The Political Economy of Public Debt Management

Institutional Setting and Political Influence

Inaugural-Dissertation

Zur Erlangung des Doktorgrades

der

Wirtschafts- und Sozialwissenschaftlichen Fakultät

der

Universität zu Köln

2018

vorgelegt

von

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aus

Aachen

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Tag der Promotion: 10.07.2018

Acknowledgements

This dissertation would not have been possible or ever finished without the support of many people who accompanied me during its emergence. I would therefore like to express my sincerest gratitude.

First of all, I would like to thank my supervisor Christine Trampusch for continuous support and her helpful advice, greatly exceeding the joint work, which is covered in Chapter 4 in this thesis. Our talks gave me many valuable insights into the field of political economy and I am ever again impressed by her analytical apprehension. Moreover, I highly appreciate her sympathy during the whole process of this work, also for matters outside academia. Along the same lines, I am grateful to André Kaiser for his exceptional constructive feedback especially on Chapter 3 of this thesis.

I would also like to thank Nawid Hoshmand for the great time working together, including the controversial and fierce discussions we had about our joint research project, whose results made their way in Chapter 3 of this dissertation. The research presented here profited exceedingly from feedback and helpful suggestions from Dennis Spies. His support for this thesis goes far beyond academic issues and I am very grateful for his ongoing encouragement. Furthermore, the work on this thesis was considerably eased by the kind and scientific companionship of several people from the CCCP. I would therefore especially like to thank Dennis Abel, Florian Fastenrath, Lea Kaftan, Agnes Orban, Kimey Pflücke, Holger Reinermann, Leonce Röth, Michael Schwan and Annika Wederhake for their advice, support and many humorous coffee breaks during my time at the Center. I would also like to express my deepest gratitude to Leon Kanthak who managed to share an office with me for over four years and has supported me in every possible way. Coming from a different field of research, his impressive knowledge about theories of political science was a life saver, especially in the early days. Alongside our many intense conversations about nearly every topic, I am very thankful for his companionship which made it much easier to cope with the daily challenges of research and life.

For more than a decade I am honored to be accompanied by Merih Ates, Frederik Fischer, Christoph Kaufmann and Michael Müller on my academic journey. Besides culinary adventures at the Mensa - which is by any means an institution on its own - our countless discussions about politics, academia and life in general are just a small expression of a friendship I am more than thankful for.

Finally, I am deeply grateful to my parents and my friends for their unconditional encouragement, loyalty and sustained patience. This holds particularly for Christian and Sarah, whose support is beyond words.

Contents

Chapter 1
Introduction

1 Introduction

Historically, budget policy is the parliamentary right *par excellence* and constitutes a key feature of parliamentary democracy. From the beginning of the 1970s, persistent budget deficits in almost all major OECD countries are observable and consequently resulted in a continuous increase in public debt levels. This rise in public debt became a global phenomenon of democratic capitalism and led to the era of the *debt state* (Streeck 2013). Political scientist studied the trend of rising debt levels extensively and provided several, occasionally contested, explanations for the increasing indebtedness, such as fiscal illusion, intergenerational redistribution and budgetary institutions (e.g. Alesina and Perotti 1995; Hallerberg and von Hagen 1999; Feld and Kirchgässner 2001). Far less attention has been paid to the question of how governments finance these deficits and to the accompanying consequences for the structure and administration of these debt volumes.

Simultaneously to rising debt levels, states increasingly rely on financial markets in order to (re-)finance their debts. This includes the adoption of financial market techniques, the growing reliance on marketable debt and the use of innovative financial instruments such as derivatives - a phenomenon referred to as the financialization of public debt (Fastenrath et al. 2017). Within this process, states, which have to regulate financial markets, became active participants on these international financial markets to (re-)finance public debt and current deficits at the lowest possible cost. This participation includes the attraction of investors by achieving and maintaining high credit ratings that, inter alia, include the evaluation of parliamentary and governmental fiscal decisions. By ceding this interpretational sovereignty of the common good, meaning the rating of public policy related expenditures in financial terms, to market actors a hegemony of marketable debt accrues (Lemoine 2016).

Changes in the composition of public debt can be observed on the national as well as the subnational level. Thereby governments no longer perceive debt management as an "*extension of monetary policy*" to stabilize macroeconomics aspects of the economy (Currie et al. 2003: 11) but focus on portfolio optimization to reduce debt servicing cost. In this sense, the goals of PDM changed fundamentally from macroeconomic to fiscal objectives including a clear focus on cost minimization; a process, which intertwines with the financialization and accompanies the transformation from the *debt state* to the *consolidation state* (Streeck 2015). Following the logic of this sense-making framework derived from financial economics (Fastenrath et al. 2017: 274), even municipalities make strategic use of different debt instruments which are associated to high financial risk (e.g. Diemert 2013; Junkernheinrich and Wagschal 2014; Trampusch and Spies 2015; Pérez and Prieto 2015; Pérignon and Vallée 2017).

On the national level, the increased orientation to financial markets is furthermore accompanied by substantial institutional changes in the administration of public debt (e.g. Bröker 1993: 47-51). The new objective of active public debt management (PDM)[1] by portfolio optimization is delegated to independent agencies detached from the government (e.g. Currie et al. 2003; Lemoine 2016). These debt management offices (DMOs) are equipped with a certain degree of autonomy, in order to fulfil their assigned tasks and operate as active players on international financial markets (OECD 2002: 41; Currie et al. 2003: 17; Melecky 2012). The process of delegation to specialized agencies to enhance professionalization and efficiency entails the risk of decreasing accountability and political control (Thatcher and Sweet 2002: 17; Christensen and Laegreid 2007: 501). This becomes even more relevant as the intensified orientation towards liberalized financial markets affects countries' fiscal vulnerability to adverse exogenous shocks (Currie et al. 2003: 42; Missale 2012: 169), as shown by the sovereign debt crisis. Moreover, as interest payments usually constitute large items within public budgets, DMOs' strategic PDM decisions are closely linked to fiscal and budgetary policies (Currie et al. 2003: 9; Missale 2012: 158), which represent core elements of parliamentary control and are usually heavily protected.

Taken together, the deregulation of financial markets, accompanied by the financialization of public debt and the delegation to specialized debt agencies has led to a depolitization of public debt (Lemoine 2016). Given that public budgets ultimately collateralize the associated risks involved in actively managing public debt and using innovative financial instruments, the relationship between politics and modern PDM is of major relevance for legitimacy in democratic capitalism. Therefore, the present dissertation investigates the overarching research question of the relationship between politics and PDM in several steps.

As debt instrument selection is a crucial and strategic aspect of PDM to optimize debt portfolios, chapter 2 examines the question which economic and political factors have an impact on the use and extent of short-term debt instruments on the municipal level. Finding that the municipalities' budgetary situation represents the key determining factor of their share of short-term debt, the results demonstrate the need for different approaches to grasp the phenomenon of PDM. The minor explanatory power of partisanship of the council majority and the mayor as well as the respective election results indicate that the underlying political factors might be more complex and that institutional settings also need to be taken into account which underlines the necessity for further concept formations on the political side of PDM. The results ultimately raise the question about the relationship between elected politicians and PDM and of whether or not politicians have influence on PDM at all. Consequently, chapter 3 investigates the institutional setting of DMOs

[1] The terms public debt management (PDM) and sovereign debt management (SDM) are used synonymously in this dissertation.

on the national level by analyzing the relationship between DMOs and their respective parent ministry. The analysis focusses on the variation of autonomy across countries resulting out of this delegation process. The finding that DMOs have substantial autonomy in decision-making competencies, while especially DMOs separated from the core administration are subject of relatively low reporting obligations, naturally raises doubts concerning political control. Chapter 4 consequently addresses the question whether PDM is subject of parliamentary control. The results show that parliaments have relatively low control of PDM, which indicates a trade-off between expertise and control. Moreover, this chapter underlines the necessity to differentiate between budget and debt policy and subsequently between debt level and debt structure.

1.1 Research on Public Debt Management

While there is substantial research on budget deficits and debt levels, political-economic research on PDM and the structure of public debt is rather scarce. The following chapter therefore starts with an overview of the institutional reforms and changes taken place within the last decades, including a summary of existing research on DMOs. Subsequently, this chapter reviews the literature related to the adoption of financial market techniques by states as a crucial aspect of PDM.

PDM has changed significantly within the last decades in a number of OECD countries (Currie et. al. 2003: 27). The PDM functions started as simple operational activities historically spread across different institutions, mostly central banks, ministries of finance (MoF), or central depositories (Borresen and Cosio-Pascal 2002: 18; IMF and WB 2003). These began to be reformed and bundled in specialized organizations called DMOs during the 1990s and the early 2000s (Bröker 1993; Cassard and Folkerts-Landau 2000; Currie et al. 2003). The World Bank and the International Monetary Fund define Public Debt Management as "*the process of establishing and executing a strategy for managing the government's debt in order to raise the required amount of funding at the lowest possible cost over the medium to long run, consistent with a prudent degree of refinancing and rollover risk*" (IMF 2014: 5; IMF and WB 2003). These general objectives of PDM can differ across countries with respect to their particular focus. Furthermore, depending on the level of economic development and integration, the objective of capital market development with regard to the domestic currency can additionally play an important role. In order to meet cost-saving considerations, facing high-risk profiles of countries' debt portfolios, and increasing the credibility of monetary policy, a re-definition of the PDM mandate and objectives has taken place in many OECD countries (Currie et al. 2003: 15; Wheeler 2004; Blommestein and Turner 2012). This has become a modern worldwide phenomenon (Golebiowski and Marchewka-Bartkowiak 2011: 4) and has been deemed necessary in order to assure the credibility of monetary policies and to cope with the increasing technical

challenges of financial markets (Missale 2012). At the same time, the international financial market liberalization supported this development (Missale 2012: 159) by giving governments an easier access to financial capital markets (Trampusch 2015: 3). The tasks of DMOs are to ensure countries borrowing needs, minimize borrowing costs, and assure an adequate risk portfolio (Blommestein and Turner 2012: 7; IMF 2014: 5; IMF and WB 2003) including the usage of complex and innovative financial instruments like derivatives (Piga 2001). Analogously to the change in the role, objective, and mandate of DMOs, their institutional setting within the national public sphere has changed as well (Borresen and Cosio-Pascal 2002: 17). This shift in the delegation of PDM had major implications on the institutional organization of debt management systems that consist of DMOs, MoF and central banks (e.g. Bröker 1993; Currie et al. 2003; Sieg 2013) and led to the centralization into newly created highly specialized public organizations (Cassard and Folkerts-Landau 2000).

Within this reorganization "*debt management professionalization and autonomy from political decision-making became the norm and the standard promoted by international organisations*" (Lemoine 2017: 259). This promotion is assisted by the leading economists of OECD, IMF and WB, which have a specific understanding of the implementation of public debt and function as a guideline and best-practice setter. Consequently, whether or not the created organization is located within the given departmental structures or as a separate legal entity, OECD guidelines recommend that DMOs "*should have sufficient autonomy from the political sphere*" (OECD 2002: 41). The reasons behind granting DMOs autonomy is the same rationale that is applied to central banks and regulatory agencies. Correspondingly, it can be understood that separating PDM from political processes is a crucial aspect in order to avoid perceived risks of opportunistic behavior by politicians. These might face incentives to exert political pressure to reduce short term debt servicing costs, which might imply higher risks (Currie et al. 2003: 17; Cassard and Folkerts-Landau 1997) or to avoid focusing on current deficits in order to accomplish short time goals that could bias the decisions of debt managers (Missale 2012: 173). Hereby, accountability and transparency in PDM, so the assumptions, can be achieved (OECD 2002: 41).

The delegated PDM objectives are operationalized in a strategy (IMF 2014: 24), which should incorporate the government's tolerance for risk (IMF 2014: 33). Debt managers have to filter key information used by investors and market participants and shape investors' demand and expectations through reliable debt management practices. They ensure effective market communication between the debt issuing office, the central bank and financial markets, which on its own is an important element to attract investors' interest (e.g. through issuance plans) (Blommestein et al. 2010). As the central connector between the government and the financial market, they have to maintain good contacts with domestic and foreign investors, "*to meet their*

ongoing financing needs" (ibid: 18). The aspect of autonomy is thereby perceived as the means to cope with the challenges emerging from increasingly complex financial markets. It is intended to provide DMOs with, first, more flexibility and, second, higher professionalism (Piga 2001: 17). It is widely argued and recommended that DMOs, as a central market player on sovereign debt markets, need a certain degree of operational autonomy to achieve their given tasks, implement PDM strategies, and execute PDM policies (e.g. OECD 2002: 41; Golebiowski und Marchewka-Bartkowiak 2011: 2; Melecky 2012). Furthermore, receiving discretion over human resources management enables DMOs to recruit specialized and professional staff (OECD 2002: 41). Flexibility and professionalism is also considered as a prerequisite for efficiency, since in contrast to the former conduct of PDM, emphasis started to be placed on actively managed public debt (Currie et al. 2003: 17). Risk management is a central element of it and also demands autonomy in order to improve PDM (OECD 2002: 41).

Existing research on analyzing DMOs' institutional arrangement focusses on their organizational location and formal-legal status. Other aspects of autonomy regarding the actual structural relation to the parent ministry or parliament has only been addressed rudimentarily, if at all. Currie et al. (2003) establish a concept with two different organizational types of DMOs. Either a DMO is located within the MoF, in the following ministerial DMO (MDMO), or established as a legally separated entity outside of the ministry (SDMOs). While they state that the newly established DMOs are equipped with certain degrees of operational autonomy regardless of their organizational location, this aspect is not further investigated (Currie et al. 2003: 8). Thus, it is neither conceptualized nor differentiated between different DMOs. However, incorporating principal-agent issues, SDMOs require clearer strategy settings, which implies greater need for control mechanisms. The DMO concept of Golebiowski and Marchewka-Bartkowiak (2011: 3) contains two different criteria: (1) it distinguishes between a ministerial, a banking, and an agency model depending on DMOs location; (2) the organizational status is defined by the DMOs' legal status, differentiating between legal act (outside MoF), internal document (inside MoF) and separate department (inside MoF). The importance of autonomy is mentioned with regard to DMOs' participation in financial markets on an equal rights basis towards other actors and with respect to PDM strategies as well as goal achievement but has not been operationalized (Golebiowski and Marchewka-Bartkowiak 2011: 2). Besides DMOs' location and legal status, the study describes internal and external audit aspects. Sieg (2013) also distinguishes between DMOs as part of the MoF, as a separate unit outside the MoF, and as part of the central bank. Additionally, this study includes the allocation of competencies between MoF, DMO and central bank within the PDM system, which differs across countries.

The review of existing concepts categorizing DMOs reveals substantial gaps in the understanding of their institutional setting and especially in their relationship with their parent ministries as well as the aspect of parliamentary control. A dichotomous understanding of organizational structure by differentiating between DMOs within and outside of ministerial structures is insufficient to shed light on the relationships of these organizations towards the MoF and the parliament.

The literature on agencification and delegation points out that when analyzing the process and the consequences of delegation towards public organizations, the transferred task and mandate is of importance to the underlying rationale (e.g. Thatcher and Sweet 2002; Verhoest et al. 2004; Maggetti 2007; Moe 2013). In the case of PDM, the delegated task of portfolio optimization in order to reduce debt servicing cost is directly connected to the process of financialization of the state, which means the "*the restructuring of state institutions and power in line with the growing influence of finance in today's world*" (Lagna 2016: 168). For the financialization of PDM, this implies on the one hand the adoption of financial market techniques and on the other hand, as shown above, the creation of the respective capacities by institutional change to conduct these techniques (e.g. Lemoine 2016, Lagna 2016). The adoption manifests itself through governments in two ways (Fastenrath et al. 2017: 274). First, they increasingly rely on financial markets in the governance of their debt by using market-based modes of refinancing and related financial market transactions, such as the issuance of marketable debt and the use of auctions. Second, in this context they implement ideas and models of financial economics as the sense-making framework for debt management decisions. While non-financialized PDM was grounded in classic macroeconomics of stabilizing the economy and debt management was viewed as an "extension of monetary policy" (Currie et al. 2003: 11), today, the sense-making framework of debt management is grounded in the models of financial economics (Fastenrath et al. 2017). Debt is viewed as liability portfolio, which governments seek to optimize through maturity management or the diversification of currency risks achieved by drawing on complex financial innovations like derivatives and an increasing use of marketable debt instruments. While typical non-marketable debt instruments such as foreign-currency loans, loans from financial institutions and savings bonds for personal investors are not tradable at secondary markets, marketable debt instruments that can be traded include short-term securities (mainly Treasury bills), medium-term securities or notes and long-term securities or bonds, including index-linked bonds i.e. bonds whose payments are related to a price index (Fastenrath et al. 2017: Fn. 5). This optimization is based on the calculation of cost-risk trade-offs through mathematical modelling, applying standard portfolio theory (ibid: 278-280).

