On the Financial Autonomy of European Local Governments: The Case of Municipal Bonds in Italy

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Abstract:

Purpose: There is broad consensus across different studies in considering decentralisation as a critical factor for increasing the responsiveness of Local Governments (LGs). For this decentralisation process to be operational, financial autonomy is essential. Since LGs may access financial markets to secure their self-sufficiency, this study focuses on the financial autonomy of LGs based on municipal bonds. However, the centralised control of borrowing is supposed to decrease financial autonomy, especially in unitary countries. Focusing on the time when the municipal bonds were wide spreading in Italy, that is unitary indeed, the paper investigates the capacity of municipal bonds to increase the financial autonomy of local governments. Reference is also made to the European fiscal rules, that were getting stricter in the same years, because these constitute an excellent example of this control model.
Approach/Methodology/Design: Addressing this goal, this paper relies upon Generalized Least Squares (GLS) regression of longitudinal (panel) data.
Findings: Findings show that financial autonomy strictly depends on tax-raising powers, but municipal bonds may help. There is indeed statistical evidence of the relationship between financial autonomy and bond issuing, reinstating the idea that municipal bonds could qualify as an instrument of financial autonomy for LGs.
Practical Implications: However, to benefit from this positive relationship between municipal bonds and financial autonomy, the constraints of the centralised model need to be reduced or the model of control to be changed.
Originality/Value: The issue is not just whether the use of municipal bonds granted financial autonomy to local governments, but rather that their usage may generate growth and maintenance of financial autonomy within the centralised discipline and control model.

Keywords: Financial autonomy, municipal bonds, local governments, borrowing control models.

JEL Codes: M48, H83, G18.
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1. Introduction

As the European Charter of Local Self-government states, financial autonomy is defined as when 'local authorities shall be entitled to adequate financial resources of their own, of which they may dispose freely within the framework of their powers' (Council of Europe, 1985). Similar declarations can be found within several constitutions across the world, which recognise the primary importance of financial autonomy in their respective countries' institutional and fiscal frameworks. In most countries, tax sharing is the principal source of sub-national revenue (OECD, 2015). However, this tax sharing may lead to possible vertical fiscal imbalances (i.e., the mismatch between the stream of revenues and expenditure responsibilities) among different tiers of government (Foremny, 2014). In such cases, there would be no assurance of the effective fulfilment of local governments' (LGs) responsibilities.

Additionally, there is evidence indicating that tax revenue cannot support economic growth as before (Campbell, 2018). Thus, to have true fiscal decentralisation, local governments' budgets should be funded not only through shared taxes but also with genuine taxes levied by sub-national governments or even through borrowing (Psycharis and Iliopoulou, 2016). This last point was officially set out in the European Charter of Local Self-government, whereby it established that local authorities should have access to the national capital market meant to be an aspect of self-sufficiency (Council of Europe, 1985).

This study explores the financial autonomy of LGs by examining municipal bonds rather than taxes or fiscal transfers. Moving from the consideration that to measure financial autonomy of sub-national governments, researchers should explore, inter alia, sub-national borrowing powers and financial infrastructure (OECD, 2013). Some scholars investigated 'the internal dynamics of public decision making in the choice of the financial instruments […] in accordance with principles of autonomy and financial sustainability' (Amatucci *et al.,* 2015, p. 3; Amatucci and Esposito, 2012), arguing that municipal bonds assist LGs in the pursuit of financial autonomy.

However, municipal bonds are often issued to finance specific investments. Given that general-purpose grants promote financial autonomy more than funds earmarked for specific projects (Oulasvirta and Turala, 2009), should be no reason for them to stimulate financial autonomy. Therefore, the core purpose of this study is to empirically investigate the extent of financial autonomy granted to LGs by municipal bonds.

The paper uses a quantitative analysis of Italian LGs' municipal budgets and the financial data of bonds they issued to answer the research questions. As a European country which has undertaken a devolution process heading to a federalist state (not yet been concluded), Italy represents a fitting background for this study. Membership to the EU implies that Italy adopts bureaucratic controls similar to those laid down in the centralised discipline and control model, the most reductive

model of financial autonomy of LGs (Bailey *et al.,* 2009; 2012) among the four models for the governance of municipal borrowing identified in literature (Ter-Minassian and Craig, 1997). But unitary countries are more affected than federations (Foremny, 2014), so Italy exemplifies a unitary state subjected to a centralised discipline and control model.

