0043)
year2015	−0.0227 (0.0023)***	−0.0227 (0.0031)_***	0.0199 (0.0029)***	0.0199 (0.0075)***
year2017	0.0126 (0.0018)***	0.0126 (0.0046)***	0.0243 (0.0046)***	0.0243 (0.0128)*
year2018	0.0179 (0.0026)***	0.0179 (0.0066)***	0.0194 (0.0051)***	0.0194 (0.0168)
year	0.0007 (0.0000)***	0.0007 (0.0001)***	0.0006 (0.0001)***	0.0006 (0.0002)**
Number of observations	3,132	3,132	348	348
Number of groups	655	655	64	64
Number of instruments	41	41	41	41
Wald test	1520.15***	948.33***	6582.28***	1076.51***
Sargan test	84.4037	84.4037	31.7158	31.7158
	0.0000	0.0000	0.2862	0.2862
Arellano–Bond test AR(1)	−1.9615	−1.4493	−1.9376	−1.5090
	0.0498	0.1473	0.0527	0.1313
AR(2)	−0.2517	−0.0936	0.4360	0.3465
	0.8013	0.9254	0.6628	0.7290

Notes: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$; Std. Err. in brackets
Source: Authors' work

(*continued*)

Variable	LGs excl. cities with county status		cities with county status	
	OFF_ONlessgrantsOFF Coef. (Std. Err.)	WC-Robust OFF_ONlessgrantsOFF Coef. (Std. Err.)	OFF_ONlessgrantsOFF Coef. (Std. Err.)	WC-Robust OFF_ONlessgrantsOFF Coef. (Std. Err.)
L1.OFF_ONlessgrantsOFF	−0.1185 (0.030)***	−0.1185 (0.1799)	−0.0597 (0.0392)	−0.0597 (0.0999)
L2.OFF_ONlessgrantsOFF	−0.0390 (0.017)**	−0.0390 (0.0540)	−0.1429 (0.0173)***	−0.1429 (0.0706)**
L3.OFF_ONlessgrantsOFF	0.0055 (0.016)	0.0055 (0.0519)	−0.0552 (0.0157)***	−0.0552 (0.0418)
ln_ON_pop	*−0.1290* (0.010)***	*−0.1290* (0.0277)***	*−0.1228* (0.0256)***	*−0.1228* (0.0648)*
Grants	0.0001 (0.019)	0.0001 (0.0272)	0.1630 (0.0328)***	0.1630 (0.0959)*
MOC debt share	0.0787 (0.015)***	0.0787 (0.0308)**	0.2408 (0.0193)***	0.2408 (0.0462)***
L1.Debt fiscal limit	*0.0243* (0.003)***	*0.0243* (0.0051)***	0.0020 (0.0028)	0.0020 (0.0054)
Growth	0.0037 (0.005)	0.0037 (0.0231)	0.0017 (0.0138)	0.0017 (0.0316)
year2013	−0.0007 (0.001)	−0.0007 (0.0016)	0.0044 (0.0023)*	0.0044 (0.0039)
year2015	−0.0206 (0.002)***	−0.0206 (0.0036)***	0.0136 (0.0024)***	0.0136 (0.0066)***
year2017	0.0099 (0.002)***	0.0099 (0.0059)*	0.0186 (0.0044)***	0.0186 (0.0120)
year2018	0.0143 (0.003)***	0.0143 (0.0080)*	0.0198 (0.0065)***	0.0198 (0.0166)
year	0.0006 (0.000)***	0.0006 (0.0001)***	0.0006 (0.0001)***	0.0006 (0.0003)***
Number of observations	3,132	3,132	348	348
Number of groups	655	655	64	64
Number of instruments	41	41	41	41
Wald test	1728.7***	1088.25***	2268.36***	704.71***
Sargan test	84.538	84.5381	26.1792	26.1792
	0.0000	0.0000	0.5632	0.5632
Arellano–Bond test AR(1)	−1.9986	−1.5194	−1.9188	−1.5091
	0.0456	0.1287	0.0550	0.1313
AR(2)	0.4470	0.1480	−0.0280	−0.0190
	0.6549	0.8823	0.9776	0.9849