The rationale of optimization is not exclusively applied to central government debt. Also on the subnational level, increasing debt levels cause increases in interest payments, which enhance existing fiscal distress. Therefore, also municipalities draw on active debt management in order to

widen their fiscal scope of action (e.g. Trampusch and Spies 2015; Fastenrath et al. 2017b). Analogously to the national level, active PDM can be subject to substantial financial risk. Research on the use of short-term debt instruments in German municipalities shows that these instruments are regularly misused by highly indebted municipalities as a permanent financing instrument (Herrmann 2011; Junkernheinrich and Wagschal 2014; Rösel 2017). In this way, short-term debt is connected to liquidity as well as roll-over risks since refinancing has to happen more often and is subject to interest rate risk (Diemert 2013: 86; Holler 2013: 52). Analyzing the use of swaps in North Rhine-Westphalian municipalities, Trampusch and Spies (2015) find that the use of these derivatives is mainly driven by economic factors. Similar developments in terms of instrument selection are observable in Spain (Pérez and Prieto 2015) as well as in France. Pérignon and Vallée (2017) show that highly indebted French municipalities are willing to issue highly risky structured loans in politically contested areas and in times of elections, thereby exposing the public budget to the risk of increasing interest payments in the future. Benton and Smith (2014) find that cost-efficiency characteristics in the instrument selection is connected to ideological partisan effects. These findings show that also subnational politicians face a trade-off between cost minimization in terms of interest payments and financial risks. Nevertheless, there is still no consensus on the extent to which political factors drive the willingness to take financial risks.

1.2 Overview of included studies

Chapter 2, titled *Municipal Debt Management: Explaining Variation in Municipal Debt Portfolios*, investigates differences in the usage and extent of short-term debt instruments in German municipalities. Previous research on subnational debt has mainly focused on the debt level, but neglected the accompanying consequences for the structure of debt portfolios. While some studies investigated possible explanatory factors for the use of specific single debt instruments, this study analyses previously unused data to assess municipalities' overall debt portfolio by its maturity structure. As short-term debt is associated with lower interest rates, it is suitable to optimize debt portfolios by lower interest payments and consequently increase a municipality's fiscal scope of action. Nevertheless, short-term debt is also connected to several financial risks such as roll-over and liquidity risks, which might endanger local public budgets. By taking into account economic as well as political variables, this study addresses the question which factors explain the usage of and extent of short-term debt instruments across municipalities.

The derived hypotheses are tested using a dataset covering 392 North Rhine Westphalian municipalities for the years 2010, 2012 and 2014. The panel covers the complete debt portfolio of the respective municipalities and contains political data on the local councils and mayors from the election results of 2009. The study develops an economic, a political and a combined model, each

of which are estimated as a probit model to analyze the general usage of short-term debt and subsequently as a tobit model to investigate the variation in the magnitude of short-term debt use across municipalities.

The analysis shows that the share of short-term debt on a municipality's portfolio can mainly be explained by economic factors, while political factors are of less explanatory power. The usage as well as the extent of short-term debt are heavily driven by a municipality's indebtedness and its reliance on non-public creditors. Moreover, the results confirm that a higher share of short-term debt reduces interest payments. This indicates that municipalities are able to reduce the fiscal burden of interest payments through short-term debt instruments. Nevertheless, the use and extent of these instruments also leads to a decrease in investment expenditures. This confirms the assumption that short-term debt discourages long-term investments.

Chapter 3, titled *Walking the Tightrope? The Autonomy of Public Debt Management Offices* investigates the relationship of DMOs towards the ministry of finance as a matter of autonomy. Based on the process of delegating PDM to newly created and highly specialized DMOs, this study constructs a multi-dimensional index to measure the degree as well as differences in the composition of autonomy across several OECD countries. While previous studies on DMOs only roughly distinguished between MDMOs and SDMOs the presented approach analyzes the organizational setting of DMOs beyond their formal legal status, which is often perceived as insufficient to assess the autonomy of public organizations. Besides the analysis of differences in the configuration of autonomy, a multi-dimensional concept of autonomy also provides insights into similarities across different types of organizations.

Based on the literature on agencification and delegation theory, this study elaborates a multi-dimensional concept of DMO autonomy divided into the broader categories *decision-making competencies* and *constraints on decision-making competencies*. Subsequently, these categories are further specified into the dimensions *managerial*, *policy*, *financial*, *interventional* and *structural* autonomy. The indicator level consists of 30 items mainly derived from research on independent regulatory agencies, central bank independence and guidelines on PDM. The index is applied to an originally compiled data set of 12 OECD countries covering DMOs that are embedded into different institutional settings.

The results show that SDMOs are on average more autonomous than MDMOs. However, the continuous distribution in the degree of autonomy indicates that the underlying organizational differences and similarities are more complex than assumed by the dichotomous perception of previous studies on DMOs. The detailed analysis reveals that SDMOs' higher autonomy is rooted

primarily in lesser constraints on decision-making rather than in decision-making competencies itself. Both types of DMOs are surprisingly homogeneous with respect to policy autonomy, which can be seen as the crucial aspect in the interaction with financial markets. Considering that MDMOs as well as MDMOs have to carry out similar tasks and execute their operations on the same financial markets, this might indicate that policy autonomy is more task than status related. In sum, this study finds that even though PDM is subject of considerable financial risks, the average autonomy of decision-making is relatively high, while particularly SDMOs have to fulfil only limited reporting and auditing obligations.

Chapter 4, titled *Variation of Parliamentary Control over Central Governments' Sovereign Debt Management* suggests an initial index for measuring the variation in parliamentary control over SDM. Against the background of countries' increasing reliance on financial markets, in order to refinance their debt burden and the accompanying financialization of SDM by adapting financial market techniques, this study analyzes variation in parliamentary control over SDM carried out by DMOs as a matter of accountability and transparency. Previous research studied variation in parliamentary control over budget policies extensively as budgetary authority is the parliamentary right *par excellence*, but neglected the question of control over the consequences resulting out of budget policy in deficit and the accumulation of debt.

Based on the literature on non-majoritarian institutions, delegation and agencification, this study elaborates a concept to measure parliamentary control and operationalize transparency and accountability within the dimensions *legal framework*, *organizational structure*, *implementation*, and *reporting*. Subsequently, it derives items from research on independent regulatory agencies, central bank independence, budgetary rules and publications on SDM. This index is applied to an originally compiled data set of 17 OECD countries, containing different types of developed capitalist economies for cross-national comparison.

The results show that parliamentary control over SDM is overall relatively low and with only minor cross-country variation. Nevertheless, taking into account different subsets of countries, the analysis reveals different ways of parliamentary control and substantial trade-offs between the analyzed dimensions of control. Moreover, this study sheds light on the relationship between parliamentary control of SDM and types of democracy, budget authority and transparency, the organizational structure of SDM as well as former central bank independence and financialization. In sum, these results indicate that parliaments seem to have only limited control over SDM policy and that it is inevitable to differentiate both between budget and debt policies and between the

level and the type of debt. Consequently, the study confirms the findings of delegation literature on the trade-off between expertise and control.

1.3 Status of studies

Municipal Debt Management: Explaining Variation in Municipal Debt Portfolios (Chapter 2) is single-authored and submitted to *Zeitschrift für vergleichende Politikwissenschaft*.

Walking the Tightrope? The Autonomy of Public Debt Management Offices (Chapter 3) is joint work with Nawid Hoshmand and has received a revised and resubmit by *Regulation & Governance*. The included version is revised. Both authors contributed equally to this study.

Variation of Parliamentary Control over Central Governments' Sovereign Debt Management (Chapter 4) is joint work with Christine Trampusch and currently under review at *Public Administration*. Both authors contributed equally to this study.

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Chapter 2

Municipal Debt Management: Explaining Variation in Municipal Debt Portfolios

2 Municipal Debt Management: Explaining Variation in Municipal Debt Portfolios

Abstract

The increasing indebtedness of subnational governments is a widely recognized phenomenon but so far research has mainly focused on the debt level while neglecting the consequences in the local debt structures. Municipalities increasingly face rising debt burdens and tackle the accompanying interest payments through changes in the instrument selection in order to optimize their debt portfolios. This active management of public debt is thereby subject to several financial risks which ultimately are secured by local public budgets. This study uses data on the municipal debt structure to investigate the economic and political factors which explain the usage and extent of short-term debt by North Rhine-Westphalian municipalities. We find that the share of short-term debt is largely driven by municipalities' indebtedness and their dependence on non-public creditors. Moreover, while municipalities are able to reduce their interest payments, the usage of short-term debt leads to a decreased share of investment expenditures. These findings confirm that short-term debt is frequently misused as a permanent financing tool which contains considerable amount of risk and discourages long-term investments.

2.1 Introduction

Not least since the financial crisis and its accompanying debt crisis public debt has received enormous attention. Besides the development of public finance on the national level, the story of public debt literally goes much deeper. Especially in federalized countries where several sovereign tasks are carried out on the municipal level, the increase in public debt is widely perceived as problematic (e.g. Bogumil et al. 2014; Junkernheinbrich/Wagschal 2014; Boysen-Hogrefe 2014; Pérignon/Vallée 2017). But while on the national level we observe an increase of public debt in nearly all high income OECD countries, the situation on the municipal level is different. The fiscal situation of German municipalities is very heterogeneous in terms of their respective deficits and thus the debt level. Given the fiscal framework, a municipality's influence on its revenues is very limited as the expenditures to fulfil their obligations are not directly connected to changes in the revenues (Boettcher 2012). Therefore many municipalities which face structural changes and economic problems tend to react to these with an increase in public debt. Highly indebted municipalities face several problems which are directly connected to their debt level. On the one hand, a higher debt level is associated with higher interest payments which limits their fiscal scope of action and consequently results in even more debt to fulfil their tasks. On the other hand, this limitation increases the pressure to reduce interest payments by optimizing the respective debt structure. While there is a considerable amount of research on the determinants of subnational debt levels, there are only a few studies aiming at an explanation for the use of specific debt instruments to refinance municipal debt (e.g. Junkernheinrich/Wagschal 2014; Rösel 2017; Pérignon/Vallée 2017). This is surprising as, analogously to the national level, subnational debt contains a considerable amount of risk (e.g. Pérez/Prieto 2015: 787). This takes especially effect for short-term debt as it is more vulnerable to liquidity crises (Guscina 2008: 5).

So far only descriptively used data on German municipal debt allows us to asses and analyze municipalities' complete debt portfolio by its maturity. Consequently, the aim of this study is to identify the determinants of the decision of using short term debt in general and which factors explain the differences in the extent of its usage.

Subnational governments and local authorities increasingly face their rising debt burdens by changes in the instrument selection in order to optimize their debt portfolios. Financial instruments are connected to financial risks which differ depending on the type of instrument. The use of marketable and/or instruments with variable interest rates is linked to the dependency on financial market developments which decreases the long-term predictability of cash-flows. Moreover, the use of foreign currency loans or credits exposes municipalities to currency fluctuations. For example, the devaluation of the Swiss franc caused substantial fiscal distress in a number of German municipalities as they used innovative financial instruments including derivatives (currency swaps)

to lower their interest rates due to higher risk premium on long-term instruments (e.g. Guscina 2008). At least theoretically, the increasing use of short-term debt instruments leads to a decrease in interest payments due to lower interest rates but at the same time an increase of liquidity and roll-over risks as future refinancing has to happen at unexpected cost (Diemert 2013: 86; Holler 2013: 52). This predisposes the debtor to a growing dependency on shifting the existing debt to the given conditions in order to repay the expiring credit or loan. Therefore municipalities are confronted with a trade-off between cost minimization and risk optimization (Birkholz 2006; Mosley 2015: 157). The use of short term liquidity debt instruments has increased massively within the last decades. Starting at nearly zero in 1990s (Rösel 2017), in 2015 NRW municipalities hold on average about 1475€ per capita in *Kassenkredite* - short term liquidity credits, the most common kind of short-term debt for German municipalities - which accounts for 53% of the total average debt per capita. Even though it was meant to be an instrument to overcome short term liquidity shortages it has become a permanent refinancing tool (Junkernheinrich/Wagschal 2014: 306). Given the variance in the composition of municipal debt portfolios, the question arises which factors explain why municipalities handle this trade-off differently. NRW is a prominent example as its municipalities hold a significant amount of *Kassenkredite* and furthermore multiple municipalities have received special transfer payments due to their fiscal distress which accounts for the tense situation. Moreover, NRW represents a competitive-democratic structure within the German federal system which is characterized by an institutional setting that favors the power and competencies of parties versus the mayor or single council members (Bogumil/Holtkamp 2013: 37ff.).

Previous studies on the structure of German municipalities' debt has mainly focused on the use of single instruments. In their study on *Kassenkredite*, Junkernheinrich and Wagschal (2014) find that socio-economic as well as political factors such as the size and polarization of the municipal council have a significant impact on the use of this specific type of instrument. Additionally, the mayor's election outcome seems to constitute a relevant factor. Studying the use of high risk structured loans in French municipalities Pérignon and Vallée (2015) also identify the fiscal and economic situation as a significant factor to determine a municipality's affinity to use financial instruments associated with high risks. Trampusch and Spies (2015) analyze the usage of derivatives for municipalities in NRW and identify the debt level as the main driver for using SWAPS. Rösel (2017) analyzes the impact of supervision on short-term deficits and finds that partisanship of fiscal supervisors and local governments influences decisions on the use of *Kassenkredite*. He shows that left-wing supervisors tolerate more short-term debt than right-wing supervisors which also holds for the partisanship of local government authorities. These studies focus mainly on the use of

financial instruments which are connected to specific financial risks. Thereby they miss the structure of the municipalities' debt portfolio as a whole.

The results show that the decision on the usage as well as the extent of short-term debt instruments is mainly driven by economic factors while political variables are of minor explanatory power. By using short-term debt, municipalities manage to reduce the budgetary burden caused by interest payment which is accompanied by a lower share of investment expenditures. This holds especially for municipalities which have to deal with a high level of public debt. Moreover, cities are in general more likely to use short-term debt.

This study is structured as follows. Introduced by a brief overview on the fiscal situation of German and especially North-Rhine Westphalian municipalities we review the respective literature and develop a theoretical framework to derive our hypotheses. Chapter 3 describes the data set and methodological considerations. Subsequently, the analysis is conducted and the hypotheses examined. This study concludes with a summary and the implications of the results.

2.2 State of research

German municipalities have to deal with a strong asymmetry in the fiscal autonomy of revenues and expenditure obligations (Diemert 2013: 85; Rösel 2017: 3) which leads to a de facto constraint on revenues (Rösel 2017: 7) while at the same time expenditure responsibilities increase due to economic crises, demographic changes and needful infrastructure investments. This limits the possibilities to generate revenues nearly exclusive to borrowing activities and consequently to an increase in public debt. As public debt is accompanied by debt servicing cost which further enhances fiscal distress on the expenditure side, many municipalities try to widen their scope of action by actively managing these debt portfolios (Trampusch/Spies 2015: 107).

Public debt management for municipalities is a rather new but advancing phenomenon. The increasing debt levels of German municipalities motivated some NRW municipalities to outsource their debt management to the WestLB in order to manage their portfolio. In 2006 the WestLB managed around 6 billion Euros of municipal debt from up to 30 different municipalities. This exemplifies the municipalities' will to optimize their portfolios and reduce interest burden (Trampusch/Spies 2015: 109). Moreover, the subsequent lawsuits between the municipalities and the WestLB with respect to financial losses out of high-risk derivative contracts impressively illustrate the financial risks involved in an active debt management.

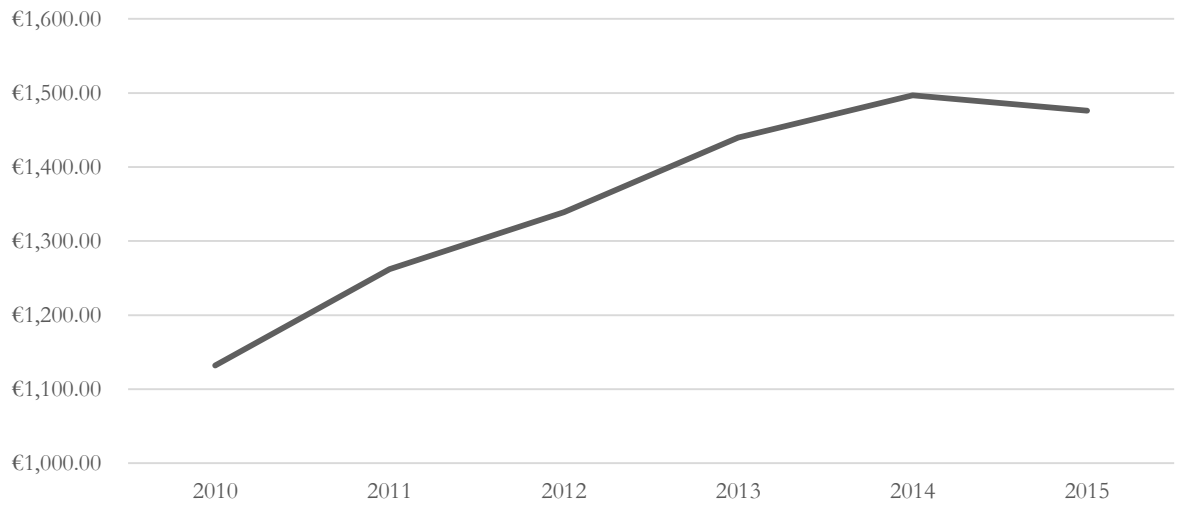
Table 1 Municipal debt per capita as Länder means in 2015

	Debt per capita	Kassenkredite per capita	in %
Saarland	3,458.82 €	2,102.84 €	61%
Rheinland-Pfalz	3,378.50 €	1,836.56 €	54%
Nordrhein-Westfalen	2,799.18 €	1,475.96 €	53%
Sachsen-Anhalt	1,394.23 €	636.28 €	46%
Brandenburg	755.61 €	302.69 €	40%
Hessen	2,950.34 €	1,055.99 €	36%
Mecklenburg-Vorpommern	1,461.66 €	465.25 €	32%
Niedersachsen	1,530.24 €	366.72 €	24%
Schleswig-Holstein	1,435.96 €	244.83 €	17%
Thüringen	914.13 €	83.09 €	9%
Baden-Württemberg	566.12 €	19.30 €	3%
Sachsen	708.60 €	23.47 €	3%
Bayern	969.63 €	14.71 €	2%

Sources: Data stems from The Regional Database Germany, "Jährliche Schulden der Gemeinden/Gemeindeverbände"(Code 71327) and „Fortschreibung des Bevölkerungsstandes"(Code 12411). Own calculation.