Since the purpose of the paper is to explore the financial autonomy of LGs and its connection with municipal bonds, it begins with an overview of the relevance of financial autonomy and how it underwent a restriction over the years. The paper then provides details of the statistical analysis conducted. A section is set aside to help explain why municipal bonds should matter within the provided background. This is not just a case of whether the use of municipal bond granted financial autonomy to LGs, but rather if the centralised discipline and control model is fit for purpose as part of an overall policy aimed at supporting the development of financial autonomy.

2. Financial Autonomy between Decentralisation and Recentralization

According to Loughlin (2000), 'autonomy simply means 'self-rules'. Therefore, financial autonomy refers to the ability to set 'self-rules' for managing own financial affairs. When this concept is applied to LGs, it leads to complicated questions about the distribution of power or the political balance within centralised and decentralised governments.

Since Hood's original conception of New Public Management (1991; 1995), devolution and decentralisation have been the cornerstone of shifting the focus from bureaucratic procedures to managerial initiatives (Pollitt, 1993; Dunleavy and Hood, 1994; Ferlie *et al.,* 1996; Lane, 2002). The ideas developed under the influence of NPM theory - including managing by results, letting the managers manage, the separation between elected roles and administrative ones - were inspired by the perception that financial autonomy is essential to substantiate the demand for responsibility by LGs (Mussari, 1996).

However, once NPM comes to an end following the devolution process, the trend towards the recentralization became prominent internationally. For instance, Halligan (2010, p. 235) posits that 'in the post-NPM era there has been a countermovement towards reintegrating the fragmented state by focusing on government as a whole and joining up the parts through horizontal (and vertical) coordination' (see also Halligan, 2006; Christensen and Laegreid, 2007; Laegreid and Verhoest, 2010; Christensen, 2012). Several countries around the world reasserted the role of the centre during that period.

However, in the EU, the control has been reclaimed by the supranational level. The National governments strengthened the control over LGs' accounts, posing some limitations and drawing a framework to control both the amount and the purpose of debt funding. The severe EU fiscal consolidation rules compromised the financial

decision-making freedom of the LGs, instead advocating a centralised control model. To adhere to new governance parameters implies 'not only upwards migration of standard setting to the European level, but also the centralisation of standard setting within each EU Member State' (Heald and Hodges, 2015, p. 1009).

In particular, 'borrowing is seen as a risky venture that the centre needs to control to protect all stakeholders. It is recognised as a simple way of procuring the necessary funds for an investment project in the short term, but which imposes a burden on future taxpayers' (Dafflon and Beer-Tóth, 2009, p. 305). The risks related to the repayment of borrowed funds rests with taxpayers who ultimately bear the hazards of municipal borrowings (Bailey *et al.,* 2009). Since debt repayment is based on taxes, central governments would have reasons for concern should such revenues be lower than expected (Bailey, 2013). When LGs borrow, central governments enforce laws and sanctions to reduce these risks. The concept behind the implementation of control measures is that LGs should follow general concepts of local borrowing control.

The literature (Ter-Minassian and Craig, 1997; Bailey *et al.,* 2009; 2012; Cepiku and Mussari, 2010; Eltrudis and Monfardini, 2020) has identified four models for the governance of municipal borrowing to consider the contextual differences and differences in control approaches: the market discipline, the local political discipline, the centralised discipline, and the professional discipline. The centralised discipline and control model postulates the need for bureaucratic controls and relies on detailed rules that LGs must meet for them to borrow. Stability and Growth Pact is an example of the dependence of bureaucratic controls on the LGs borrowing rules. Domestic Stability Pacts are part of the practical implementation practices for centralised discipline and control model among European member countries. 'European member states have been required to adhere to new governance parameters, comply with Fiscal Compact rules, accept debt consolidation processes, pursue balanced budgets while still being expected to respect Maastricht treaty requirements' (Bracci *et al.,* 2015, p. 882).