Table 10.

fiscal rules related to sub-sovereign debt increases municipal off-budget activity. However, results for cities with county status are primarily insignificant, except for the model in Column (3) in Table 10. The negative coefficient sign at the *Debt_per_capita* variable for all non-county municipalities and cities with county status confirms *H2*, which states that there is a substitution between municipal budget debt and off-budget activity (revenues gained by MOCs). The results presented in Table 10 also confirm *H3* based on positive coefficients at the MOC debt share variable. Thus, off-budget activity complements off-budget debt establishing the assumed mechanism of MOCs usage by LGs under restrictive fiscal debt limits. Estimations' outcomes suggest that cities' volume of off-budgetary activity is negatively related to the demand for local public services measured by budgetary expenditure, whereas in cities with county status positively associated with fiscal stress (grants share in revenues). Non-county municipalities experiencing higher revenue growth have more need to expand off-budget activity. However, we should treat this finding with caution, as it is of low significance.

5. Conclusions, limitations and discussion

We contribute to the literature of the two strands of theory – relating to the public and private sectors – by addressing the issue of introducing new fiscal rules on municipal off-budget activity using non-consolidated municipal companies, excluded from the public sector entities and therefore also not included in the fiscal debt limit. The empirical evidence provided in the present study confirms that the corporatisation of municipal services is oriented towards overcoming indebtedness restrictions via off-budget activity. This adds to the literature on financial accounting, the off-balance-sheet financing hypothesis and the costs and benefits of consolidating accounts. This is also referred to by theories in public finance and reflects the opportunistic behaviour of local politicians who, through MOC, maintain spending (and debt) action despite introducing fiscal rules. The identified actions of local politicians indicate that, as in other countries, the necessity of consolidating local government and MOC debt and revenues should be introduced in Poland. Whether this should be done by consolidating entire financial statements remains an open question. The costs of such consolidation may outweigh the benefits since the local government and the MOC have different activities. In addition, local governments and private firms in Poland are bound by different accounting standards; the former are overridden by budgetary principles. This makes the alignment of the accounts of local governments and MOCs difficult and costly. We added to the discussion in the literature by verifying the off-balance-sheet financing hypothesis and exploiting the costs and benefits of consolidating accounts' theoretical framework in different types of LGs. Our study showed that this effect varies in local authorities of various kinds. The increase in the activity of MOCs was clearly more substantial in smaller units (rural and urban–rural municipalities) and weaker in larger with bigger budgets (urban municipalities and cities with county status). That difference may be explained by the result of less elastic budgets and the inappropriateness of the rules (fiscal law) in disciplining the accountability tool of that smaller units. Bigger municipalities, whose scope of revenues is more extensive, may look for other (also on-budget) solutions to avoid indebtedness restrictions (Goodman, 2019; Dollery and Fleming, 2006). That means our study contributes to an essential discussion on fragmentation vs consolidation of LGs, and makes a new argument for bigger and more consolidated LGs.

Essentially, the revenues of MOCs have subsidised local public debt. Consequently, tightening fiscal rules related to sub-sovereign indebtedness incentives local politicians to opportunistic behaviour by increasing revenues shifted off-budget. These are earned by MOCs that are not included in the fiscal debt limit and are not consolidated with municipal

budgetary revenues and expenditures. However, the effects are lagged because municipalities have been informed about law changes since 2010 and prepared for new fiscal debt constraints. Moreover, it is policy-relevant because the local politicians' incentives drive the choices (opportunistic behaviour) to increase off-budget activity and extends opportunities to avoid the fiscal limitations imposed on public bodies. But, on the other hand, the shift of municipal activity off-budget could undermine regional – and national – financial stability due to the inappropriateness of the rules (fiscal law) in disciplining the accountability tool.