The extensive use of short-term debt is subject to a strong regional concentration (Geißler et al. 2017: 35), as Table 1 illustrates. NRW municipalities have on average the third highest indebtedness in *Kassenkredite* per capita which account for over 50% of total debt. It is therefore a prominent example to illustrate is phenomenon. Short-term debt was nearly irrelevant until the mid-1990s but began to sharply increase from the beginning of 2000 (Rösel 2017: 1). Within the analyzed time period this progress continued (see Figure 1) and is equivalent to a rise of 30.39% within 5 years.

Figure 1 Kassenkredite per Capita in NRW



Sources: Data stems from The Regional Database Germany, "Jährliche Schulden der Gemeinden/Gemeindeverbände"(Code 71327) and „Fortschreibung des Bevölkerungsstandes"(Code 12411). Own calculation.

The political economy of budget deficits is a widely discussed topic in political science. While on the national level a wide range of theories and studies analyze the reasons for differences in debt levels (for an overview see Alesina/Perotti 1995; Hallerberg/von Hagen 1999), the literature on subnational debt and especially municipal debt in comparison is rather scarce. This is even more the case for literature on public debt management of municipal debt portfolios. The studies of Birkholz (2006), Junkernheinrich and Wagschal (2014), Trampusch and Spies (2015) and Rösel (2017) include comprehensive overviews of the existing literature on the research topic of municipal debt and serve as a basis for the following literature review and hypothesis derivation. This includes the political economy literature on budget deficits, budget policy, public administration and public debt management. Furthermore, they show that (socio-) economic factors as well as political factors need to be taken into account to draw a comprehensive picture of fiscal activities in municipalities. We therefore divide this chapter according to these findings and derive hypothesis for economic as well as political variables.

Economic variables

Research on budget policies (e.g. Böttcher 2012) suggest and empirical studies on local public debt (Trampusch/Spies 2014; Rösel 2017; Benton/Smith 2014) show that the fiscal and economic situation (e.g. Junkernheinrich/Wagschal 2014) of the respective municipality is crucial to explain fiscal outcome and behavior. Based on the logic that a high level of indebtedness is associated with fiscal distress which encourages municipalities to reduce their interest payments, we assume a positive relation with the amount of short term debt. A high debt level is oftentimes connected with an annual deficit, due to high interest payments in relation to total expenditures and the amount of repayments. As deficits need to be refinanced and a high share of interest payments and repayments limits the fiscal scope of action, municipalities can be expected to use short term debt to reduce this costs.[2] As shown by Pérignon and Vallée (2017), the level of indebtedness accounts significantly for the use of debt instruments associated with high risks. Pérez and Prieto (2015) find that regional governments do not seek to minimize risk but contrarily react to increasing financing needs with an increase in the use of short-term debt. They link these results with the prediction that subnational governments might expect a bail-out by the central government if they fail to refinance their outstanding debt. We therefore assume a positive relationship between directly debt-related indicators of fiscal distress and the use of short term debt.

[2] Contrarily, one could also argue that a low share on interest payments is the consequence of a high share on short-term debt because of lower interest rates. Nevertheless, as explained above we derive the stated hypothesis (H3) as we assume that the limited scope of action motivates municipalities to actively change their debt portfolio.

H1: The higher a municipality's debt level in terms of debt per capita, the higher the share of short-term debt.
H2: The higher a municipality's annual deficit in terms of deficit per capita, the higher the share of short-term debt.
H3: The higher the share of interest payments on total expenditures, the higher the share of short-term debt.

The literature on *Kassenkredite* (Herrmann 2011; Junkernheinrich/Wagschal 2014; Rösel 2017) shows that even though these special instruments are meant to ensure liquidity, they are nowadays used to finance municipalities' expenditures permanently. Simultaneously, the relative use of long term debt instruments has declined. Long term debt is usually connected to medium to long-term investments which have declined within the last decade (Boysen-Hogrefe 2014). As short-term debt instruments are not a suitable strategy to carry out a sustainable investment-related budget policy because they are not connected to specific assets (Diemert 2013: 86), we assume a negative relationship between investment expenditures and the use of short term debt.

H4: The higher the quota of investment expenditures on total expenditures, the lower the share of short-term debt.
According to the literature on public debt management it is not only important to analyze which instruments are used to finance public debt but also to understand who the respective creditor is (e.g. Benton/Smith 2014). As short term debt such as *Kassenkredite* is usually lend by Sparkassen and other non-public creditors we assume that a general dependency on non-public creditors, represented by the share of non-public creditor debt on total debt, is positively related to the share of short term debt.

H5: The higher the quota of debt borrowed from non-public creditors, the higher the share of short-term debt.

Besides these budgetary and partly technical indicators, studies also have shown that socio-economic factors can have a significant influence on fiscal outcomes. They show for example that the unemployment rate affects the level of public debt (Boysen-Hogrefe 2014) or the use of specific debt instruments (Junkernheinrich/Wagschal 2014). While social security spending within the German federal system is partly carried out on the local level (Junkernheinrich/Wagschal 2014: 316) and can at least marginally be controlled by local governments (Böttcher 2012: 68), the resulting expenditures are likely to influence fiscal decision-making. In contradistinction to e.g. investment expenditures which can be deferred, municipalities do not have the right of refusal with respect to social spending.

H6: The higher the rate of unemployment, the higher the share of short-term debt.

Political variables

Several studies have shown that partisan effects impact fiscal outcomes for example due to strategic or opportunistic behavior or diverging fiscal preferences (e.g. Alt and Lassen 2006; for an overview see Eslava 2011). Even though the fiscal scope of action for municipal councils is limited (e.g. Trampusch/Spies 2015: 115) ideological differences turn out to be significant for the fiscal deficit (Rösel 2017) as well as the usage of instruments (for *Kassenkredite* see Junkernheinrich/Wagschal 2014). Furthermore, Timm-Arnold (2011) as well as Böttcher (2012) state that even if socio-economic and institutional factors are very similar, differences in the budgetary situation, namely the deficits, are observable and concludes that political decision-making has to be factored in.

While theoretical considerations on the influence of partisan effects towards debt levels predict that left-wing governments tend to accept higher debt levels (e.g. Eslava 2011), the effects on the use of different debt instruments are empirically contested. Benton and Smith (2014) identify the existence of partisan effects for Mexican municipalities. They show that right-leaning parties are not only connected to a lower per capita debt but also tend to use more cost-efficient debt instruments than left-leaning parties. A similar approach is made by Wagschal and Junkernheinrich (2014) who hypothesized that left-wing parties are using more short-term liquidity credits (Kassenkredite) than right-wing parties. Even though their results do point in this direction the effects are not statistically significant.

H7a: If right-wing parties have the absolute majority within a local council the use of short-term debt is higher.

In contrast to these findings Sáez (2016: 48) states that right-wing parties have a preference for higher expenditures on debt servicing cost to "depict themselves as being fiscally responsible" and refers to this outcome as fiscal conservatism effect. He succeeds in establishing this effect in his study on subnational debt in India. As both lines of argument and the respective findings seem to be applicable for the use of short-term debt we also derive a contesting hypothesis.

H7b: If right-wing parties have the absolute majority within a local council the use of short-term debt is lower.

Besides the municipal council, also the mayor position is involved in fiscal decision making. As Junkernheinrich and Wagschal (2014) show the mayor's partisanship influences the use of *Kassenkredite*. While left-wing mayors are likely to have a positive effect on the amount of this short-term debt instrument the opposite holds for right-wing mayors. With the reform of the municipal code of NRW in 1999 the mayor's position was considerably strengthened (Rösel 2017: 10). As Böttcher (2012) points out a strong positon of the mayor strengthens budgetary discipline and

reduces deficits. Moreover, a good election result may discourage the incumbent mayor to run fiscal risks. Given the increased importance of the mayor and the important role for local public finances of this office, we also check for party effects and election results for the position of the mayor.

H8: Right-wing mayors tend to accept a lower level of short-term debt than left-wing mayors.
H9: The better the mayor's election result the lower the share of short-term debt.

The operational aspect of municipalities' fiscal and especially borrowing activities is carried out by the treasurer. The municipal code of NRW distinguishes between a constituted and a commissioned treasurer. While the first is appointed by the municipal council the latter is directly commissioned by the mayor (Trampusch/Spies 2015: 114). According to Boettcher (2012: 71) the possibility to enforce budgetary discipline is strengthened by a high political power of the administrative, in this case the mayor and the treasurer. As a high share of short-term debt is linked to fiscal risks and difficulties in long-term budgetary planning we assume that a treasurer directly commissioned by the mayor leads to a lower share of short-term debt.

H10: If the treasurer is commissioned by the mayor, the share of short-term debt is lower.

Besides these political and institutional aspects we also want to factor in how municipalities behave with respect to public debt management decision making. Based on a survey by the Association of North-Rhine Westphalian Taxpayers in 2009 we use the decision on entering swap transactions in the past as a proxy for the willingness to take risk in order to minimize debt servicing cost. The risk which accompanies these financial transactions is prominently pointed out by several studies (e.g. Trampusch/Spies 2015; Lagna 2016; Piga 2001) and can therefore be interpreted as an indicator for financial risk attraction.

H11: If a municipality has used swaps in the past, the share of short-term debt is higher.

2.3 Data and Method

The composed data sets covers 392 municipalities in NRW for the years 2010, 2012 and 2014. All debt data is taken from a census on the debt portfolios of German municipalities provided by the Research Data Center of the Federal Statistical Office and the statistical offices of the Länder.[3]

[3] EVAS 71327 Jährliche Schulden der Gemeinden und Gemeindeverbände, 2010-2014.

This dataset contains the amount of all debt instruments hold by German municipalities and counties. To our best knowledge, this dataset has so far only been used descriptively. The dependent variable short-term debt is the sum of all short-term debt instruments with a maturity up to one year. This includes short-term liquidity credits (*Kassenkredite*), credits from the public sector (e.g. central government, state, etc.) and credits from the non-public sector (especially banks). In contrast to studies which analyze the amount of specific debt instruments or the total debt level, we do not operationalize our dependent variable as debt per capita. As we are interested to determine which factors explain the composition of municipalities' debt portfolio, we operationalize the dependent variable as the share of short term debt on total debt. Furthermore, this dataset allows us to differentiate between public and non-public creditor debt, which we operationalized as the share of non-public creditor debt on total debt.

For this panel we merged data on the fiscal situation and budgetary outcomes, the political administrative and election results as well as specific data on the municipalities' debt portfolio.

Data on fiscal and budgetary matters are taken from North-Rhine Westphalian Agency of Information and Technology's (IT.NRW) database on public finance.[4] The total amount of debt and deficits, computed as the difference of total expenditures and revenues, are coded per capita to account for the different sizes of municipalities. Payments on interest, investments and debt repayment expenditures are calculated as quotas on total expenditures while transfer represents the share of obtained transfer payments on total revenues. Furthermore we computed the unemployment rate as the share of unemployed on a municipalities' population.[5]

Political variables on the municipal council and the election results of 2009 are also taken from IT.NRW.[6] Data on the municipal administration (mayor and treasurer) stem from Trampusch and Spies (2015). Since 1999, the mayor of NRW municipalities is directly elected. Therefore, besides the party membership we also use the respective share of votes to operationalize the strength of the mayor' position by its election result. To account for party effects we code a right-wing dominance if the aggregated share of votes of CDU and FDP are above 50%. If SPD and Gruene hold more than 50% of the municipal council it is coded as left-wing dominated. Within our data sample 201 municipalities are governed by a CDU mayor and 100 by a SPD mayor while the remaining mayors have no direct partisanship. With respect to the municipal councils in 198 municipalities CDU and FDP hold the majority whereas this is only in 35 municipalities the case for SPD and Gruene. Furthermore, we combine these variables and control for cases where the mayors party also holds a majority within the city council. As the legislative period on the municipal

[4] Landesdatenbank NRW Code 71517 Vierteljährliche Kassenergebnisse, Sektor Kommunen.
[5] Unemployment statistics for the respective years are available via the Federal Employment Agency.
[6] Landesdatenbank NRW Code 14431 Kommunalwahlen – Gemeinderatswahlen.

level on NRW covers five years, the 2009 election covers the complete period of analysis. Also based on Trampusch and Spies (2015), we control for the use of SWAPS. These data is based on a survey carried out by the Association of North-Rhine Westphalian Taxpayers in 2009. Unfortunately, it is not possible to derive the specific timing of these transactions. Nevertheless, as this study aims towards and explanation for differences in the trade-off between financial risk and cost optimization, the use of derivatives allows conclusions about a municipality's general risk preference in order reduce interest rates and payments.

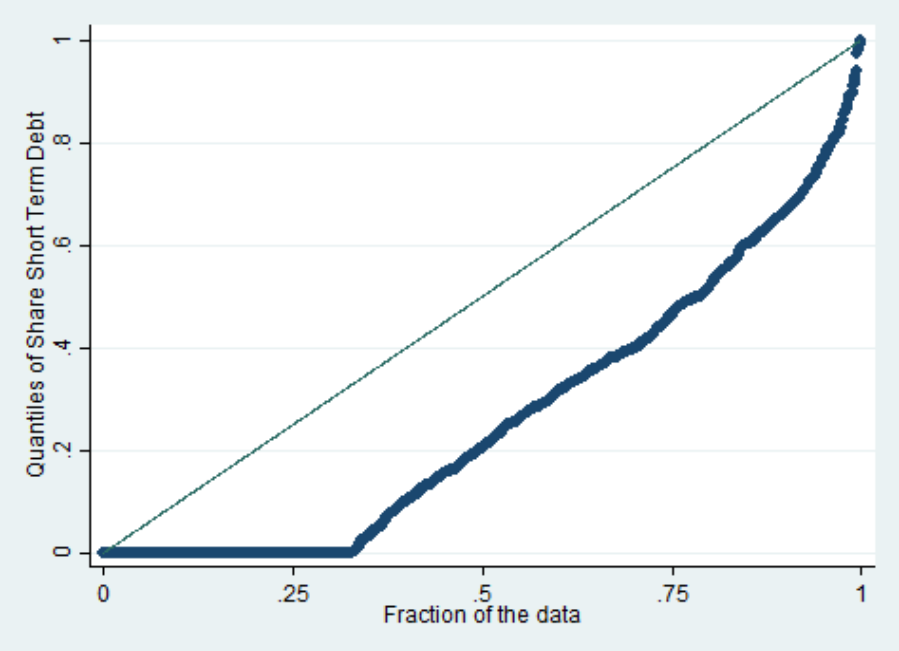
Table 2 Mean values of short term debt 2010-2014

Year	Share on Total Debt	Short-term debt per capita
2010	0.2039	533.95€
2012	0.2663	648.95€
2014	0.3248	787.05€

Source: Data stems from Research Data Center of the Federal Statistical Office and the statistical offices of the Länder EVAS 71327 "Jährliche Schulden der Gemeinden und Gemeindeverbände", 2010-2014. Own calculation.

A first view on the compiled dataset shows that short-term debt has increased within the analyzed period. This holds for the relative share on the debt portfolios as well as the amount of short-term debt per capita (table 1). For the year 2010 we identify 257 out of 390 analyzed municipalities which used short-term debt instruments. As a value above 0 in our dependent variable is only observable in 65.9% of these cases, we have to account for this left-skewed data fraction (see Figure 2).

Figure 2 Fraction of the data



Source: Data stems from Research Data Center of the Federal Statistical Office and the statistical offices of the Länder EVAS 71327 "Jährliche Schulden der Gemeinden und Gemeindeverbände", 2010-2014. Own calculation.

Following Khumawala et al. (2016) and Pérignon and Vallée (2017) who analyze the debt structure of French municipalities for the use of high-risk structured loans, we differentiate between the usage of short-term debt and the magnitude of this usage. To account for the first we use a probit model to explain on a binary level why 65.9% of the municipalities use short-term debt instruments while the rest does not. To examine why municipalities which use short-term debt differ in the magnitude of this usage we compute a tobit model left-censored at 0 and right-censored at 1. For each of the three models (economic, political, and combined) we compute both analyses with clustered standard errors at the municipal level. As we are interested in the effect sizes, we use standardized values for all non-dummy independent variables.

2.4 Analysis

Due to the number of variables that have to be tested and in order to analyze the derived hypothesis we elaborate multiple models. While the first model (M1 and M2) contains the economic aspects of this analysis the second model (M3 and M4) deals with the political variables. Subsequently, model 3 (M5 and M6) is a combination of the previously significant variables and represent the final model.[7] To account for fraction of the data (see Figure 2) and to find a satisfactory answer to both aspects of the initially raised questions, for every model we differentiate between a probit model (M1, M3 and M5) to identify the factors which explain the use of short-term debt and a tobit model (M2, M4 and M6) to explain why municipalities use short-term debt instruments to a different extent. The results are displayed in Table 3.