However, several criticisms have emerged around these requirements. For example, Cepiku and Mussari (2010, p. 316) aver that 'this model is difficult to reconcile with the administrative and political decentralisation processes adopted in many countries. Moreover, because international agreements have decided the criteria for monitoring the local levels of indebtedness, the model does not reflect the specific features of LGs. In other words, this model centralises decision-making and ignores local and regional differences. The control model for local borrowing should be established by balancing decentralisation and central demands for guidance and control. Contrarily, 'the increasing worldwide trend toward devolution of spending and revenue-raising responsibilities to subnational governments seems likely to come into growing conflict with systems of administrative controls by the central government on subnational borrowing' (Ter-Minassian and Craig, 1997, p. 170).

Foremny (2014) has made clear that the use of strong fiscal rules affects unitary countries more than it affects federations, where the prerogatives of sub-national governments hinder compliance with those rules. This is evident among European countries that agreed to share the same control model, despite being different in the type of government and constitutional structure. According to the OECD subnational government finance dataset, only four federal states (Austria, Belgium, Germany, and Spain) hold 60 per cent of the overall debt of all European LGs. In countries such as Germany and Spain, the sub-national debt is about 30-35 per cent of the total outstanding debt, while in unitary countries such Italy and France, it stands at only about 7-9 per cent.

As a result, the European municipal bond market is smaller than the sovereign bond market (Medda and Cocconcelli, 2018). Moreover, it is particularly underdeveloped in unitary countries because adopting the centralised discipline and control model generates higher and hidden costs for the LGs that borrow from the financial markets (Eltrudis and Monfardini, 2020). Municipal bonds' spreading as an alternative to bank lending was hampered by the start of the European Union's Stability and Growth Pact, especially in unitary countries that preferred the bank lending channel over bonds as a source of debt funding (Peterson, 2003).

3. Financial Autonomy and Municipal Bond Issuing

The actual degree of financial autonomy granted to LGs has been the subject of many studies. For instance, Oulasvirta and Turala (2009) figured out that this degree is affected by both the allocation of responsibilities to LGs and the revenues available for financing the expenditures related to those responsibilities. However, this only applies where the LGs are perfectly free to decide on their responsibilities and sources of revenue. Contrary to previous works in which the focal point was only the consistency of local government incomes (Ebel and Yilmaz, 2002, Meloche *et al.,* 2004; Stegarescu, 2005), Oulasvirta and Turala explored even the expenditure aspect of financial autonomy. The balance between the two sides of financial autonomy represents the level of availability of the received finances for spending (disposable income). Oulasvirta and Turala (2009) believe that 'it is not irrelevant whether funds can be spent independently or not' (p. 317). Parallel to this idea, these authors designated taxes and other own - not earmarked - revenues as the most appropriate tool for determining the balance between the two factors.

However, many other sources of revenue flow into public budgets besides taxes. In fact, LGs have been experimenting with innovative financing methods for a considerable length of time (Caperchione and Salvatori, 2011). Currently, many approaches to funding exist. For example, borrowing is a well-established practice, which may occur both through banking channels and through the capital markets, such as via bonds issuance. Furthermore, many functions that the LGs traditionally performed are being performed by the private sector, such as through PPPs/PFIs

(Farvacque-Vitkovic and Kopanyi, 2014). However, since these activities are generally off-balance sheet, they will not be considered in this paper.

Paper's attention is on Municipal bonds given that Bailey *et al.* (2009) argued that allowing LGs to use municipal bonds 'would build on existing decentralisation policies devolving greater decision-making responsibility to local authorities' (p. 17). This argument has been understood as a means 'to increase financial capability within local authorities' as described by Medda and Cocconcelli (2018, p. 7). However, it must be pointed out that the above mentioned applies to the UK, where the professional discipline and control model has been adopted, leading to the establishment of the Prudential Borrowing Framework (Bailey *et al.,* 2010). It is based on Prudential Indicators of affordability and prudence that allow LGs to set a cap on the amount of debt they may take on. Differently from prescriptive statute-based controls, it grants a significant degree of freedom and flexibility to determine the capital expenditures of LGs. For example, it is possible to ensure that all external borrowing is within prudent and sustainable limits by determining the capital expenditure that is not funded by capital receipts, grants, or tax.