Our results are in line with the conclusions raised by Granof (1984), Lorenzo *et al.* (2009) and Brusca *et al.* (2012), which suggest that the creation of corporations aims to transfer part of municipalities' activity to these independent companies to comply with the restrictions imposed on their debt. However, our research represents the first analysis of Poland's fiscal debt rules' effects on the off-budget municipal activity by non-consolidated MOCs. Thus, our findings contribute to the existing literature, including Bennett and Dilorenzo (1982), Boggio (2011, 2012), Llera and Garcìa Valiñas (2013), Cuadrado-Ballesteros *et al.* (2016) and Andrews *et al.* (2020).

We provide evidence of budgetary indebtedness restrictions influencing the choice of how to acquire funds rather than the decision of whether to issue public debt. Municipalities circumvent fiscal debt restrictions by engaging in certain activities outside their budgets, except for urban LGs and cities with county status. Thus, indirectly, we identify the factors that contribute to generating the corporatisation process to facilitate the opportunistic behaviour of local politicians. The motive of corporatisation to escape from the traditional municipal budgeting system with its built-in inefficient mechanisms of spending and redistribution of resources is confirmed for Spain (Bennett and Dilorenzo, 1982; Blewet, 1984; Bunch, 1991; Marlow and Joulfaian, 1989), Germany (Bremeier *et al.*, 2006) and Italy (Grossi and Mussari, 2008).

Although MOCs' debt was included in the fiscal debt limit in Spain, LGs were still looking for alternative ways to gain financing off-budget (Chan, 2003; Cuadrado-Ballesteros *et al.*, 2013). It was possible to set up foundations to carry out off-budget activities because their debt allowed avoiding the fiscal debt constraints (Cuadrado-Ballesteros *et al.*, 2013). By comparing the Polish case to the Spanish situation, we notice that MOCs' debt inclusion in the fiscal debt limit is insufficient if consolidated accounts are only voluntary and not very extended. In Spain, municipal companies wholly owned by municipalities have been subject to consolidation only by larger LGs since 2022. Based on empirical evidence, Cuadrado-Ballesteros *et al.* (2013) highlight the need for stricter regulation in Spain, as politicians are increasingly using public foundations for the same purpose they have used MOCs for in the past: raising external funds (Tellier, 2006). By distinguishing between direct and indirect taxes, they conclude that municipalities that collect high taxes from construction activities are not as interested in creating municipal companies as those that do not. Moreover, as they do not increase the public debt to implement their policies, they do not need to develop off-budget activities to hide institutional debt.

Finally, although off-budget financing reduces municipal indebtedness, policymakers and decision-makers should consider that the aggregation process required by consolidation can hide the losses of weaker subsidiaries in the group and downplay the profits of the stronger subsidiaries, which can mislead creditors. Therefore, we should remember that the corporatisation of public administrations via MOCs can cause future bail-out problems.

References

Ahmad, E., Bordignon, M. and Brosio, G. (Eds) (2017), *Multi-Level Finance and the Euro Crisis: Causes and Effects*, Edward Elgar, Chaltenham.

Alesina, A.F. and Bayoumi, T. (1996), "The costs and benefits of fiscal rules: evidence from U.S. States", Working Paper, National Bureau of Economic Research.

Alijarde, I.B., Julve, V.M. and Agudo, L.M. (2012), "El Endeudamiento como factor explicativo de la descentralización de servicios en los ayuntamientos españoles", *Spanish Journal of Finance and Accounting/Revista Española de Financiación y Contabilidad*, Vol. 41 No. 153, pp. 143-162.

Andrews, R., Ferry, L., Skelcher, C. and Wegorowski, P. (2020), "Corporatisation in the public sector: explaining the growth of local government companies", *Public Administration Review*, Vol. 80 No. 3, pp. 482-493.

Banaszewska, M. (2018), "Side effects of fiscal rules: a case of polish local self-government side", *Economics and Business Review*, Vol. 4 No. 1, pp. 86-106.

Bastida, F.J. and Benito, B. (2006), "Financial reports and decentralization in municipal governments", *International Review of Administrative Sciences*, Vol. 72 No. 2, pp. 223-238.

Beck, A.K., Behn, B.K., Lionzo, A. and Rossignoli, F. (2017), "Firm equity investment decisions and US GAAP and IFRS consolidation control guidelines: an empirical analysis", *Journal of International Accounting Research*, Vol. 16 No. 1, pp. 37-57.