Economic model (M1+M2)

M1 and M2 analyze the effects of the economic variables on the use of short-term debt. The economic model shows that debt per capita and a high share of non-public creditor debt have a positive and highly significant effect on the decision of whether or not using short-term debt. The more a municipality is indebted and relies on non-public creditors, the more likely it is to use short-term debt in general. Additionally, if the municipality is a city (*Kreisfreie Stadt*) this probability is significantly increased.

[7] The displayed effects remain stable if the model is calculated as a complete model, including all previously analyzed variables.

Table 3 Regression analysis

	Economic model		**Political model**		**Combined model**	
	M1	M2	M3	M4	M5	M6
	Usage (probit)	Magnitude (tobit)	Usage (probit)	Magnitude (tobit)	Usage (probit)	Magnitude (tobit)
Economic factors						
Debt	2.282***	0.233***			2.332***	0.234***
	(0.281)	(0.024)			(0.282)	(0.022)
Non-public creditor	0.533***	0.160***			0.549***	0.156***
	(0.071)	(0.015)			(0.069)	(0.014)
Deficit	0.007	-0.013				
	(0.048)	(0.009)				
Interest payments	-0.676***	-0.097***			-0.745***	-0.106***
	(0.154)	(0.018)			(0.150)	(0.018)
Repayment	0.094	-0.006				
	(0.079)	(0.011)				
Investment expenditures	-0.279***	-0.081***			-0.262***	-0.075***
	(0.066)	(0.013)			(0.064)	(0.012)
Transfer revenues	-0.031	0.008				
	(0.063)	(0.006)				
Unemployment	0.043	0.018				
	(0.095)	(0.015)				
Political factors						
CDU/FDP majority			-0.482**	-0.140**	-0.241	-0.047
			(0.168)	(0.046)	(0.139)	(0.026)
CDU mayor			0.128	-0.023		
			(0.189)	(0.043)		
Independent mayor			-0.030	-0.034		
			(0.207)	(0.055)		
Mayor election			-0.017***	-0.004***	-0.009	-0.002*
			(0.005)	(0.001)	(0.004)	(0.001)
Congruence			-0.052	0.022		
			(0.197)	(0.048)		
Treasurer			-0.174	-0.035		
			(0.137)	(0.035)		
SWAPS			0.623***	0.134***	0.243	0.037
			(0.128)	(0.033)	(0.146)	(0.026)
city	1.640***	-0.130	1.267**	0.239***	1.560***	-0.144*
	(0.271)	(0.070)	(0.390)	(0.055)	(0.221)	(0.070)
_cons	1.132***	0.191***	0.632***	0.246***	1.254***	0.215***
	(0.130)	(0.013)	(0.166)	(0.046)	(0.177)	(0.023)
sigma		0.258***		0.331***		0.257***
_cons		(0.011)		(0.012)		(0.010)
N	1169	1169	1169	1169	1169	1169
pseudo R^2	0.441	0.551	0.146	0.176	0.454	0.565

Sources: Research Data Center of the Federal Statistical Office and the statistical offices of the Länder EVAS 71327 "Jährliche Schulden der Gemeinden und Gemeindeverbände", 2010-2014. Landesdatenbank NRW Code 71517 "Vierteljährliche Kassenergebnisse, Sektor Kommunen", 2010-2014. Federal Employment Agency unemployment statistics 2010-2014. Landesdatenbank NRW Code 14431 Kommunalwahlen – Gemeinderatswahlen. Trampusch and Spies 2015.

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Our hypothesis on the level of indebtedness (H1) is confirmed by these findings which are in line with previous results on the role of debt level for the use of high-risk associated debt instruments (Trampusch/Spies 2015; Khumawala et al. 2016) and especially of short-term debt instruments (e.g. Junkernheinrich/Wagschal 2014; Rösel 2017). The effect size demonstrates the importance of this factor for the decision-making to use short-term debt as well as the magnitude. The effect of non-public creditor share points in the expected direction and affirms our assumption (H6) that an increased dependency on non-public creditors increases the share of short-term debt on the total debt portfolio.

Even though the variables deficit, share of repayments on expenditures and the unemployment rate have a positive coefficient these effects are rather small and statistically not significant. Although we expected a positive relationship between the annual deficit and the share of short-term debt (H2), our results do not support this assumption. This indicates that even though short-term credits are meant to fill in for liquidity shortages the usage as well as the magnitude is independent from the current budgetary situation and confirms Birkholz's (2006) statement that especially *Kassenkredite* are nowadays diverted from its intended use towards a permanent financing instrument.

Contrarily, the share of interest expenditures on total expenditures as well as the share of investments on total expenditures have a negative and highly significant effect on the probability of using short-term debt instruments as well as the extent of usage. The quota of received transfer payments does not affect the share of short-term debt. The effect of the share of investments on total expenditures is theoretically to be expected (H4) and confirms the assumption that sustainable long-term investments activities are negatively associated with short-term debt credit financing.

The negative effect of interest payments is surprising. On the one hand, it confirms the considerations of reducing interest payments by the use of short-term instruments, on the other hand it contradicts the hypothesis that municipalities which face a budget limitation due to high interest payments are more likely to use instruments associated with low servicing cost (H3). As the result is highly significant, it seems that due to cost minimization the effect of using short-term debt instruments reduces budgetary constraints due to interest payments. This confirms our initially raised assumption that municipalities are willing to significantly increase their vulnerability towards short-term changes in interest rates in a trade-off to lower interest payments in order to increase their fiscal room to move.

All of the significant effects persist in the tobit model (M2) which analyses the magnitude of using short-term debt instruments. Surprisingly, the city effect changes its impact from positive to negative. So, the probability of using short-term debt in general is increased if the municipality is a city but the magnitude of this usage compared to the total debt portfolio is decreased. A highly

indebted city, which finances its debt by non-public creditors while spending less on investments and interest payments is likely to use short-term debt instruments.

Political model (M3+M4)

The models M3 and M4 show the effects of political factors on the usage and extend of short-term debt instruments. The coefficients on the variables CDU mayor and the previous use of swaps are positively associated with short-term debt, but only the latter is statistically significant. This confirms our hypothesis (H11) that municipalities which use derivatives, in this case swaps, also are more likely to engage in risks which may result out of short-term indebtedness. On the other hand usage and magnitude of short-term instruments are negatively related with a right-wing majority in the local council and a strong position of the mayor. These effects are highly significant in both models. The result for the effect of party effects sheds light to our contested hypothesis (H7) about the role of parties in the choice of debt instruments. Similar to previous results on the use of *Kassenkredite* and the effects on the debt level, right-wing majorities decrease the probability and the extent of short-term debt. One the one hand, this finding supports Saez' (2016) argument of fiscal conservatism according to which right-wing parties are willing to accept higher debt servicing costs. One the other hand this results contradicts the theoretical expectation that right-wing governments prefer less public spending which would lead to a higher share of short-term debt in order to reduce interest payments. In the case of public debt management, it seems that this does not hold if debt instruments imply budgetary risks.

Although the mayor's partisanship does not have a significant influence on short-term debt, the mayor's election result has a small but statistically significant negative effect on the use and the extent of short-term debt (H9). This indicates that a mayor whose position is strengthened by the election result is less interested in minimizing debt servicing cost but more aware of the accompanying risks which, in case of occurrence, could endanger a possible reelection. Nevertheless, party congruence between the mayor and the council majority does not affect the share of short-term debt significantly.

The treasurer's status has a negative effect on the use and the extent of short-term debt if the treasurer is constituted by the council, even though this effect is not statistically significant. Contrarily to the economic model, the city dummy is positive for the magnitude of short-term debt, which means that in this model the effect of a municipality being a city not only increases the probability of using short term-debt instruments but also increases the share of these instruments within the overall debt portfolio.

Combined model (M5+M6)

The combined model (M5 and M6) brings together the significant factors from our economic as well as political considerations. With respect to the economic model all effects remain significant for the usage as well as the magnitude of short-term debt. Nevertheless, combining both models leads to a decrease in significance of the political factors. Moreover, the effect sizes decrease considerably. This is in line with the result of previous studies taking into account economic as well as political factors which mostly conclude that the debt level and the usage of risk associated debt instruments is mainly driven by economic factors (e.g. Trampusch/Spies 2015). In the final model only a strong election outcome of the mayor still has a significant negative effect on the extent short-term debt usage.

In sum, the combined model confirms our previous results that indebtedness, a dependency on non-public creditors and a certain risk attraction approximated by the previous use of derivatives increases the usage and the extent of short-term debt instruments while the share of interest payments and investment expenditures from the budgetary side as well as a strong election result of the mayor have a negative effect.

2.5 Conclusion

In this study we analyzed the variation in usage and extent of short-term debt instruments across municipalities in North-Rhine Westphalia. We find that the share of short-term debt heavily depends on a municipality's indebtedness and the reliance on non-public creditors. Moreover, it is negatively connected to the share of interest and investment expenditures. From a political perspective, a right-wing majority within the municipal council and a strong election result of the mayor decreases the probability of using short-term debt and its extent, while the previous use of swaps as an indicator for risk attraction increases the probability of short-term debt usage and its magnitude. Nevertheless, the explanatory power of our political variables is small as these political effects disappear when economic and political factors are combined.

Our findings have several implications for public debt management of municipalities. We show that the use of short-term debt instruments is associated with a lower share of interest payments on the municipalities' budget. This in line with our assumption that municipalities use the lower interest rates on short-term debt instruments to reduce their budgetary expenditures. Nevertheless, the reliance on short-term debt decreases predictability of future interest expenditures because of their dependency on refinancing. This increases the vulnerability to changes in interest rates dramatically while also shortening the time to react to these changes. This holds especially for highly indebted municipalities which have to refinance a significant amount of debt on a regular basis. As economic factors turn out to be the main drivers for using short-term debt, it is not to be

expected that this progress will significantly change within a short time. In combination with the negative impact on investment expenditures, the fiscal distress of NRW municipalities is more likely to tighten up even more as a high level of indebtedness makes it difficult to conduct long-term investments for example in infrastructure which could improve their fiscal performance in the future. Given these findings and previous research on municipal debt structure, it has to be stated that a certain misappropriation of short-term debt instruments is observable. In sum, the underfinancing of municipalities and the missing autonomy on shaping expenditures and revenues leads to optimization of debt portfolio and the use of innovative financial instruments like derivatives to reduce debt servicing cost. This may add to the risk of local public budgets which are in the end financed by taxpayers.

From a political perspective, we assume that political variables may have altering effects in different *Länder* as NRW is an example for a competitive-democracy which is characterized by more powerful parties and local councils to the disadvantage of the mayor (Holtkamp 2006; Bogumil/Holtkamp 2013). This would explain why the analyzed mayor variables have only slightly or no effect on the share of short-term debt. Nevertheless, the explanatory power of all political variables is considerable low which indicates that the chosen variables do not grasp the phenomenon entirely and therefore do not allow to draw conclusions about the causal factors behind municipal debt management. Further research should extend the period of time as well as municipalities from different states to account for institutional differences. This holds especially with respect to auditing aspects as pointed out by Rösel (2017) for local debt in NRW. As we could identify a relationship between the share of non-public creditors and the share of short-term debt, research on the influence and structure of the banking sector might provide valuable knowledge about the variance of municipal debt portfolios. Furthermore, research on the use of long-term debt instruments with floating and variable interest rates is needed to assess the degree of municipalities' dependency and vulnerability towards interest rate changes on financial markets as shown by Pérignon and Vallée (2017) for French municipalities.

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Chapter 3

Walking the Tightrope? The Autonomy of Public Debt Management Offices

3 Walking the Tightrope? The Autonomy of Public Debt Management Offices

(Co-authored by Nawid Hoshmand

Abstract

Existing research on public debt has largely neglected the institutions governing its management. This article is the first to provide data and conceptual footage on the multidimensional autonomy of public debt management offices (DMOs) which actively operate in financial markets to refinance public debt and raise funds to meet public financial needs. While autonomy from the political process is deemed necessary to fulfil their assigned tasks effectively, less political control can imply substantial budgetary risks. Countries apparently handle this trade-off very differently as we find variance in overall DMO autonomy. Disaggregating the measurement unfolds that DMOs separated from departmental structures have more decision-making competencies while also being less controlled by ex-post reporting obligations. However, regarding policy autonomy which represents the leeway in interacting with financial markets all DMOs, independent from their legal status, score equally high which raises further questions for the democratic legitimacy of modern public debt management.

3.1 Introduction

Since the 1980s, the deregulation of financial markets has furthered their international integration and provided governments with easier access to international capital (Trampusch 2015: 3). These developments have also been accompanied by ever-increasing degrees of sophistication and complexity in financial management, as well as a higher level of competition with which governments have to cope. In many other policy fields, a similarly shifting environment has induced governments to introduce changes to their mode of governance which have included institutional and organizational rearrangements that in some cases contained delegation of competencies to newly established entities. Prominent examples are national regulatory competencies, redesigned into agencies with some degree of autonomy (Thatcher 2002). These autonomy augmenting processes, however, inherently bear a critical relationship. On the one hand, granting autonomy is not only prerequisite to creating credible policy commitments and avoiding political uncertainty, but is also deemed necessary to pursue policies in complex environments more effectively and efficiently by enhancing professionalism and flexibility (Thatcher 2002: 132). On the other hand, lack of political control over policy implementation raises concerns regarding accountability and democratic legitimacy (Verhoest *et al.* 2004).

As with other state competencies, the way public debt was managed was changed primarily because of the growing complexity of the environment. Many governments in OECD countries deemed institutional reforms in public debt management (PDM), particularly the creation of highly specialized debt management offices (DMOs), necessary to cope with the increasing technical challenges of financial markets (Missale 2012) and to adopt innovative financial market techniques, such as the use of derivatives (e.g. Fastenrath *et al.* 2017). The World Bank, IMF and OECD which function as international best practice and guideline setters for PDM recommend a certain degree of autonomy from the political sphere in order to execute debt policies on financial markets more professionally and efficiently (Cassard and Folkerts-Landau 1997; Currie *et al.* 2003: 17; OECD 2002: 41). That said, the institutional design of DMOs is far from being homogenous which already manifests itself in the selected legal status. Some countries delegated PDM to DMOs located within the departmental structure of their ministry of finance or treasury (MDMOs) while others created agencies outside the given governmental body (SDMOs).

The delegated market-oriented management of the sovereign debt portfolio might involve substantial risk-taking on behalf of the state and is potentially detrimental to the public budget, which is predominantly a sovereign right of the parliament. Consequently, it is striking that political science research has not yet provided a differentiated assessment of the autonomy of DMOs beyond a superficial distinction between MDMO and SDMO (e.g. Currie et al. 2001; Golebiowski

and Marchewka-Bartkowiak 2011). Given that all DMOs fulfill the same core task, refinancing public debt at lowest possible cost, and that all are active and even compete on the same international financial markets the questions arise whether the degree of autonomy differs between DMOs within and DMOs outside departmental structures and if so which characteristic differences in autonomy result from their varying institutional settings?

With the creation of professionalized DMOs, delegation as a key characteristic of global regulatory capitalism (Levi-Faur 2005) has also become a main feature of modern PDM in most OECD countries. In this study we link considerations on independent regulatory agencies (IRA) and central bank independence (CBI) from delegation theory with the literature on agencification. While delegation theory (e.g. Thatcher and Sweet 2002; Gilardi 2002; Maggetti 2007; Hanretty and Koop 2013) is suitable to describe the delegation of crucial tasks from the political sphere towards independent agencies and provides a solid theoretical basis to assess these organizations, we use the literature on agencification (e.g. Verhoest *et al.* 2004; Moe 2013; van Thiel and Yesilkagit 2014) to describe and analyze the competencies delegated to DMOs as these are not regulatory but executive in nature. Even though DMOs do not regulate, but actively participate at financial markets on behalf of the state, the rationale behind the process of delegation is quite similar. A higher or lower degree of autonomy from the political sphere mediates credibility towards financial market actors with regard to a consistent debt management strategy while the increasing complexity of financial markets and its instruments requires a significant amount of expertise which might be difficult to establish within the government itself.

Derived from these theoretical considerations we elaborate a multi-dimensional measurement concept for DMO autonomy which is especially valuable for analytical purposes (Hanretty and Koop 2013: 199). Applying a multidimensional concept of autonomy contributes to our knowledge about DMOs' autonomy beyond the formal legal status which is often criticized as being an insufficient measure of autonomy (e.g. Maggetti 2007; Verhoest *et al.* 2004; Bach 2014) and seldom match with factual autonomy (e.g. Yesilkagit and van Thiel 2008). Moreover, by ascertaining the composition of autonomy we are able not only to map the specific combination of granted competencies and imposed constraints but also to identify the underlying factors of similarities and differences. In this way we seek to take account of the discrepancy between the almost identical highly technical tasks DMOs execute in common markets and the present variety of formal status and institutional settings.

We find that DMO autonomy is continuously distributed and more complex than stated by previous studies, although SDMOs are on average more autonomous than MDMOs. Thereby SDMOs' higher autonomy manifests itself mainly in looser constraints on self-determined decision

making rather than in decision-making autonomy itself. Surprisingly the degree of DMOs' policy autonomy is nearly equivalent, independent from the legal status. Moreover, our results show that despite the inherent risk of the delegated task the average autonomy of decision-making is relatively high, while especially SDMOs only face a low degree of reporting and auditing obligations.