Conversely, the European countries undergo a centralised model so that such conclusions may not apply to them. In fact, despite the general acceptability of sub-national borrowing in Europe, LGs still must meet strong fiscal rules imposed by the central government through the Domestic Stability Pacts that limited the issuance of bonds. It is noteworthy that borrowing is still allowed to finance capital expenditures with specific destination only, or rather capital expenditures that are earmarked (De Mello and Sutherland, 2014). That would mean that LGs are not free to decide how to spend these funds, implying that subject to the findings of Oulasvirta and Turala (2009), municipal bonds would not foster financial autonomy. This paper tries to fill the gap in the literature by evaluating the impacts of municipal bonds on financial autonomy within the framework that provides that the bonds cannot foster fiscal autonomy in LGs.

4. Empirical Analysis

Italy provides a remarkable context to be studied in this regard. Although municipal bonds have been internationally issued over decades to finance investments (Bailey *et al.,* 2009), the Italian LGs debt market has always been very small (Monacelli *et al.,* 2016). The financing decision making has gradually shifted from a model based on government transfers to a system in which LGs decide on their own how to finance their investments (Anessi-Pessina and Steccolini, 2005). The reforms in the financing decision-making process led to the popularity of municipal bonds in the mid-2000s. However, this popularity reduced due to some legislative changes[2] intended to mitigate the risks arising from bonds. Municipal bonds became less

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[2]*To the tax treatment in 2006 and to the system of reimbursement in 2008 and 2013.*

appealing and convenient because of the reforms, and municipalities stopped using them in 2011.

Studies aimed at investigating the degree of financial autonomy granted to Italian LGs mainly focused on the relationship between accounting and the autonomy of the LGs (Caperchione and Mussari, 2000; Caccia and Steccolini, 2006; Anessi-Pessina *et al.,* 2008; Nasi and Steccolini, 2008; Du Boys *et al.,* 2014). These studies refer to the fundamental accounting principle that 'the financial autonomy[3] of LGs must be guaranteed and based on the certainty of their own and allocated resources' (Caperchione and Mussari, 2000, p. 177). In fact, before the establishment of the property tax (called ICI) in 1997, LGs were 'mere spending centres of the State' (Giannì, 2003, p. 448). Since then, they have been developed into autonomous entities. As long as the ICI was applied, financial autonomy was guaranteed.

However, following its temporary partial abandonment between 2007 and 2012, there has been a decline in the local autonomy associated with increased government transfers (Perez, 2010). Financial autonomy has been recovered since 2011 due to new amendments that increased the share of revenues from own taxes by reintroducing the property tax (now IMU). In the present study, previous research results are synthesised through a concurrent consideration of financial autonomy and municipal bond issuance. Since 2007 the trends of financial autonomy and municipal bond issuing decreased simultaneously, suggesting a correlation between the two concepts.

Therefore, a statistical investigation of the use of municipal bonds is presented to help create an understanding of whether municipal bonds are instruments of financial autonomy for LGs in European unitary countries. Throughout the next sections data and variables are illustrated, and methodological issues and their solutions discussed. The regression analysis results are then exposed.

5. Sample and Variables

In Italy 1587 bonds were issued by municipalities between 1996 and 2011, amounting to €12 billion. For these, the outstanding debt in 2021 is €5.1 billion (MEF monitoring report 2021). The Ministry of Economy and Finance has provided the sample used in this study that focuses on secondary financial data on 322 bonds issued by 119 municipalities. This is a convenience sample that includes a subset of bonds issued only by municipality county seats. Its use is justified because the emissions were not uniformly distributed throughout Italy within the whole sample.

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[3]*Financial autonomy is a ratio of tax revenues and other own revenues over current revenues (TR+OR)/CR.*

A further weakness of the whole sample is that several pooled bonds[4] would have been included in the analysis, presenting several challenges in distinguishing the effects of the bonds from one municipality to the next. Nevertheless, the restricted sample considers the vast majority (73 per cent) of municipal bonds placed on the market, with regards to the amount expressed in Euros. There is statistical evidence that the subset and the full sample do not differ (t-test: p-value 0.3181).