Bel, G. and Fageda, X. (2017), "What have we learned from the last three decades of empirical studies on factors driving local privatisation?", *Local Government Studies*, Vol. 43 No. 4, pp. 503-511.

Bennett, J.T. and Dilorenzo, T.J. (1982), "Off-budget activities of local government: the bane of the tax revolt", *Public Choice*, Vol. 39 No. 3, pp. 333-342.

Bergmann, A., Grossi, G., Rauskala, I. and Fuchs, S. (2016), "Consolidation in the public sector: methods and approaches in organisation for economic co-operation and development countries", *International Review of Administrative Sciences*, Vol. 82 No. 4, pp. 801-820.

Białek-Jaworska, A. (2021), "Revenue diversification and municipally owned companies' role in shaping the debt of municipalities", *Annals of Public and Cooperative Economics*, Vol. 93 No. 4, pp. 1-45, doi: 10.1111/apce.12358.

Bifulco, R., Bunch, B., Duncombe, W., Robbins, M. and Simonsen, W. (2012), "Debt and deception: how states avoid making hard fiscal decisions", *Public Administration Review*, Vol. 72 No. 5, pp. 659-667.

Blewet, R.A. (1984), "Off-budget activities of local government: comment", *Public Choice*, Vol. 42 No. 2, pp. 205-211.

Blundell, R. and Bond, S. (1998), "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics*, Vol. 87 No. 1, pp. 115-143.

Boggio, M. (2011), "From reluctant privatisation to municipal capitalism: an overview on ownership, political connections and decentralization", Working Paper, MPRA.

Boggio, M. (2012), "Municipal capitalism: from state to mixed ownership in local public services provision", Working Paper, MPRA.

Bohn, H. and Inman, R.P. (1996), "Balanced budget rules and public deficits: evidence from the U.S. States", Working Paper, National Bureau of Economic Research.

Bremeier, W., Brinckmann, H. and Killian, W. (2006), *Public Governance Kommunaler Unternehmen*, DüsseldorfHBS-Edition.

Brusca, I., Montesinos, V. and Mora, L. (2012), "El endeudamiento como factor explicativo de la descentralización de servicios en los ayuntamientos españoles", *Revista Española De Financiación y Contabilidad-Spanish Journal of Finance and Accounting*, Vol. 41 No. 153, pp. 143-162.

Bunch, B.S. (1991), "The effect of constitutional debt limits on state government use of public authorities", *Public Choice*, Vol. 68 Nos 1/3, pp. 57-69.

Chan, J. (2003), "Government accounting: an assessment of theory, purpose and standards", *Public Money and Management*, Vol. 23 No. 1, pp. 13-20.

Christensen, T., Lie, A. and Lægreid, P. (2008), "Beyond new public management: agencification and regulatory reform in Norway", *Financial Accountability and Management*, Vol. 24 No. 1, pp. 15-30.

Comiskey, E.E. and Mulford, C.W. (1986), "Investment decisions and the equity accounting standard", *The Accounting Review*, Vol. 62, pp. 519-525.

Comiskey, E.E., McEwen, R.A. and Mulford, C.W. (1987), "A test of pro forma consolidation of finance subsidiaries", *Financial Management*, Vol. 16 No. 3, pp. 45-50.

Coombs, H.M. and Edwards, J.R. (1992), "Capital accounting in municipal corporations 1884-1914: theory and practice", *Financial Accountability and Management*, Vol. 8 No. 3, pp. 181-201.

Copeland, R.M. and McKinnon, S. (1987), "Financial distortion and consolidation of captive finance subsidiaries in the general merchandising industry", *Journal of Business Finance and Accounting*, Vol. 14 No. 1, pp. 77-97.

Cuadrado-Ballesteros, B., Ferrero, J.M. and da Conceicao Marques, M. (2016), "Functional decentralisation in Portuguese local governments", *Public Administration Quarterly*, Vol. 40 No. 1, pp. 84-125.