The paper proceeds with a brief summary of institutional reforms in PDM and a review of what little coverage it has attracted in the literature. Second, we discuss general theoretical considerations from delegation theory and agencification literature of independent regulatory agencies and other state agencies to derive hypotheses about the DMOs' autonomy and its composition. Third, out of these theoretical considerations we elaborate a multi-dimensional concept of DMO autonomy and derive indicators mainly from the IRA and CBI literature. Fourth, we provide a descriptive analysis of the data and close with a conclusion.

3.2 Institutional reforms in public debt management

Public debt management (PDM) functions used to be simple, rather passive operations (Currie *et al.* 2003: 15), historically spread across different institutions – typically the ministry of finance (MoF),[8] the central bank or a central depository (Borresen and Cosio-Pascal 2002: 18; IMF and WB 2003). They were predominantly driven by macroeconomic welfare considerations, such as tax smoothing (Fastenrath *et al.* 2017). However, with the increasing sophistication and international integration of financial markets, the deteriorating credibility of the separation between monetary and debt policy, and the rising risk and cost profiles of public debt portfolios, many OECD countries deemed it necessary to redefine the institutional and organizational mandate of PDM (e.g. Blommestein and Turner 2012; Currie *et al.* 2003; Wheeler 2004).

Starting in the late 1980s, a paradigm shift to cost-risks optimization approaches that mimic portfolio-management practices in the private sector took place (Currie, *et al.* 2003: 15). Accordingly, tasks previously distributed among various public organizations were centralized into highly specialized debt management offices (DMOs) (Currie *et al.* 2003; Piga 2001) which were organizationally located within or outside of the MoF (Borresen and Cosio-Pascal 2002: 17). All PDM functions were bundled into highly specialized DMOs. In either way, since then DMOs have actively operated in financial markets on behalf of governments with a closer market focus (Wolswijk and de Haan 2005: 4). This meant that not only the personnel from but also the practices common to private financial institutions, such as the use of innovative and sophisticated financial

[8] Note that we use the term 'ministry of finance' regardless of the country-specific name for the ministry commissioned with the affairs of public finance.

instruments like derivatives or debt buy-back transactions, had been accommodated, all with the aim to optimize cost–risk structures of public debt portfolios (Fastenrath *et al.* 2017).

Greater technical efficiency and professionalism in the DMOs were regarded as imperative for success and were to be achieved by separation from the 'political process' (Cassard and Folkerts-Landau 1997). This would enable debt managers to shake off bureaucratic shackles and achieve managerial goals like attracting and hiring qualified staff (Currie *et al.* 2003: 16), thus furnishing the necessary analytical capacity (Borresen and Cosio-Pascal 2002: 1). Second, operating procedures could be more flexible (Piga 2001: 17), establishing an environment conducive to the quick decision-making demanded by the dynamics of financial markets (Currie *et al.* 2003: 16). Third, DMOs would be spared political pressures that focus, especially in times of crises (Missale 2012: 173), on reducing short-term debt-servicing costs in order to relax budget constraints at any price (Cassard and Folkerts-Landau 1997; Currie *et al.* 2003: 17). Indeed, the OECD guidelines on PDM recommend that DMOs 'should have sufficient autonomy from the political sphere' (OECD 2002: 41).

However, DMO autonomy might evoke principal–agent problems detrimental to public financial management. First, greater independence from the principal, the MoF, might induce a DMO to prioritize its own interests instead of working on the best outcome for its ministry. It might become too focused on trading activities and attach too much importance to its status in the eyes of its financial counterparts, such as investment banks (Magnusson 2001: 12). It might, greater professional expertise notwithstanding, underestimate or even ignore some aspects of fiscal risks (Magnusson 2001: 13), violating the premise of incorporating the government's tolerance for risk at all times (IMF 2014: 33). These aspects became even more problematic when DMOs started to use sophisticated debt instruments that entail higher contingent risks (Piga 2001). Second, DMO autonomy might imply an incremental loss within the MoF of competence and knowledge about financial markets that are of great importance for matters like privatization of state-owned companies or law reforms affecting the bond market (Magnusson 2001: 13). Hence, governments, and especially MoFs, have to decide carefully how autonomous DMOs should be, given how closely their activities and responsibilities are intertwined with those of the MoF.

3.3 Theory and hypotheses

Autonomy of public organizations which carry out public services or tasks is a widely discussed research area in several fields such as delegation theory as well as the literature on agencification. The most prominent examples of studying delegation theory are research on central bank independence (CBI) and the autonomy of independent regulatory agencies (IRA). While delegation

theory explains delegation of competencies by solving problems of time inconsistency (e.g. Eckert 2017) and credibility (e.g. Thatcher and Sweet 2002), the literature on agencification emphasizes the importance of performance and efficiency gains due to specialization (Verhoest *et al.* 2004: 101). Even though the described process of reforming PDM by delegating this crucial tasks to professional and highly specialized public organizations shares many similarities with central banks and IRAs the delegated task itself differs substantially which impacts the underlying logic of delegation towards autonomous public organizations. As DMOs do not regulate financial markets but execute policies agencification seems to be a more suitable framework for DMOs at first glance. Nevertheless, even though delegation theory might not be suitable to explain the delegation of PDM towards DMOs it is suitable to provide a solid theoretical framework to describe and analyze public organizations' characteristics and the process of delegating competencies from the political sphere towards (autonomous) public organizations. As this study's aim is to analyze how delegation of PDM to public organizations which vary in their institutional setting impacts DMO autonomy we link the literature on agencification with considerations out of delegation theory. While the literature on agencification helps us to understand the motives of delegation, delegation theory provides the theoretical framework on how to analyze autonomy.[9]

The definition of an agency varies substantially across countries and political systems (Roness 2009: 1). A commonly used definition is provided by Thatcher and Sweet (2002: 3) who define non-majoritarian institutions as "*governmental entities that (a) possess and exercise some grant of specialized public authority, spate from that of other institutions, but (b) are neither directly elected by the people, nor directly managed by elected officials"*. While this broad definition focusses mainly on the separation of the organization from processes of election a finer grained summarization for agencies is given by Roness (2009: 1) who characterizes agencies as bodies of public law which are "*structurally disaggregated from the core of their ministry*", possess a certain degree of autonomous decision-making power while being under some control from ministries but expecting continuity over time and dispose of own resources. Moe (2013: 1162) describes the legislature's decision to create an agency as a *make or buy decision* while highlighting that there is always the possibility of internal production. Therefore, the decision to delegate is a calculation of costs and benefits. In that sense costs refer to the possibility of deviation between the outcome intended by the elected officials and the actual generated outcome by the agency, the so called *agency loss* (Thatcher and Sweet 2002: 4). The benefits from delegation, on the other hand, are seen in the possibility of better policy outcomes (e.g. Verhoest *et al.* 2004: 102). To prevent the first political control is needed, while the latter requires a certain degree of

[9] Even though these literature strings are not completely distinct from each other, the literature on delegation towards central banks and IRAs focusses on the regulatory aspect of delegation, while agencification and delegation to non-majoritarian institutions is a broader approach which can also be applied to public organizations which are of executive nature.

autonomy. This relationship results in a complex trade-off between political control and agency autonomy (Christensen and Lægreid 2007: 502) to ensure the agency's ability "*to use its expertise effectively*" (Moe 2013: 1160). Empirical studies on the autonomy of agencies show that this trade-off and the resulting degree of autonomy vary substantially across countries, sectors and even within sectors (e.g. Gilardi 2002; Verhoest et al. 2010; Eckert 2017).

Analyzing autonomy also involves the relationship between de-jure and de-facto independence which is contested as these seldom match. Studies analyzing these relationships find that higher formal independence does not automatically involve higher de-facto independence (e.g. Verhoest *et al.* 2004; van Thiel and Yesilkagit 2014). Besides the question of generalizability of this finding across countries and especially sectors with different regulatory or executive tasks (including the question of different types of public organizations) the underlying definition and operationalization of these terms differ substantially. De-facto independence of IRAs in delegation theory can be defined as political independence (Hanretty and Koop 2013: 196) which means "*the degree to which the agency takes day-to-day decisions without the interference of politicians*". Even though this definition of de-facto independence is quite convincing, empirically it requires that these daily business decisions and operations need to be observable. This holds especially if independence from politicians is considered unidimensional as stated by Hanretty and Koop (2013: 199). However, they also admit that besides this consideration a distinction between different aspects of independence can be valuable for analytical purposes. A different conceptualization of analyzing independence can be based on decision-making autonomy. Verhoest et al. (2004) distinguish between autonomy defined by decision-making competencies and autonomy resulting from the absence of constraints on decision-making. While the first refers to the shift of competencies towards the agency and reduction of (ex-ante) approval requirements, the latter describes possible constraints due to financial dependency, a governmental majority in supervisory boards or simply the possibility to intervene ex-post by sanctions (Verhoest *et al.* 2004: 104ff.). This understanding of autonomy as a multi-dimensional concept is taken up in several studies which identify the formal-legal status as an insufficient characteristic to describe the relationship between public organizations and their parent ministries (e.g. Verhoest *et al.* 2004; Pollitt 2005; Maggetti 2007; van Thiel and Yesilkagit 2008; van Thiel and Yesilkagit 2014; Bach 2014). Consequently, the concept provided by Verhoest et al. (2004) captures these considerations and state that autonomy can be composed of different aspects of autonomy such as managerial, policy, financial, legal, interventional and structural (e.g. Verhoest et al. 2004). Moreover, perceiving autonomy as multi-dimensional implies that "*different combinations of agency autonomy are possible*" (Bach 2014: 344).

Applying these theoretical considerations to DMOs as public organizations has some implications for the construction of an appropriate theoretical framework for DMO autonomy: (1) Even though

the relationship between politicians and agencies might be unidimensional in practice (Hanretty and Koop 2013) for the analytical purpose of examining the impact of different institutional settings on DMO autonomy a multi-dimensional concept of autonomy is needed to identify varying combinations of agency autonomy across different types of DMOs. (2) De-jure independence of public organizations can differ substantially from its de-facto independence. Therefore, using the formal-legal status without considering de-facto independence is insufficient to analyze the relationship between DMOs and the MoF. (3) Concepts of de-facto independence from the delegation theory on IRAs are not directly transferable towards DMOs as the nature of their day-to-day decision-making is not regulatory but executive in nature. In contrast to decisions on market regulation, DMOs daily operations on financial markets are usually subject of non-disclosure. We therefore follow Verhoest et al. (2004) concept of autonomy that is differentiated between autonomy as the level of decision-making competencies and autonomy as the exemption of constraints on the actual use of decision-making competencies.

Taking these considerations into account we formulate three hypotheses that associate the legal status with the overall autonomy as well as with specific components of autonomy. Although formal-legal status is criticized for being insufficient as a standalone characteristic does not automatically lead to its irrelevance (Hanretty and Koop 2013: 197). Given that DMOs which are located within the MoF are organizationally closer to the core administration and elected politicians, their formal-legal status is less autonomous in comparison to DMOs outside the MoF. From a delegation perspective, the delegated task towards a non-majoritarian institutions is some steps down the *chain of delegation* (Pollack 2002: 215). We therefore assume that:

H1: DMOs within the MoF have an overall lower degree of autonomy.

The process of delegation to non-majoritarian institutions such as agencies typically involves transferring a mandate towards the agency. The delegator thereby tries ex-ante to shape this mandate as precise as possible to prevent agency losses (Eckert 2017: 2). As a result the delegated task is more explicit because of clearer objective settings (Thatcher and Sweet 2002: 19).

H2: SDMOs have less autonomy in policy making due to a more explicit mandate and objective setting.

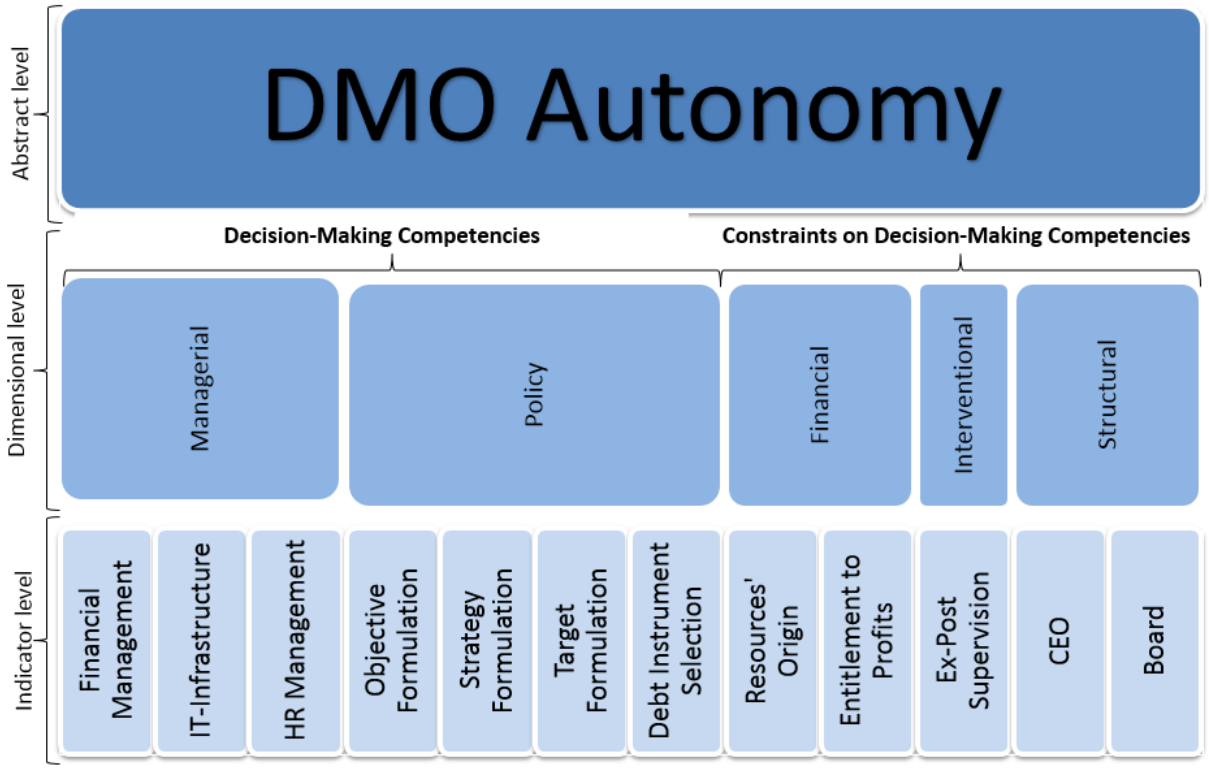
Thatcher and Sweet (2002: 19) state that agencies are obliged to justify their decision-making and to publish information. Reporting obligations in that sense can be seen as a form of an ex-post control instrument for agencies (Verhoest *et al.* 2004: 106) in order to ensure that the delegated task is carried out in the way the delegator intended to. Hanretty and Koop (2013: 207) find that organizations with higher formal independence, in this case DMOs outside the MoF, are subject to more reporting obligations.

H3: SDMOs have to fulfill greater reporting obligations which enhances ex-post control and leads to less interventional autonomy.

3.4 Conceptualization of DMO autonomy

Since there is still no generally accepted methodology on how autonomy should be conceptualized and operationalized (Gilardi and Maggetti 2011: 212; Irian and Ledger 2013: 3), we elaborate a systematic concept of autonomy for DMOs, following Goertz (2006) by conceiving it as a multilevel construct. Based on the theoretical considerations on delegation theory and agencification we elaborate a multi-dimensional concept of DMO autonomy that allows us to analyze variation not only within the same formal legal types, but also across and on single dimensions of autonomy (Verhoest *et al.* 2004: 110). At the indicator level we derive items analogous to studies on central bank independence, independent regulatory agencies and state agencies as these research fields similarly focus on highly specialized bodies that hold extensive public authority while enjoying a certain degree of autonomy in the public sector. We identify the main characteristics attached to the various concepts of autonomy in the literature, systematically examine them at every level and address their application to DMOs. Figure 1 presents our resulting DMO concept, consisting of five dimensions with their respective indicators.

Figure 3: Concept structure of DMO autonomy



3.4.1 Abstract level

Although concepts of autonomy carry various labels in different academic fields, their constructions at the abstract level are aimed at explaining the same constellation (Maggetti and Verhoest 2014: 2). Regardless of whether it is framed as 'independence' (e.g. Grilli *et al.* 1991), 'discretion' (Gilardi and Maggetti 2011: 211–13) or 'bureaucratic autonomy' (Maggetti and Verhoest 2014: 1), the continuum between the negative and positive poles of the concept is described by the extent to which preferences are endogenously formed by the organization itself and translated into authoritative actions without external constraints imposed by politicians or other actors (Gilardi and Maggetti 2011: 211–13; Maggetti 2007: 272; Maggetti and Verhoest 2014: 239). We use the term 'autonomy', but refrain from adding adjectives (such as 'bureaucratic'), because they might induce its perception as a subtype with altered concept intension and extension (Goertz 2006: 76ff).