Due to the close link between bond features issued by Italian LGs and the values of their books found by Pinna (2015), accounting and fiscal data was gathered from OpenBilanci.it (open-source website for consultation and management of public budgets). The final set of variables took account of the accounting, fiscal and indebtedness aspects, which include: a measure of the power to levy own taxes (Tax Autonomy[5]); an indicator of the ability to meet current expenditures with current revenues (Current Balance[6]); a measure of the share of current expenditures over the entire amount of the expenditure (Current Expenditures[7]); the extent of current revenues after debt reimbursements (Net Revenues[8]); a debt burden indicator (Debt to Revenues[9]); a dummy variable meant to identify the municipal bond issuing (Issue[10]); a dummy variable which exposes the LGs which issued only once (Issue$_1$[11]); and a dummy variable which reveals those which issued more than once (Issue$_+$[12]). Descriptive statistics and tests upon such variables are also given in the appendix.

The reference period for the study runs from 2005 to 2011 (7 years), covering the time in which municipal bond issuing had collapsed and with it the financial autonomy of the LGs. Focusing on this time frame is particularly relevant to understanding the magnitude of changes in bond issuing as a result of the adoption of the centralised discipline and control model. The data collection did not go beyond 2011 simply because municipalities did not issue bonds anymore after that time. The inclusion of latest data in the sample would not have provided further details about the contribution of bonds towards enhancing financial autonomy, and for this reason they would be out of the scope of this study.

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[4]*A municipal bond issued by a number of LGs together.*

[5]*Tax autonomy: tax revenues over current revenues TR/CR.*

[6]*Current balance: current revenues minus current expenditures, over current revenues (CR-CE)/CR.*

[7]*Current expenditures: current expenditures over the sum of current and capital expenditures CE/(CE+CaE).*

[8]*Net revenues: current revenues minus debt reimbursement, over current revenues (CR-DR)/CR.*

[9]*Debt to revenues: total outstanding debt over the sum of current revenues and capital revenues D/(CR+CaR).*

[10]*Issue: takes value 1 if municipality issued bond, 0 otherwise.*

[11]*Issue$_1$: takes value 1 if municipality issued bond only once, 0 otherwise.*

[12]*Issue$_+$: takes value 1 if municipality issued bond more than once, 0 otherwise.*

The study relies on the most relevant data for the analytical process since its objective was to build on the CEAM dataset, which is set out under the centralised discipline and control model framework and intended to control local indebtedness by the Ministry of Economy and Finance. Notwithstanding the CEAM dates from 1996, it was impossible to widen the study to earlier data (before 2005), because the accounting dataset has a time span of 10 years. Nevertheless, by matching these two datasets, the final sample is vast and consists of 801 observations for each variable.

6. Research Methodology

The research questions were addressed by the recourse of Generalised Least Squares regression for panel (longitudinal) data, which allows the estimation to be conducted under more general hypotheses than the classical linear model. This approach is applicable when either heteroskedasticity (i.e., non-constant variance of errors) or serial correlation are present, implying that OLS and WLS estimators may be biased (Baltagi, 2008). Generally, the empirical analysis of panel data necessitates the decision on how to treat individual-specific effects, and usually would lead to the use of one among pooled OLS, fixed effect, or random effects. All these models have been performed in this study, and the table 1 below shows their post-estimation tests, with clear rationale for GLS.

Table 1. Testing panel data

	Random Effect	Fixed Effect	Pooled OLS
Breusch Pagan test	1590.06 (0.0000)		
Hausman test	19.22 (0.0038)		
Wald test		9.7e+05 (0.00)	
White test			170.62 (0.00)

Source: Own study.

According to the Breusch and Pagan LM test, there is evidence of significant differences across individual (i.e., LGs). That means that analysis for panel models should be undertaken. Consistently with the Hausman test, fixed effects are present. Afterwards, the analysis relies on the Wald statistic to look for heteroskedasticity in the residuals of the fixed effect regression model. White statistic tries out the pooled OLS model. In both cases the null hypothesis must be rejected, and the conclusion made in favour of the presence of heteroskedastic disturbance, which is the condition for the implementation of the GLS model.