Cuadrado-Ballesteros, B., García-Sánchez, I.M. and Prado-Lorenzo, J.M. (2013), "Determinants of functional decentralisation and their relation to debt: empirical evidence based on the analysis of Spanish municipalities", *International Review of Administrative Sciences*, Vol. 79 No. 4, pp. 701-723.

delgado-Téllez, M., Lledó, V.D. and Pérez, J.J. (2017), "On the determinants of fiscal non-compliance: an empirical analysis of spain's regions", Working Paper, IMF.

Dollery, B. and Fleming, E. (2006), "A conceptual note on scale economies, size economies and scope economies in Australian local government", *Urban Policy and Research*, Vol. 24 No. 2, pp. 271-282.

Duchac, J. (2004), "The dilemma of bright line accounting rules and professional judgment: insights from special purpose entity consolidation rules", *International Journal of Disclosure and Governance*, Vol. 1 No. 4, pp. 324-338, doi: 10.1057/palgrave.jdg.2040034.

EU (2019), "Manual on government deficit and debt. Implementation of ESA 2010", Publications Office of the European Union, 2019.

Farnham, P.G. (1985), "Re-examining local debt limits: a disaggregated", *Southern Economic Journal*, Vol. 51 No. 4, pp. 1186-1201.

Feld, L.P. and Kirchgässner, G. (2008), "On the effectiveness of debt brakes: the swiss experience", in Neck, R. and Sturm, J.-E. (Eds), *Sustainability of Public Debt*, Cambridge/London MIT Press, pp. 223-225.

Feld, L.P., Gebhard, K. and Schaltegger, C.A. (2011), "Municipal debt in Switzerland: new empirical results", *Public Choice*, Vol. 149 Nos 1/2, pp. 49-64.

Foged, S.K. (2016), "The relationship between population size and contracting out public services: evidence from a Quasi-experiment in Danish municipalities", *Urban Affairs Review*, Vol. 52 No. 3, pp. 348-390, doi: 10.1177/1078087415591288.

Foremny, D. (2014), "Sub-national deficits in European countries: the impact of fiscal rules and tax autonomy", *European Journal of Political Economy*, Vol. 34, pp. 86-110.

Goodman, C.B. (2019), "Local government fragmentation: what do we know?", *State and Local Government Review*, Vol. 51 No. 2, pp. 134-144, doi: 10.1177/0160323X19856933.

Granof, M.H. (1984), "A fundamental flaw of debt limitations for state and local governments", *Journal of Accounting and Public Policy*, Vol. 3 No. 4, pp. 293-310.

Grembi, V., Nannicini, T. and Troiano, U. (2012), "Policy responses to fiscal restraints: a difference-in-discontinuities design", Discussion Paper.

Grossi, G. and Mussari, R. (2008), "Effects of outsourcing on performance measurement and reporting: the experience of Italian local governments", *Public Budgeting and Finance*, Vol. 28 No. 1, pp. 22-38.

Grossi, G. and Thomasson, A. (2011), "Jointly owned companies as instruments of local government: comparative evidence from the Swedish and Italian water sectors", *Policy Studies*, Vol. 32 No. 3, pp. 277-289.

Heald, D. and Georgiou, G. (2000), "Consolidation principles and practices for the UK government sector", *Accounting and Business Research*, Vol. 30 No. 2, pp. 153-167.

Hopland, A.O. (2013), "Central government control and fiscal adjustment: Norwegian evidence", *Economics of Governance*, Vol. 14 No. 2, pp. 185-203.

Humphrey, C. and Miller, P. (2012), "Rethinking impact and redefining responsibility: the parameters and coordinates of accounting and public management reforms", *Accounting, Auditing and Accountability Journal*, Vol. 25 No. 2, pp. 295-327.

Iacuzzi, S. (2021), "An appraisal of financial indicators for local government: a structured literature review", *Journal of Public Budgeting, Accounting and Financial Management*, Vol. 34 No. 6, pp. 69-94, doi: 0.1108/JPBAFM-04-2021-0064.