In principal–agent terms, studies of central bank independence regard the government as the relevant actor (Arnone *et al.* 2006), while the literature on the independence of state agencies additionally endorses the idea of multiple political principals (e.g. Wonka and Rittberger 2010), as well as the agency's capture by non-political counterparts (e.g. Gilardi and Maggetti 2011). Since PDM functions exert a strong influence on the business of and are closely intertwined with the responsibilities of the MoF, it is important to focus on DMOs' relation to their respective MoF to account for the political ties attached to them.

3.4.2 Dimensional level

Each concept is defined by its constitutive dimensions, which function as a theoretical linkage between the abstract basic level and the concrete indicator level (Goertz 2006: 242-53). The dimensions can be clustered into two groups: the first deals with the decision-making competencies of an agency, while the second relates to how far the government might constrain the use of these autonomous rights. The systematic approach of Verhoest *et al.* (2004), largely building on Christensen (1999), not only underlines the importance of distinguishing between these two areas, but also differentiates within them, as shown in Figure 1.

Decision-making autonomy results from the shift of competencies from the government to the agency that are concerned with the agency's internal operational and organizational management. The agency's autonomy is thereby enhanced since the extent of ex-ante controls and approval requirements is reduced (Verhoest *et al.* 2004: 104). As a complementary part, constraints on decision-making competencies takes into account to what extent an agency can effectively use the delegated competencies without governmental interference. Financial dependence on central budget resources, the government's ability to appoint or dismiss the agency's head as well as

structural political influence via the board of the agency depict the possible constraints on decision-making. Moreover, ex-post control systems through reporting and audit obligations might limit the agency's ability to fully make use of the delegated competencies. Consequently, even though an agency has complete autonomy in decision-making, its actual autonomy from the government can be influenced to due constraints on these decisions (Verhoest *et al.* 2004: 105).

3.4.3 Indicator level

In the first part of our autonomy index, two dimensions delineate the level of decision-making competencies possessed by DMOs. Three indicators cover the scope of the first, managerial autonomy, which, essentially, is concerned with the choice and use of inputs (Verhoest *et al.* 2004: 105). The "primary input factors" of a DMO's work can be divided into the two spheres of capital and human resources. It is important to establish whether DMOs, like most public agencies (Ellison 1995: 167), are dependent on elected legislators for appropriations or autonomous in their financial management (Indicator I.1). Furthermore, as many DMOs document in their annual reports, IT infrastructure plays a crucial role in the quality and robustness of debt management policies (see also Borresen and Cosio-Pascal 2002: 9); Indicator I.2 therefore captures how DMOs select their IT system. Analogously, the employment of appropriately qualified and competent professionals is key for effective PDM operations (Andabaka and Švaljek 2012: 77+85), so the DMO needs to be able to offer competitive remuneration schemes (Cassard and Folkerts-Landau: 1997). Autonomy in human resource management (Indicator I.3) is also characterized by the ability to determine the timing and extent of recruitment (Trondal 2008: 473). Contrarily, control over personnel is a well-known instrument used by elected politicians to control permanent bureaucracies (Thatcher 2005).

The second dimension concerns the question of how far agencies can develop and implement PDM policies autonomously. The life cycle of a policy can be broken down into four parts. To achieve long-term objectives, medium-term strategies are established, which are themselves the basis for particular short-term targets (IMF 2014: 24). Finally, specific instruments are used to achieve the targets.[10] Strategies are illustrated, for example, by plans to reduce average debt maturity, while targets would define specific year-end numbers. Since DMOs might have freedom of maneuver at any of these stages, each of these four elements is translated into an indicator of so-called 'policy autonomy'. We examine not only who is responsible for approving all these policy-related formulations, but also who gears prior settings in order to establish agenda-setting powers.

[10] Melecky (2012) and IMF (2014) ascribe substantial importance to the composition of PDM strategies and targets for the underlying goals.

Indicator II.1 represents the long-term time frame of policy formulation; it also covers the number of objectives, since that is a potential source of political interference (Fry *et al.* 2000). Indicators II.2 and II.3 correspond to the medium- and short-term period, respectively, relating to the formulation of strategies and their quantified targets.[11] Indicator II.2 includes tactical trading in PDM, sometimes referred to as beat-the-market strategies, as a possible gateway for DMOs to unilaterally follow diverging policies. Lastly, Indicator II.4 captures day-to-day debt-management operations through debt instrument selection: who lays down the overall instrument portfolio and who decides on its actual usage. A DMO might, for example, be constrained by the instruments it has at its disposal, such as derivatives or buy-back operations, but need no approval for their concrete application.

The first circumstance that might impose constraints on the actual use of decision-making competencies hinges on the allocation of authority over a DMO's financial resources. A DMO may very well be heavily influenced by whether its financial endowment is fully at the courtesy of the MoF or regulated to be outside the MoF's reach. This does not only include the dependency on the yearly funding decisions but also the capacity to rule over the usage of revenue. Both aspects composite the dimension of financial autonomy (Verhoest *et al.* 2004: 106). Hence, the Indicator III.1 describes the origin of the budgetary allocation whereas Indicator III.2 classifies whether a DMO is allowed to keep profits for their own disposal. Especially the later might affect a DMO's risk taking in asset management considerably as, for example, derivatives on debt financials could be a great source of profits.

Indicator IV.1, 'Interventional autonomy' (Verhoest *et al.* 2004: 106), is determined by the existence of possible sanctions and the extent of ex post reporting requirements, evaluations, and audit provisions. An agency might refrain from using its decision-making competencies if its actions will be evaluated on a priori set of norms, deviation from which may lead to sanctions or intervention by its parent ministry.[12] For DMOs, ex post reporting requirements might be extensive and results might be examined against specific benchmarks. Sanctions might be a useful threat in order to assure or incentivize that performance doesn't fall short to its benchmark.

An additional dimension to constraints on actual use of decision-making competencies is the notion of structural autonomy, the extent to which the agency is shielded from influence through lines of hierarchy and accountability (Christensen 1999). In particular, it is concerned with the appointment and removal procedures of the agency head, in our case the chief executive officer

[11] Grilli *et al.* (1991) were the first to measure central bank autonomy in setting objectives, which they framed as political features, in contrast to economic and financial features.
[12] Ex ante and ex post controls are often applied to reduce bureaucratic drift: that is, the difference between policies enacted by the principal and what is actually implemented or executed by the agent (Majone 2001: 103).

(CEO) of the DMO, who to some extent shapes a bureaucratic organization's capacity for effective performance (Moe 2013). Political principals might alter a CEO's behavior, especially through recruitment practices of patronage or threats of dismissal. When these processes are completely at the discretion of the parent ministry, to the point that there are no formal requirements for the CEO's qualifications (Wonka and Rittberger 2010), no obligation to political independence (Gilardi 2002; Grilli *et al.* 1991), nor legal provision for when and how CEOs can be dismissed, then CEO autonomy (Indicator V.1) is notably low.

The same criteria hold for Indicator V.2*,* which relates to the autonomy of the executive or governing board of a DMO.[13] The presence of this type of board is a deviation from typical departmental hierarchy that often manifests itself in the responsibility of appointing the agency head, who has an obligation to heed the board on important policy and/or administrative matters (Christensen 1999: 12–13). Even though it is contested whether merely inserting a (governing) board can be perceived as enhancing autonomy (see Verhoest *et al.* 2010 versus Bach 2010), DMO structural autonomy would be low if a board is staffed with MoF representatives, compared to its opposite pole of one composed of financial market practitioners with no political agenda.

3.5 Data and operationalization

As we strive to capture the autonomy of DMOs beyond their legal status, , we supplement the mere consultation of legal documents by conducting an in-depth review of, first, operational documents such as annual and quarterly reports, debt-market-related publications, and newsletters; and second, documents from external sources such as audit or parliamentary reports. The derived granular data underlines that especially with regard to features of operational and organizational management these documents are instrumental in complementing data extracted from the legal framework and further help us to cross-reference our findings.

However, this comprehensive deep dive into the construction of DMOs comes with a high price. Since official information on PDM and DMO arrangements is scarce country selection is mainly driven by data availability. Beginning with high income OECD countries to ensure comparability, our sample encompasses the countries for which a sufficient amount of data is available, namely Australia, Austria, Denmark, France, Germany, Ireland, Italy, New Zealand, Norway, Portugal, Sweden, and the UK. Other countries, such as the USA, could unfortunately not be included in this study because of the lack of sufficient data. Furthermore, information on our indicators is

[13] Note that we only consider the arrangements of executive or governing boards since they have actual decision-making power. Advisory and any other kind of supplementary or auxiliary boards are covered by Indicator IV.1, interventional autonomy.

predominantly available for only one point in time. This might be due to the absence of recurrent official statements, to once-only legislative acts that lay out most parts of the governance structure of DMOs with no successive alterations, or to sheer lack of full disclosure of year-specific governance issues. Hence, we consider the most recent information as reasonable for aggregation and frame our index thereby as an up-to-date cross-country measure for the year of 2015. These limitations translate into a quite small sample size allowing us only to provide descriptive statistics with regard to our derived hypotheses. Consequently, our results should be understood as exploratory.

We apply a systematic coding to our indicators and items, outlined in the Appendix. The contrast between the upper and lower end of each indicator and item is identical. If the discretion or control over a specific issue lies fully with the MoF, the item is coded as 0 (lowest level of autonomy). If the DMO takes decisions single-handedly and no strings are attached, indicators and items are coded as 1 (highest level of autonomy). As we seek to distinguish each configuration of autonomy as precisely as possible we divide the 0-to-1 spectrum into categorical values and follow Goertz's strategy of treating concepts as dichotomous only in special cases (Goertz 2006: 34). Thus, within the given parameters, equal proportional intervals are applied for intermediate values of the indicators and items apart from a few exceptions.

If indicators comprise several items, the value of the indicator is the mean of those items. For the dimensional level, the mean of all corresponding indicator values is computed. The aggregated composite autonomy index is calculated by the average over all dimensional values. Thus, all dimensions, and within the dimensions each indicator, receive equal weight, meaning that they are attributed the same relevance. This is indisputably an arbitrary combination of data that may have a significant impact on the final results of the study. Unfortunately, as our sample is small, we are not able to employ methods of factor analysis or item response theory for all of our indicators and items combined, as suggested by Hanretty and Koop (2012). We therefore follow the equal weighting strategy, as it is the most conservative way if one cannot be sure about the relevant contribution of items to the final composite index (Gilardi 2002: 880).

3.6 Analysis

In order to establish a high level overview of DMOs' endowment with autonomy Table 1 depicts the composite index that aggregates all autonomy dimensions. Ranking the analyzed DMOs by their respective autonomy value confirms our hypothesis (H1) that MDMOs in general have less autonomy than SDMOs. Nevertheless, looking at the country-specific index values, a high variance among them unfolds.

Table 1: Ranking of DMO autonomy

#	Value	Country	MDMO/SDMO
1	0.64	Austria	SDMO
2	0.50	Norway	SDMO/CB
3	0.48	Denmark	SDMO/CB
4	0.47	Ireland	SDMO
5	0.43	Sweden	SDMO
6	0.42	Australia	MDMO
7	0.40	France	MDMO
8	0.39	Portugal	SDMO
9	0.35	United Kingdom	MDMO
10	0.27	Germany	SDMO
11	0.18	New Zealand	MDMO
12	0.15	Italy	MDMO

The presented ranking also lists the legal status of each analyzed DMO. Clearly, the Austrian SDMO is by far the most autonomous; the MDMOs of Italy and New Zealand rank last, with hardly any autonomy at all (as Cassard and Folkerts-Landau (1997) suggest). However, the values of the two groups are not clustered around two distant levels, but instead distributed widely between the extremes. There is no clear water between them: the German and Portuguese SDMOs rank beneath the French and Australian MDMOs. Correspondingly, grouping the index values brings out that the mean value for the SDMOs is higher than that of the MDMOs (Table 2; last column). As previous research on DMOs has so far only differentiated between departmental and non-departmental forms of DMOs the variance in autonomy, ranging from 0.15 to 0.64, indicates that this dichotomous differentiation does not grasp this variation completely. In order to analyze the different forms of autonomy and their impact on the overall autonomy with respect to different institutional settings Table 2 maps the country-specific data on the dimensional and indicator level.

Table 2: Data on the multidimensional autonomy of DMOs

		MDMO							SDMO									Δ
	Indicator	AUS	FR	IT	NZ	UK	Ø	σ	AUT	GER	IRL	SWE	POR	DK	NOR	Ø	σ	
I. Managerial Autonomy		**1.00**	**1.00**	**0.25**	**0.33**	**1.00**	**0.72**	**0.39**	**0.83**	**0.67**	**1.00**	**1.00**	**1.00**	**0.83**	**1.00**	**0.90**	**0.13**	**0.19**
I.1	Financial Management	1.00	1.00	0.25	0.00	1.00	0.65		1.00	0.50	1.00	1.00	1.00	0.75	1.00	0.89		0.24
I.2	IT-Infrastructure	1.00	1.00	0.25	1.00	1.00	0.85		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.15
I.3	Human Resource Management	1.00	1.00	0.25	0.00	1.00	0.65		0.50	0.50	1.00	1.00	1.00	0.75	1.00	0.82		0.17
II. Policy Autonomy		**0.33**	**0.27**	**0.27**	**0.31**	**0.25**	**0.29**	**0.03**	**0.38**	**0.14**	**0.44**	**0.44**	**0.38**	**0.31**	**0.35**	**0.35**	**0.10**	**0.06**
II.1	Objective Formulation	0.17	0.08	0.17	0.25	0.00	0.13		0.25	0.17	0.08	0.17	0.25	0.25	0.17	0.19		0.06
II.2	Strategy Formulation	0.33	0.33	0.33	0.67	0.33	0.40		0.33	0.00	0.67	0.67	0.33	0.33	0.33	0.38		0.02
II.3	Target Formulation	0.33	0.17	0.08	0.33	0.17	0.22		0.42	0.25	0.00	0.42	0.42	0.42	0.42	0.33		0.12
II.4	Debt Instrument Selection	0.50	0.50	0.50	0.00	0.50	0.40		0.50	0.13	1.00	0.50	0.50	0.25	0.50	0.48		0.08
III. Financial Autonomy		**0.50**	**0.50**	**0.00**	**0.00**	**0.00**	**0.20**	**0.27**	**1.00**	**0.13**	**0.00**	**0.00**	**0.00**	**0.38**	**0.00**	**0.21**	**0.37**	**0.01**
III.1	Origin of Resources	0.00	0.00	0.00	0.00	0.00	0.00		1.00	0.25	0.00	0.00	0.00	0.75	0.00	0.29		0.29
III.2	Entitlement to profits	1.00	1.00	0.00	0.00	0.00	0.40		1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14		0.26
IV. Interventional autonomy		**0.25**	**0.25**	**0.25**	**0.25**	**0.50**	**0.30**	**0.11**	**0.50**	**0.25**	**0.25**	**0.50**	**0.25**	**0.50**	**0.75**	**0.43**	**0.19**	**0.13**
IV.1	Ex Post Supervision	0.25	0.25	0.25	0.25	0.50	0.30		0.50	0.25	0.25	0.50	0.25	0.50	0.75	0.43		0.13
V. Structural Autonomy		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.48**	**0.15**	**0.67**	**0.23**	**0.21**	**0.38**	**0.38**	**0.36**	**0.18**	**0.36**
V.1	CEO	0.00	0.00	0.00	0.00	0.00	0.00		0.50	0.17	0.67	0.17	0.42	0.75	0.75	0.49		0.49
V.2	Board	0.00	0.00	0.00	0.00	0.00	0.00		0.46	0.14	0.68	0.29	0.00	0.00	0.00	0.22		0.22
	Average						**0.30**	**0.13**								**0.45**	**0.11**	**0.15**

With regard to managerial autonomy dimension, both, DMOs separated from the MoF (SDMOs) and DMOs located within it (MDMOs), are highly autonomous. With the exception of New Zealand, where the Treasury's Deputy Chief Executive is inter alia responsible for managing the DMO, all agencies analyzed are capable of using and managing their own financial as well as human resources and IT infrastructure.[14] The high degree of managerial autonomy indicates a high level of staff professionalization and flexibility in internal organization. Nevertheless, on average the score for SDMOs is higher than for MDMOs. This corresponds to the basic intention of these countries to reform PDM so that DMOs' competitiveness in financial markets is strengthened. Interestingly, the relatively high standard deviation for managerial autonomy among the MDMOs (0.39) points to differences in bureaucratic practices of handling ministerial departments.

Policy autonomy is considerably lower across all the DMOs than managerial autonomy. However, we observe increasing autonomy from the formulation of long-term goals to the implementation of specific operations. Whereas the setting and approval of objectives are predominantly carried out by parliament or the MoF, DMOs play a key role in both strategy formulation and debt-instrument selection. Though debt-management strategies and the portfolio of disposable debt instruments need the MoF's approval (except in New Zealand and Germany), DMOs are responsible for the development of strategies and for decisions about using authorized debt instruments. Hence, the crucial decisions about which strategies are available and how to achieve targets are mostly in the hands of the DMOs. This might reflect the greater complexity of these fairly technical activities, which may lie beyond the expertise of the MoF. This supposition is further supported by the findings that this dimension has one of the lowest discrepancies between MDMOs and SDMOs and that both groups are highly homogeneous. This conformity between MDMOs and SDMOs with regard to their autonomy in formulating and executing debt policies is independent from the respective legal status. This indicates a very similar need for flexibility in operational planning and execution in financial markets.