7. Research Findings

Different statistical models have been developed in order to differentiate between specific financial strategies for the use of municipal bonds. The regression labelled 'municipal bond' examines the effects of bond issuing from a general perspective, and then the analysis focuses on scenarios of 'structured emission' (two or more per

year), and 'spot emission' (that is only once per year). The estimates from the GLS analysis are presented in Table 2.

As is clear from the analysis, the autonomy to levy own taxes is extremely important in defining the extent of financial autonomy in an LG. In contrast, the current expenditures (with negative impact), and debt to revenues, act on a smaller scale. Current balance and net revenues have very low or no statistical significance to the financial autonomy of LGs. Therefore, considering the accounting facets, there is no significant difference between the results of the different models. Conversely, the findings on financial variables are not so obvious. While the general model reveals a positive effect of bond issuing on financial autonomy (estimated at 0.04863) further to that of accounting variables, the conclusions regarding the detailed models are not consistent with each other. When LGs issued only once ('spot emission') there is no statistical evidence of municipal bonds boosting financial autonomy.

Table 2. *Regression results*

Financial autonomy	Municipal bond	Structured emission	Spot emission
Issue	.0486374***	-	-
	(.0109151)		
$Issue_+$	-	.0857575***	-
		(.0151844)	
$Issue_1$	-	-	.0086354
			(.014569)
Tax Autonomy	.9367825***	.9447382***	.943492***
	(.0206603)	(.0204302)	(.0209669)
Net Revenues	.0306553**	.0216933	.0215131
	(.0140149)	(.0137046)	(.0142721)
Current Balance	.1495392**	.1414658**	.1489858**
	(.0619463)	(.0615071)	(.0627142)
Debt To Revenues	.0680706***	.0653898***	.0695532***
	(.0092643)	(.0092196)	(.0093759)
Current expenditure	-.0946496***	-.093115***	-.1194409***
	(.026252)	(.0258616)	(.026066)
cons	.2258732***	.2318339***	.2527227***
	(.0274128)	(.0267289)	(.0273466)
Observations (groups)	801(119)	801(119)	801(119)
AIC	-1653.887	-1665.552	-1634.625
BIC	-1621.086	-1632.751	-1601.823
Mean VIF	1.06	1.04	1.05

*Note: ***Significant at 1% level **Significant at 5% level *Significant at 10% level, Std. Err. in parenthesis.*
Source: Own study.

However, when they issued intensively ('structured emission'), bond emission resulted in a statistically significant increase in financial autonomy (estimated at

0.08575). The selection of the better-fitting model builds on Akaike (AIC) and Bayesian (BIC) information criteria, under the statistical principle that the smaller indicates the better model. This basic rule implies that the model labelled 'structured emission' should be preferred to the others.

8. Discussion

The most interesting result of the analysis is a relationship between financial autonomy and bond issuance in the selected panel. The results show that a structured use of bond emission may generate a regular flow of certain revenues (at least in the short term), in addition to those derived from taxes. This means that if municipal bonds are issued as part of a broader financial strategy, they may be considered as an instrument of financial autonomy. Moreover, the findings show that financial autonomy is strictly related to the LGs' right to access their own taxes and resources. Although the conclusion that municipal bonds impact on financial autonomy is attractive, tax autonomy should be deemed as its main driver.

Although these conclusions are only partly in accordance with Oulasvirta and Turala's conclusion that general-purpose grants promote financial autonomy more than funds earmarked for specific projects, they consolidate the assumptions of theoretical literature (Bailey *et al.,* 2009; Amatucci *et al.,* 2012; 2015), which consider municipal bond as a suitable mean for promoting LGs financial autonomy. The acceptance of these findings closes the gap in the literature on whether municipal bonds may be considered as an instrument of financial autonomy, but it opens up further questions on their use to enhance financial autonomy.