Inman, R.P. (2001), "Transfers and bailouts: institutions for enforcing local fiscal discipline", *Constitutional Political Economy*, Vol. 12 No. 2, pp. 141-160.

Johnson, C. and Kriz, K. (2005), "Fiscal institutions, credit ratings and borrowing costs", *Public Budgeting Finance*, Vol. 25 No. 1, pp. 84-103.

Kotia, A. and Duarte Lledó, V. (2016), "Do subnational fiscal rules foster fiscal discipline? New empirical evidence from Europe", Working Paper, IMF.

Ketz, J.E. (2003), *Hidden Financial Risk: Understanding Off-Balance Sheet Accounting*, New York, NY, NY Wiley.

Lapsley, I. (2009), "New public management: the cruellest invention of the human spirit?", *Abacus*, Vol. 45 No. 1, pp. 1-21.

Llera, R.F. and Garcia Valiñas, M.A. (2013), "The role of regional public enterprises in Spain: room for a shadow government?", *Review of Public Economics*, Vol. 205 No. 2, pp. 9-31.

Lorenzo, J.M.P., Jiménez, D.M. and Sánchez, I.M.G. (2009), "El proceso de corporatización en España: Evolución y factores explicativos", *Auditoría Pública*, No. 47, pp. 63-70.

Marlow, M.L. and Joulfaian, D. (1989), "The determinants of off-budget activity of state and local governments", *Public Choice*, Vol. 63 No. 2, pp. 113-123.

Mian, S.L. and Smith, C.W., Jr, (1990), "Incentives for unconsolidated financial reporting", *Journal of Accounting and Economics*, Vol. 12 Nos 1/3, pp. 141-171.

Mohr, R.M. (1988), "Unconsolidated finance subsidiaries: characteristics and debt/equity effects", *Accounting Horizons*, Vol. 2, pp. 27-34.

Monacelli, D., Pazienza, M.G. and Rapallini, C. (2016), "Municipality budget rules and debt: is the Italian regulation effective?", *Public Budgeting and Finance*, Vol. 36 No. 3, pp. 114-140.

MSP (2002), "Informacja o przekształceniach i prywatyzacji mienia komunalnego za rok 2001".

MSP (2010), "Informacja o przekształceniach i prywatyzacji mienia komunalnego za rok 2009".

Narbón-Perpiñá, I. and de Witte, K. (2018), "Local governments' efficiency: a systematic literature review – part I", *International Transactions in Operational Research*, Vol. 25 No. 2, p. 431468, doi: 10.1111/itor.12364.

Nelson, M.W. (2003), "Behavioral evidence on the effects of principles- and rules-based standards", *Accounting Horizons*, Vol. 17 No. 1, pp. 91-104, doi: 10.2308/acch.2003.17.1.91.

Oates, W.E. (1972), "Fiscal federalism", Harcourt Brace Jovanovich Icc.

Oates, W.E. (2005), "Toward a second-generation theory of fiscal federalism", *International Tax and Public Finance*, Vol. 12 No. 4, pp. 349-373.

Ostrom, E. (1972), "Metropolitan reform: propositions derived from two traditions", *Social Science Quarterly*, Vol. 53 No. 3, pp. 474-493.

Petersen, O.H., Houlberg, K. and Christensen, L.R. (2015), "Contracting out local services: a tale of technical and social services", *Public Administration Review*, Vol. 75 No. 4, pp. 560-570, doi: 10.1111/puar.12367.

Pontoppidan, C.A., Chow, D., Day, R. and Pollanen, R. (2014), "Whole of Government accounts: who is using them?", ACCA Research Report, London.

Poterba, J.M. (1994), "State responses to fiscal crises: the effects of budgetary institutions and politics", *Journal of Political Economy*, Vol. 102 No. 4, pp. 799-821.

Potrafke, N., Riem, M. and Schinke, C. (2016), *Debt Brakes in the German States: Governments' Rhetoric and Actions*, Working Paper, CESifo.

Psaros, J. and Trotman, K.T. (2004), "The impact of the type of accounting standards on preparers' judgments", *Abacus*, Vol. 40 No. 1, pp. 76-93, doi: 10.1111/j.1467-6281.2004.00144.x.