Our data on financial autonomy show that the general budget of all MDMOs is determined by the MoF whereas some SDMOs have substantial discretion. In both groups the decision about entitlement to profits is usually made by the MoF. Greater autonomy in MDMOs, due to the arrangements in Australia and France, is observable. The Agence France Trésor, for example, has the leeway to invest any occasional surplus to their best advantage. This also explains the relatively high deviation across MDMOs on financial autonomy. All in all, both groups of DMOs are financially almost exactly equally autonomous.

[14] This is unclear for Italy, which is missing the values for Indicators I.1 and I.2. Because of the high correlation between I.3 and the overall value for managerial autonomy, we extrapolated this value and that for Indicator III.2 for Italy. All other indicator values are available.

We observe a moderate degree of interventional autonomy, finding some control mechanisms in place. SDMOs are less constrained than MDMOs, surprisingly, considering the aspect of delegation to an agency outside departmental structures. While all MDMOs, except the UK's, mandatorily evaluate their performance against a benchmark, only the German, Irish, and Portuguese SDMOs are required to do so. This contradicts our hypothesis (H3) which stated that SDMOs are subject to stronger reporting obligations and therefore have less interventional autonomy. Our data shows, that even though we would theoretically expect more ex-post control mechanisms for agencies which are separated from the administrative core the opposite is the case.

MDMOs have no structural autonomy in relation to the MoF, since their CEOs are appointed directly by the MoF and the boards that few of them have are then of only an advisory character. The latter also holds for the SDMOs of Portugal, Denmark, and Norway. To account for the special cases of Denmark and Norway, which have their DMOs within the central banks, we coded Indicator V.1, CEO, as 'board' (0.75), since all decisions with regard to the CEO are directed by the central banks. Among the remaining SDMOs, Germany and Sweden are quite dependent, as only the CEO's appointment doesn't coincide with the election cycle. The same holds for their executive boards. Although the rules of appointment to boards are quite similar, political representation differs. Whereas Germany's board consists of 100 per cent MoF employees, Sweden has no political representation on its board at all. Austria and Ireland have mixed boards consisting of financial market experts and MoF employees.

Table 3: Decision-making autonomy and constraints on decision-making

	MDMO						SDMO							
	AUS	**FR**	**IT**	**NZ**	**UK**	**Ø**	**AUT**	**GER**	**IRL**	**SWE**	**POR**	**DK**	**NOR**	**Ø**
Decision-making (I+II)	0.67	0.64	0.26	0.32	0.63	**0.50**	0.60	0.40	0.72	0.72	0.74	0.57	0.68	**0.63**
Constraints on decision-making (III+IV+V)	0.25	0.25	0.08	0.08	0.17	**0.17**	0.66	0.18	0.31	0.24	0.15	0.42	0.38	**0.33**

Finally, we aggregate the autonomy dimensions into the broader categories of decision-making competencies (managerial, policy) and constraints on the use of decision-making competencies (financial, interventional, structural) to highlight the major differences between SDMOs and MDMOs (Table 3).

Table 3 shows that MDMOs as well as SDMOs have a considerable degree of decision-making autonomy and are relatively free from ex-ante approval requirements with respect to the delegated competencies. Even though SDMOs' decision-making autonomy is slightly higher, the difference between the two types is relatively low. Considering that all DMOs act on (nearly) the same international financial markets and have to face similar environments and challenges this outcome

is reasonable but nevertheless surprising, given the variety of country-specific administrative and institutional settings and the range of possible arrangements of autonomy. The results show that the scope of action is very similar even though the legal status differs, which might indicate that the autonomy in decision-making is more task than status related.

Considering constraints on the use of decision-making competencies as the governments' possibility of controlling the execution of delegated competencies SDMOs higher autonomy is quite surprising. SDMOs are less restrained by governmental interference due to higher structural autonomy and fewer obligations to ex-post reporting and auditing. Given the highly sensitive subject of the delegated task, one would expect stronger constraints on decision-making eminently for DMOs that have higher organizational distance to the administrative core.

3.7 Conclusion

This study elaborated a multi-dimensional index to measure DMO autonomy towards the MoF and analyzed the variation in the composition of autonomy across different organizational types of DMOs. The results show that SDMOs are on average more autonomous than MDMOs even though there is no straight demarcation line between them. Moreover, the index unfolds a wide distribution ranging from 0.15 (Italy) to 0.64 (Austria) indicating that the underlying differences in autonomy are more complex as assumed by previous studies which perceived DMO autonomy as a dichotomous concept.

The analysis of the disaggregated measurements shows that MDMOs as well as SDMOs are in general highly autonomous with respect to their decision-making competencies. Moreover, the difference between the two groups is very low which contradicts the theoretical expectation that SDMOs are in general more autonomous. Nevertheless, the homogeneity is understandable as all DMOs have to fulfil very similar tasks on the same international financial market. This is particularly evident in the case of policy autonomy. While objectives of PDM are set by parliament or the MoF, DMOs of both camps are highly autonomous in strategy setting and instrument selection which comprise the most crucial decisions in the interaction with financial markets. This might reflect the technical complexity of the delegated task and could also indicate missing expertise in the respective ministries. Hence, policy autonomy seems to be more determined by the task at hand than by the legal status of the executing entity. Furthermore, the conformity in formulating and executing debt policies underlines that a dichotomous approach is insufficient to analyze autonomy comprehensively as the degree of policy autonomy is independent from legal status.

Examining the constraints on the use of decision-making competencies demonstrates that all DMOs are under tighter limits which highlights the fact that their overall autonomy is predominantly scaled up by their broad decision-making competencies. In addition, differentiating between the groups shows that SDMOs are on average less restricted than MDMOs. This is quite surprising as installing constraints on decision-making corresponds to the possibility to influence the execution of the delegated task, a necessity which theoretically increases the further the agency is separated from the administrative core. Especially with regard to interventional autonomy one might have had expected SDMOs to be less autonomous due to a stronger need for formal control mechanisms (e.g. Currie *et al.* 2003, 9). But SDMOs are actually more absolved from ex-post control mechanisms such as reporting and auditing obligations. This finding is even more striking when considering the substantial inherent risk of public debt management which is ultimately only secured by the public.

The presented results contribute to the perception that a unidimensional concept of autonomy based only on the legal status of an organization might serve as a proxy to roughly predict and categorize overall autonomy. However, caution should be exercised to derive further conclusions for the detailed characteristics of autonomy. Our findings strongly confirm that the formal legal status is insufficient for the analysis of agencies as it misses to reveal crucial organizational differences and particularly similarities resulting from different compositions of autonomy (e.g. Verhoest et *al.* 2004; van Thiel and Yesilkagit 2014: 319). We claim that especially the differentiation between autonomy determined by delegated decision-making competencies and imposed constraints is essential to analyze agency autonomy. It allows to identify whether the constituent parts of overall variance are originated in varying degrees of ex-ante approval requirements or in distinct frameworks of constraints that embrace ex-post control mechanisms and sanctions. Consequently, this approach enables also to detect underlying similarities and can moreover be applied to organizations that fulfil the same core task regardless of their organizational type.

Correspondingly, the finding that independent from legal status all DMOs are highly autonomous with respect to decision-making competencies contributes to the scarce literature on PDM from a political science perspective. Considering that PDM actions have a direct impact on public finance and mistakes might substantially influence future decisions on budgetary policy (Lemoine 2016), which is predominantly a sovereign right of the parliament, the question for democratic legitimacy becomes essential. This includes the fact that especially SDMOs have a relatively high degree of interventional autonomy meaning that governments do not fully make use of ex-post control options by setting reporting or auditing obligations, even though this is particularly recommended by PDM experts (e.g. Piga 2001; Currie et al. 2003).

Further research should for one part aim to scrutinize the causes for the differences in the institutional design of DMOs. A qualitative approach with an in-depth review of interests and actions might be beneficial since quantifiable data is very limited. . The finding of very similar policy autonomy suggests that reforms of PDM in several OECD countries and consequently the creation and design of DMOs might be subject to a diffusion process. This assumption is supported as international networks on the topic of PDM with particularly strong positions of international organizations such as the International Monetary Fund, The World Bank or the OECD are eager to function as guideline and best practice setters. In addition, taken into account that in many OECD countries the task of debt management was previously carried out by central banks, path dependency might serve as a valuable starting point for the explanation of differences in the autonomy of DMOs.

As political scientists are increasingly interested in analyzing the financialization of the state and its public finances DMOs institutional design can be used for further investigations on countries' sovereign debt management policy. Especially research on the making of PDM policy as a consequence of the budgetary process could shed some light on the role of the actors involved - or not involved - and furthermore on the legitimacy of risk taking by adopting financial market techniques. This includes the question to what extent PDM is subject of (parliamentary) control or more explicit whether or not parliaments or governments have the capacity to control DMOs' actions given the increasing complexity of financial market activities.

3.8 References

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3.9 Appendix

Appendix A Codebook

Indicator		Item		Numerical coding
I. Managerial Autonomy				
I.1	Financial Management	(1)	Who controls the agency's budget?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
I.2	IT Infrastructure	(2)	Who decides on the IT infrastructure?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
I.3	Human resource management	(3)	Who decides on human resource management?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
II. Policy Autonomy				
II.1	Objective Formulation	(4)	Who sets objectives?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
		(5)	Who approves objectives?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00

Indicator		Item		Numerical coding
		(6)	Number of objectives	
			>3	0.00
			3	0.25
			2	0.50
			1	0.75
			0	1.00
II.2	Strategy Formulation	(7)	Who sets strategy?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
		(8)	Who approves strategy?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
		(9)	Is tactical trading formally stated?	
			no	0.00
			yes	1.00
II.3	Target Formulation	(10)	Who sets targets?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
		(11)	Who approves targets?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00

Indicator		Item		Numerical coding
		(12)	Who approves borrowing?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
II.4	Debt Instrument Selection	(13)	Who decides about the instrument portfolio?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
		(14)	Who decided about the usage of instruments?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
III. Financial Autonomy				
III.1	Origin of resources	(15)	What is the source of agency's budget?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
III.2	Entitlement to profits	(16)	Who decides about the use of profits?	
			Ministry of Finance	0.00
			Stated by Law	0.25
			Debt Management Agency in agreement with Ministry of Finance	0.50
			Agency Board	0.75
			Debt Management Agency	1.00

Indicator		Item		Numerical coding
IV. Interventional autonomy				
IV.1	Ex Post Supervision	(17)	Ex post obligations for supervision	
			Reporting, audit, benchmark evaluation and sanctions	0.00
			Reporting, audit and benchmark evaluation	0.25
			Reporting and audit or reporting and benchmark evaluation	0.50
			Reporting	0.75
			No ex post supervision	1.00
V. Structural Autonomy				
V.1	CEO	(18)	Who appoints the CEO?	
			Ministry of Finance	0.00
			Parliament	0.25
			Ministry of Finance and Agency Board	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
		(19)	Does the term of office of the CEO coincide with the election cycle?	
			yes	0.00
			no	1.00
		(20)	Is the CEO's political independence a formal requirement?	
			no	0.00
			yes	1.00
		(21)	Is there a formal requirement for CEO qualification?	
			no	0.00
			yes	1.00
		(22)	Who dismisses CEO?	
			Ministry of Finance	0.00
			Parliament	0.25
			Ministry of Finance and Agency Board	0.50
			Agency Board	0.75
			Debt Management Agency	1.00
		(23)	Does the law contain explicit provisions about the dismissal of the CEO?	
			no	0.00
			yes	1.00

Indicator	Item	Numerical coding
V.2 Board	(24) Who appoints the board members?	
	Ministry of Finance	0.00
	Parliament	0.25
	Ministry of Finance and Agency Board	0.50
	Agency Board	0.75
	Debt Management Agency	1.00
	(25) Does the term of office of the board members coincide with the election cycle?	
	yes	0.00
	no	1.00
	(26) Is the board members' political independence a formal requirement?	
	no	0.00
	yes	1.00
	(27) Proportion of Ministry of Finance staff on the board	
	100%	0.00
	>50%	0.25
	50%	0.50
	<50%	0.75
	0%	1.00
	(28) Is there a formal requirement for board members' qualification?	
	no	0.00
	yes	1.00
	(29) Who dismisses the board members?	
	Ministry of Finance	0.00
	Parliament	0.25
	Ministry of Finance and Agency Board	0.50
	Agency Board	0.75
	Debt Management Agency	1.00
	(30) Does the law contain explicit provisions about the dismissal of the board members?	
	no	0.00
	yes	1.00

Chapter 4
Variation of Parliamentary Control over Central Governments' Sovereign Debt Management

4 Variation of Parliamentary Control over Central Governments' Sovereign Debt Management

(Co-authored by Christine Trampusch)

Abstract

Sovereign debt management (SDM) requires decisions about the composition and structure of central government debt. Nowadays, the process is delegated to professional debt management offices, which use complex financial instruments and resort to capital markets. While previous research has investigated variations in parliamentary control over budgetary policies, the control of parliaments over SDM has been neglected. This article suggests an initial index for measuring parliamentary control over SDM and applies it to original data from 17 OECD countries. It finds that countries adopt different means of parliamentary oversight and reveals cross-country variation according to types of democracy, levels of parliamentary power over budgets and fiscal (budget) transparency, the organizational structure of debt management as well as former central bank independence and patterns of financialization of SDM and the economy. These findings are of interest for research on parliamentary budgetary power, delegation and financialization.

4.1 Introduction

Budgetary authority is the parliamentary right par excellence. As recent research on the fiscal and political consequences of the debt crisis and bail-outs in Europe indicate (Zahariadis 2013, Allers 2015, Barbera et al. 2017), this right of parliamentary oversight should include public debt policy as well. Although such policies are strongly influenced by parliaments' fiscal and budgetary policies, they also have their own dynamics, because debt policy comprises not only the level of debt but also its type (Fastenrath et al. 2017: 275), although this is often scantily addressed in political science. While parliaments can determine the level of debt by their taxation and expenditure policies, decisions about the type of debt, hence its composition and structure (hereinafter: sovereign debt management (SDM)) is independent of specific fiscal and budgetary decisions.

Decisions on SDM are regulated in constitutions and until the 1980s were classically delegated to ministries of finance (MoFs) and central banks (Wheeler 2004: 50). Nowadays, particularly at the level of central governments, SDM is delegated to professional debt management offices (DMOs), which are authorized by legislation or ministerial decree to manage governments' borrowing requirements and their financial risks. This study measures and analyzes cross-national variation in parliamentary control over SDM. It has developed an initial index for measuring parliamentary SDM control which is applied to an original data set for 17 high-income OECD countries for which cross-national variation in parliamentary control is further scrutinized.

Whether parliaments are able to control SDM and how potential cross-national variation is to be explained are important questions to which more theoretical and empirical work should be dedicated. In the following we mention four reasons why these issues are of major interest for political science.

The first reason is that several studies of parliamentary control over budgetary policies as well as fiscal and budgetary transparency (e.g. Lienert 2005; Wehner 2006; Alt/Lassen 2006) identify significant variation in parliamentary control over the public budget and this leads us to hypothesize cross-country variation in parliamentary SDM control as well. However, until now, this strand of literature has left parliamentary oversight of SDM by the wayside. Our study seeks to fill this gap. That SDM also opens up the chance for increasing use of creative accounting and fiscal gimmickry to refurbish public balance sheets by technical tricks of financial engineering (Alt et al. 2014; Irwin 2012), makes research on this matter even more important.

Secondly, such research might contribute to debates in delegation theory. This literature highlights how delegation to agencies and other executive bodies may create complex trade-offs between control, expertise, and efficiency for legislatures (Christensen and Laegreid 2007; Blom-Hansen

2013). In most countries, DMOs are either a specific and self-contained unit of the Department of Finance and hence still part of the ministerial administration, or separated and established as (more-or-less) autonomous Separated Debt Management Offices (SDMOs)[15]. Christensen and Laegreid (2007: 501) state that the establishment of highly specialized agencies may not only lead to more efficiency but also be linked to a "reduced potential for effective political control and accountability". This is especially so in policy fields with high technical complexity (Blom-Hansen 2013: 431), which is typical for SDM.

Thirdly, parliamentary oversight of SDM has become even more important as financialization has increasingly exposed public debt to capital market dynamics. As with financialization in the economy and the sector of individual households (Krippner 2005; van der Zwan 2014), SDM is challenged by financialization which means that governments (a) increasingly use market-based modes of refinancing and related financial market transactions such as the issuance of marketable debt and the use of auctions, and (b) in this context view debt as a liability portfolio which they seek to optimize by the diversification of interest rates, maturities or the currency risks of their loans through the use of complex financial innovations like derivatives (Fastenrath et al. 2017). The use of marketable debt instruments, which can be traded on secondary markets and include short-term securities (mainly Treasury bills), medium-term securities or notes and long-term securities or bonds (incl. index-linked bonds i.e. bonds whose payments are related to a price index) (Fastenrath et al. 2017: Fn. 5), significantly increase governments' capital market exposure. When governments act like private financial investors not only conflicts of interest may arise between the roles of governments as prominent financial market regulators but more parliamentary control over SDM may also be a way to strengthen political control over financial markets in general.