The central result is that the funds that flow through public budgets as money earmarked to specific project (bonds) also impact the financial autonomy index that only accounts for funds freely available to LGs, such as taxes and other own revenues. Future research could investigate the connection between taxes and municipal bonds because the financial autonomy of LGs comes through the correlation between the two. Two hypotheses can be formulated for this: 1) taxes rise because issuing debt LGs would require higher revenues for paying it off; and 2) investment financed by municipal bonds triggers a virtuous cycle that leads to the collection of more revenues from taxes as compensation for better services. It has everything to do with the expectation of how much future revenue may be generated.

A second question that future studies should address relates to whether the impact on financial autonomy may also result from other debt instruments such as bank loans. The bank lending channel is the primary source of municipal borrowing in Western Europe (Peterson, 2003). While addressing this question, researchers could carry out studies on specific countries or even comparative studies across European member states, for example, among unitary and federal countries, in order to show whether differences in financial autonomy are due to easier access to financial markets in some countries than in others.

9. Conclusions and Policy Recommendations

The paper provides empirical evidence to confirm the hypothesis that 'municipal bonds can act as tools to foster devolving and decentralisation policies, but importantly too, they can also serve to increase financial capability within local authorities' (Medda and Cocconcelli, 2018, p. 7). Even if the study can only draw from the results of the Italian framework, it provides ideas about the importance of municipal bonds to financial autonomy to be tested in other countries. These arguments are more valuable for those with a unitary structure than for federations because the level of autonomy of LGs appears to be associated with the degree of development of the sub-national debt market, which is small among the unitary structured countries. So, this paper reinstates the idea that municipal bonds could qualify as an instrument of financial autonomy for LGs. It further states that the issue is not just whether the use of municipal bonds granted financial autonomy to local governments, but rather that their use could also be fit to encourage the growth and maintenance of financial autonomy within the centralised discipline and control model.

The Italian system of control, as well as those of other European unitary countries, fall within the centralised discipline and control model, but some points cannot be fitted into this model. The most striking example is the role of the principle of financial autonomy, its effective implementation, and its extent on the local accounts (Cepiku and Mussari, 2010). If the need for close monitoring outweighs the appeal of autonomy such a legal framework generates hidden costs for the LGs which borrow from the financial markets (Eltrudis and Monfardini, 2020). With central government policies intended to 'contain expenditures rather than to improve efficiency and effectiveness' (Anessi-Pessina and Steccolini, 2005), it will not be possible to make widespread use of municipal bonds in European unitary countries.

However, not all European unitary member countries adopted the centralised discipline and control model. The United Kingdom is a prime example because despite being now outside the European Union, it was a member country until 31 January 2020. In the country, the centralised discipline and control model existed only until 2004. After the devolution of borrowing decision to LGs United Kingdom, the issue of limited financial autonomy has been addressed by adopting the Professional Discipline and Control Model that led to the Prudential Borrowing Framework. Throughout the use of Prudential Indicators (Bailey *et al,* 2010) it ensures compliance with the balanced budget rule, and it allows sustainability and prudence in LGs' accounts, while at the same time transcend the limitations of the centralised discipline and control model (Bailey *et al,* 2009; 2012).

Despite being members of the European Union, unitary states may be tempted to drive toward a paradigm shift such as the United Kingdom. So, policymakers should pay particular attention to which model of control to adopt by considering the

specific characteristics of their countries and the potential impacts of the different models on them according to the economic times the countries are going through.

The choice of the control model should consider the trade-off between economic efficiency, equity, and stability, whose balance may vary across countries and over historical moments (Psycharis and Iliopoulou, 2016). As Bailey *et al.* (2012) assumed, the need for close supervision exceeds the appeal of autonomy during tough economic times, and therefore, the centralised discipline and control model is deemed appropriate. However, in a more relaxed economic environment, the professional discipline and control model can be considered because it allows for sustainability and prudence in LGs' accounts and transcends the limitations of the centralised discipline and control model.

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Appendix:

Variables' descriptive statistics and tests:

Because the analysis refers to linked budgetary items there is a likelihood that many of these variables could embody the same information, entailing multicollinearity, which leads to biased estimations. Therefore, to detect potential multicollinearity among independent variables, the presence of any correlations has been tested using

Spearman's correlation. Table A1 shows that among the accounting variables no cross-correlation above 25 per cent exists. This means that multicollinearity is not a problem in the present analysis. Additionally, even if the dummy variables are correlated with each other, the correlation does not affect the results since they are considered to be part of different models.