Rivenbark, W.C., Roenigk, D.J. and Allison, G.S. (2010), "Conceptualizing financial condition in local government", *Journal of Public Budgeting, Accounting and Financial Management*, Vol. 22 No. 2, pp. 149-177.

RIO (2014), "Sprawozdanie z działalności RIO i wykonania budżetu przez jednostki samorządu terytorialnego w 2013 r".

Shaoul, J. (1997), "A critical financial analysis of the performance of privatised industries: the case of the water industry in England and Wales", *Critical Perspectives on Accounting*, Vol. 8 No. 5, pp. 479-505.

Tellier, G. (2006), "Public expenditures in Canadian provinces: an empirical study of politico-economic interactions", *Public Choice*, Vol. 126 Nos 3/4, pp. 367-385.

Ter-Minassian, T. (2007), "Fiscal rules for subnational governments: can they promote fiscal discipline?", *OECD Journal on Budgeting*, Vol. 6 No. 3, pp. 1-13.

Tiebout, C.M. (1956), "A pure theory of local expenditures Charles", *Journal of Political Economy*, Vol. 64 No. 5, pp. 416-424.

Von Hagen, J. (1991), "A note on the empirical effectiveness of formal fiscal restraints", *Journal of Public Economics*, Vol. 44 No. 2, pp. 199-210.

Voorn, B., Van Genugten, M.L. and Van Thiel, S. (2017), "The efficiency and effectiveness of municipally owned corporations: a systematic review", *Local Government Studies*, Vol. 43 No. 5, pp. 820-841.

Walker, R.G. and Mack, J. (1998), "The influence of regulation on the publication of consolidated statements", *Abacus*, Vol. 34 No. 1, pp. 48-74.

Warner, M. and Hebdon, R. (2001), "Local government restructuring: privatisation and its alternatives", *Journal of Policy Analysis and Management*, Vol. 20 No. 2, pp. 315-336.

Windmeijer, F. (2005), "A finite sample correction for the variance of linear efficient two-step GMM estimators", *Journal of Econometrics*, Vol. 126 No. 1, pp. 25-51.

Wyplosz, C. (2012), "Fiscal rules: theoretical issues and historical experiences", Working Paper, NBER.

Zambrano-Gutiérrez, J.C. and Avellaneda, C.N. (2021), "Municipal response to fiscal and governance reforms: effects of stricter debt limits across jurisdictions", *International Journal of Public Administration*, Vol. 45 No. 7, pp. 590-603, doi: 10.1080/01900692.2020.1868504.

Further reading

Act of 15 September (2000), Commercial Companies Code. Journal of Laws, No. 94, item 1037, as amended. Journal of Laws 2009, No. 13, item 69.

Act of 27 August (2009), on public finance. Journal of Laws No. 157, item 1240 with amendments.

Besley, T.J. and Case, A. (1992), "Incumbent behavior: vote seeking, tax setting and yardstick competition", NBER Working Paper, 4041.

Grossi, G. and Pepe, F. (2009), "The concept of consolidation in the public sector: a cross country comparison", *Public Money and Management*, Vol. 29 No. 4, pp. 251-256.

Grossi, G. and Soverchia, M. (2011), "European commission adoption of IPSAS to reform financial reporting", *Abacus*, Vol. 47 No. 4, pp. 525-552.

Picazo-Tadeo, A.J., González-Gómez, F., Wanden-Berghe, J.G. and Ruiz-Villaverde, A. (2012), "Do ideological and political motives really matter in the public choice of local services management? Evidence from urban water services in Spain", *Public Choice*, Vol. 151 Nos 1/2, pp. 215-228.

Poterba, J.M. and Rueben, K. (1999), "State fiscal institutions and the U.S. Municipal bond market", in Poterba, J.M. (Ed.), *Fiscal Institutions and Fiscal Performance*, University of Chicago Press, Chicago, pp. 181-208.

Corresponding author
Anna Białek-Jaworska can be contacted at: abialek@wne.uw.edu.pl