Table A1. *Correlation matrix*

Variable	Issue	Issue$_+$	Issue$_1$	Tax Autonomy	Net Revenues	Current Balance	Debt To Revenues	Current Expenditure
Issue	1.0000							
Issue$_+$	0.6654	1.0000						
Issue$_1$	0.7136	-0.0481	1.0000					
Tax Autonomy	0.1133	0.0194	0.1333	1.0000				
Net Revenues	-0.2296	-0.1306	-0.1847	-0.1726	1.0000			
Current Balance	0.0302	0.0527	-0.0091	-0.0946	-0.0720	1.0000		
Debt To Revenues	0.0245	0.0515	-0.0156	0.1314	-0.3954	-0.0040	1.0000	
Current Expenditure	-0.2245	-0.1873	-0.1247	-0.0355	-0.0052	-0.1146	0.1001	1.0000

Source: Own study.

Table A2 reports the descriptive statistics of the dependent and independent variables in either the whole and the restricted samples (which consider the LGs in the years that they issued and not issued). For each variable, the mean is displayed together with the standard deviation. Among the variables that account for bond issuing, in approximately 9 per cent of the years taken into consideration LGs used municipal bonds as a source of funding; in 54 per cent of the cases LGs issued bonds only once per year (i.e., spot emission), while the remaining bonds were part of structured emission plan.

Table A2. *Descriptive statistics*

	Whole sample 801 obs		Restricted to Issuer 74 obs		Restricted to non-Issuer 727 obs	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Issue	.0923845	.0102378	-	-	-	-
Issue$_+$	.0424469	.0071279	.4594595	.0583279	-	-
Issue$_1$	.0499376	.007701	.5405405	.0583279	-	-
Financial Autonomy	.6523668	.0060089	.7515361	.0159687	.6422726	.0063014
Tax Autonomy	.4443896	.0053042	.4975212	.0157472	.4389814	.0055842

Net Revenues	.8525521	.007779	.7377355	.031514	.864239	.0078273
Current Balance	.0637081	.0017508	.0650359	.0045102	.0635729	.0018743
Debt To Revenues	.6174132	.0117416	.6294586	.0339194	.6161872	.0124732
Current expenditures	.76055	.0042592	.6786299	.0147191	.7688885	.0043324

Source: Own study.

Since there are differences between the years in which LGs issued and those in which they did not, series of statistical tests on averages were ran to investigate these cases, as reported in Table A3[13]. The results of this analysis reveal that both in the dependent variable (Financial Autonomy) and in many of the independent variables (Tax Autonomy, Net Revenues, Current expenditures), a statistical difference exists between when the bonds were issued and when they were not; however, this is not the case for other variables such as Current Balance and Debt to Revenues. With respect to these other variables, there is no statistical difference among LGs. The reason behind this may lie in the fact that whilst there is a certain discretionary margin for setting the first set of variables, LGs cannot decide on the determinants of the second set. There are strict budgetary limits in accordance with the centralised discipline and control model, such as the financing of current expenditures with capital revenues and the indebtedness limits related to current revenues, which balance the values of these variables.

Table A3. *Means analysis*

	Shapiro Wilk p-value	Jarque Bera p-value	t-Test		Wilcoxon / Mann Whitney	
			t-statistic	p-value	z-statistic	p-value
Financial Autonomy	0.00000	0.0001	-5.6544	0.0000	-5.729	0.0000
Tax Autonomy	0.00000	0.00000	-3.4101	0.0007	-3.435	0.0006
Net Revenues	0.00000	0.00000	4.8952	0.0000	6.531	0.0000
Current Balance	0.00000	0.00000	0.2365	0.8131	-0.396	0.6918
Debt To Revenues	0.00000	0.00000	-0.3271	0.7437	-0.653	0.5138
Current expenditures	0.00000	0.00000	6.9324	0.0000	6.884	0.0000

Source: Own study.

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[13]*According to normality tests, the non-parametric Wilcoxon test has been run, and t-test has been performed to robustness.*