The fourth reason is that although parliaments' and DMOs' interests should be identical (e.g. lowering interest payments)[16], the financialization of SDM and its greater capital market exposure also bears substantial risks which in the end are secured only by the public budget. Hence, potentially negative unintended fiscal consequences should also draw our attention to parliamentary oversight of debt management. The case of Belgium exemplifies this very well. In the early 1990s the Belgium parliament experienced losses of between 44.3 and 53.8 billion BEF due to currency rate swaps (e.g. Australia had similar negative experiences). While the minister of finance stated that he was not informed about daily operations as this was carried out by the debt managers, the parliament was not informed about the their financial operations at all and some of

15 An exception is Denmark where debt management is (still) delegated to the central bank

16 Because of this potential identity of objectives between the principal (parliament) and the agent (DMO) we do not refer to principal agency theory in this study.

its members accused the government of speculating with the BEF (van Gerwen/Cassimon 2000: 157-163, 170). After this incident, SDM became a salient issue in Belgium and institutional changes have been made which strengthened parliamentary control.

Against the background of these debates in the literature on budget and fiscal policies, delegation and financialization, the lack of cross-national knowledge is not only surprising but also alarming. Based on the literature on non-majoritarian institutions and delegation (e.g. Majone 1998; Coen/Thatcher 2005; Gilardi 2002; Winzen 2012), we argue that parliamentary control over SDM can be measured by operationalizing the degree of *transparency* and *accountability* of DMOs and their activities vis-à-vis the parliament. We suggest a multi-dimensional index of 29 items grouped into four dimensions: *Legal framework*, *organizational structures*, *implementation*, and *reporting*. With regard to the analysis of cross-national variation and the exploration of probable reasons for variation, we analyze the relationship between parliamentary control over SDM and (1) different forms of democracy, levels of parliamentary budgetary power and fiscal transparency, and different organizational structures of DMOs, thus whether (more or less) autonomous SDMOs are established or not, and (2) central bank independence and the financialization of SDM and the economy. The first mentioned relationships are of importance as these are directly linked to parliamentary control itself and highlighted in the research on budgetary and fiscal policies or delegation theory while the latter are considered crucial by the SDM literature and research on financialization.

Our results show that in all countries parliamentary control over SDM is limited. However, we identify different ways and multiple trade-offs between the four dimensions by which legislatures try to ensure transparency and accountability as well as variations in these across types of democracies, levels of parliaments' power over the budget and their fiscal transparency, the degree of central bank independence in the 1980s and the financialization of SDM and of the economy. In addition, we find that SDMOs tend to exhibit lower levels of parliamentary control.

Due to the moderate amount of research on parliamentary control over SDM and the pioneering character of this paper, we focus on descriptive inference and first explore potential causal factors of variation. Further research can refine our concept, gather data for additional countries and different points of time, and investigate in more detail issues of causal inference and thus conduct statistical testing for causal explanations of cross-national and longitudinal variation.

This article is structured as follows. First, we elaborate a concept on which the index construction is based and describe the underlying dataset and its composition. In the following analysis we apply our index to the newly compiled dataset to analyze the degree of parliamentary control over SDM

and its variation across countries. Furthermore, we test probable reasons for cross-country variation. We conclude with a discussion of the results and their impact on future research.

4.2 Concept and Indicators

To develop an appropriate concept for measuring parliamentary control of SDM we construct a three-level index following Goertz (2006). While the abstract term of parliamentary control represents the basic level, the secondary level functions as the "theoretical linkage between the abstract basic-level and the indicator/data level" (Goertz 2006: 53) and in our case is carried out along four dimensions which operationalize accountability and transparency. Finally, the indicator level implements the derived items.

The *abstract level* requires a definition of "parliamentary control" in the area of debt management. Transferring Wehner's (2006: 768) concept of parliamentary control over budgetary policy to the arena of debt management, this study defines parlamentary control over SDM as the parliaments' "power to scrutinize and influence" debt management and "to ensure its implementation". Following research on non-majoritarian institutions, delegation and agencification (e.g. Majone 1998; Coen/Thatcher 2005; Gilardi 2002; Winzen 2012), DMOs can be viewed as non-majoritarian institutions "which by design are not directly accountable to the voters or to their elected representatives" (Majone 1998: 15).

Bearing this in mind, we link the *abstract* with the *indicator* level by delegation theory. With regard to the *secondary level* of our index, delegation theory highlights that due to this missing direct link to voters, parliamentary control over non-majoritarian institutions depends not only on the degree of information disclosure by these newly created organizations and parliaments' own expertise and knowledge of the matters delegated but also on the legislative mandate and formal controls which ensure that the non-majoritarian institutions act according to parliaments' aims and objectives (Coen/Thatcher 2005: 340; Majone 1998: 13; Winzen 2012: 659-661). According to Hood (2010: 889) "[a]ccountability broadly denotes the duty of an individual or organisation to answer in some way about how they have conducted their affairs" while "[t]ransparency broadly means the conduct of business in a fashion that makes decisions, rules and other information visible from the outside". Following Mabillard and Zumofen (2016: 4) we also assume that "accountability is based on the idea of power transmission and delegation […]". Consequently, this study measures parliamentary control over SDM by suggesting a set of items which operationalize the degree of *transparency* and *accountability* of DMOs and their activities vis-à-vis the parliament.[17] We refer transparency and

[17] Or as a former senior researcher at the IMF put it in an exchange we had with her/him on our topic: "If debt management is transparent then it is democratic".

accountability not only to substantive aspects but to the procedural as well (Majone 1998: 20-21). *Substantive* aspects embrace the "expertise and problem-solving capacity" of non-majoritan institutions but as well "the precision of the limits within which … [they] are expected to operate" (Majone 1998: 21). *Procedural* issues capture whether an institution is established by a democratic statute or act which prescribes the agency's legal authority and objectives, whether its decision making "follows well-defined procedures" or its heads are appointed by elected officials, monitored by politicians as well as open to judicial review.

As Blom-Hansen (2013: 430) states, procedural control can be used by legislators to constrain agency policies. In accordance with these considerations, we distinguish between four distinctive dimensions which seek to measure DMOs' transparency and accountability vis-à-vis the parliament in substantial as well as procedural terms. The first dimension, *legal framework,* captures constitutional and legal aspects which measure the parliamentary capacity and expertise in debt management and the legal room to move for DMOs; the second, *organizational structures,* embraces the DMOs' internal composition and whether there are external control mechanisms; the third, *implementation,* refers to parliamentary capacities to control DMOs in their decisions and daily business; and the fourth dimension, *reporting,* measures DMOs' reporting requirements. While the research on non-majoritarian institutions helps us to determine these four general domains from which indicators stem, the literature on budgetary rules (e.g. Lienert 2005; Wehner 2006) and SDM related publications (e.g. IMF 2014, IMF/WB 2003; INTOSAI 2007; OECD 2002; WB 2015) provide us with precise items to assess these four dimensions in the area of SDM.

Given the limited space of this article we cannot discuss all 29 *third level* items individually but we explain the general idea and the measurement intention behind them (on the items see Table A, Appendix).

The first dimension, *legal framework,* consists of 15 items. At the level of indicators, it picks up the fiscal and budgetary rules literature which argues that measuring parliamentary control rights and its institutional capacity to analyze budgetary data (in our context: debt data) is of crucial importance for measuring parliamentary power over the budget (Wehner 2006: 768). Consequently, this component also assesses the legislature's role with respect to auditing, examining debt management and its capacity in the form of expertise from budget offices (Schick 2002: 31). Thus, do parliaments have the capacity to control and assess debt management issues in substantive terms? Furthermore, we take into account the suggestion of official and (semi-)academic publications on DMOs and SDMOs by IOs to measure the legal extent of DMOs' activities, thus, the existence of legal debt limits, which span a *legal framework* for DMOs' borrowing activities, and the process of borrowing authorization and legal restrictions on using financial instruments (IMF

2014: 20; e.g. by settings on legal restrictions of derivatives transactions, exposure limits, and contingent liabilities).

The second dimension *organizational structure* operationalizes procedural and substantive transparency and accountability by capturing the DMOs' internal construction and how far external control is installed. Our eight indicators of this dimension include the DMOs' location (inside or outside the MoFs), which is considered a crucial aspect in SDM literature (e.g. Currie et al. 2003, Piga 2001), as well as the existence and role of an external board (IMF/WB 2003, Wheeler 2004: 57) which can enhance SDM transparency. Furthermore, the appointment of the CEO is evaluated as this is frequently highlighted in the literature on regulatory agencies (e.g. Gilardi 2002, Thatcher 2005). Rules on DMOs' responsibility, its strategy approval and its code of conduct are analyzed as well.

To operationalize the *implementation* dimension, we refer to four indicators which evaluate parliamentary control over the decision making in DMOs' operational activities. Here, we consider different instruments like derivatives and buybacks as well as general borrowing approval and tactical trading and ask for the level of authorization (IMF/WB 2003: 84; IMF 2014: 32). Are parliamentary or ministerial decisions needed in the daily business or is the DMO itself in charge? This component especially strengthens the accountability of the index by evaluating decision-making processes in daily operations (Coe et al. 2000).

Finally, the *reporting* dimension measures if and to what extent the DMO is obliged to report its strategy (OECD 2002, IMF 2014: 18), the use of instruments (OECD 2002: 12) and financial risks (IMF 2014: 18, OECD 2014). For the fiscal and budgetary rules literature, the aspect of reporting is essential to ensure transparency with respect to budgetary policy (e.g. Alt/Lassen 2006). Moreover, reporting can function as an instrumental or structural mechanism to enhance accountability, for example, by the use of annual reports (Maggetti 2010: 4).

4.3 Index construction and data set

In contrast to previous studies on parliamentary capacity in budgetary policy and on fiscal transparency (e.g. Lienert 2005; Wehner 2006; Alt/Lassen 2006) both of which could rely on cross-national survey and questionnaire data provided by the OCED or the World Bank, OECD-wide survey data on debt management procedures are not available. Therefore our study is based on an original data set which in a very time consuming process was specially compiled for this analysis. We gathered data for 17 OECD countries which cover different types of DMOs. The high income OECD countries for which a sufficient quantity of data on the respective indicators is available are

Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Portugal, Spain, Sweden, United Kingdom, and the United States.[18] This sample contains different types of developed capitalist economies and thus is suitable for cross-national comparison. The data presented here display the status quo and stem from sources, with just a few exceptions, not older than 2012. As sources we used legislative texts, ministerial decrees, official documents and reports, newspaper articles, official websites, as well as documents from the DMOs and other involved institutions. All coding was double checked by different coders and in cases of uncertainty verified by interviews (by phone or email) with the respective (S)DMOs and/or officials. Obviously, the limitation in data availability also constrained the selection and definition of our 29 indicators.

All indicators are numerically and systematically coded, either binary (0; 1) or on a three-point scale (0; 0.5; 1). While 0 represents the lowest possible degree of control, a value of 1 means that the parliament has complete control of setting SDM, has the capacities to examine SDM specific strategies and reports, and is fully aware of the actions executed by the DMO. The intermediate coding of 0.5 accounts for the fact that for some indicators a simple binary coding is not sufficient. If for example neither the DMO nor the parliament is in charge but the MoF has decision-making power we code this indicator as 0.5, because the responsibilities of ministries are closer to the parliament than decision making within sub- or outsourced organizations. Each indicator consists of one item. The four dimensions are computed as the mean of the indicators used, so every indicator is treated equally within the respective dimension (Gilardi 2002: 880). The overall index for parliamentary control is the aggregated mean of the previously computed dimensions. Even though some studies on similar topics (e.g. Winzen 2012) do not use equal weights for all indicators and/or dimensions, we adhere to this 'conservative' method of aggregation as we do not have any conceptual nor theoretical footing which strongly supports the use of unequal weights (OECD 2008: 31).

4.4 Analysis

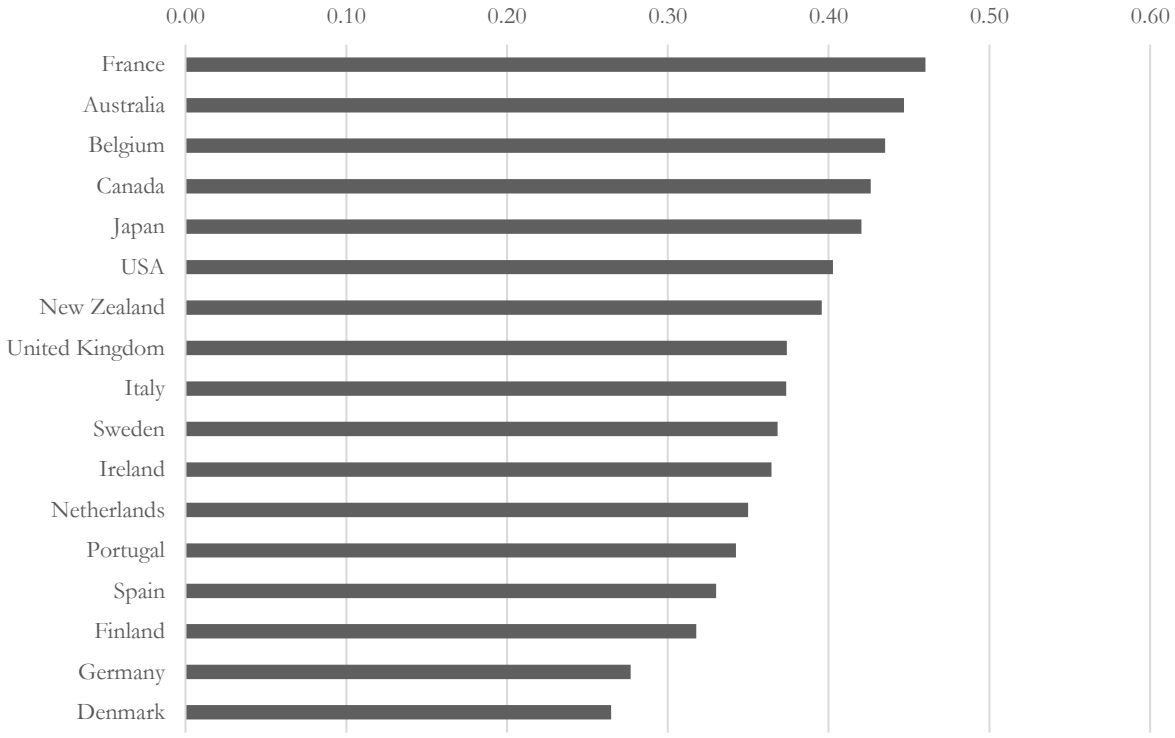
Applying our overall index of parliamentary control (PCI) to the data set on SDM leads to the PCI values between 0.46 (France) and 0.26 (Denmark), as illustrated in Figure 1. Whereas the good democratic performance of France is difficult to interpret at first sight since the control of the French parliament over the budget is relatively low (Wehner 2006: 781), the low level for Denmark may be connected to the fact that in that country debt management is still delegated to the

[18] Due to insufficient data (e.g. Greece) or a lack of comparability due to specific institutional characteristics (e.g. Switzerland) some OECD high income countries could not be analyzed.

independent central bank. The mean value of 0.37 and the standard deviation of 0.05 indicate that in all countries parliamentary control over SDM is rather low. Due to the lack of any theoretical work on this issue we cannot say for certain that the maximum index value of 1 is realistic or from a normative as well as practical point of view even useful.[19] Nevertheless, with the exception of *CEO* and *board appointments* every item is in at least one case above 0 and therefore 'used' to gain parliamentary control.

Table B in the appendix displays the country values in more detail and reveals substantial differences between and within the four dimensions. On average, parliamentary SDM control is more ensured by the requirements in the *legal framework* (average value: 0.57) than by the accountability and transparency of the *reporting* requirements (0.38) or the setting in the *organizational structures* (0.33) and in the *implementation* of SDM (0.22; Table 1). These differences between dimensions indicate that, while countries apparently achieve overall similar levels of parliamentary control, they employ different ways of granting control options over SDM. Some countries (e.g. Sweden, United States and Japan) exert control by setting a transparent and accountable *legal framework*, while countries such as Australia, Ireland and Canada focus on *reporting* to ensure transparency and accountability.

Figure 4 Parliamentary control over SDM policy



Sources: Own calculation.

[19] We thank Renate Mayntz for warning us of this caveat.

As there is stronger cross-country variation along our four dimensions than overall, our following in-depth analysis focuses on relationships between these dimensions and types of democracies, parliamentary power over the budget, etc. This also allows us to scrutinize further the different ways countries adopt parliamentary control over SDM. We start with a closer look on how the four dimensions relate to each other.

Trade-off between legal framework, organizational structure, procedure and reporting

Table 1 displays substantial trade-offs between the different dimensions. If parliamentary control is ensured by setting a transparent and accountable *legal framework*, less control is needed with respect to *reporting* standards and *implementation* as the room to act is legally limited. The trade-off also applies to the relationship between *reporting* and *implementation*, as high reporting standards seem to compensate for less transparent and accountable *implementation*. If the daily business of DMOs is perceived as fast moving on financial markets, with less parliamentary control slowing down these daily operations, control by reporting can be regarded as a complement to enhance efficiency and democratic legitimacy as well. However, the positive correlation between *organizational structure* and *implementation* indicates that the more parliaments control DMOs' organizational structure the more transparent and accountable DMOs operate in their daily debt management business.[20]

Table 1 Correlations between Dimensions

	Legal Framework	Org. Structure	Implementation	Reporting
Legal Framework	X			
Org. Structure	0.2218	X		
Implementation	-0.2559	0.4009	X	
Reporting	-0.3176	-0.2797	-0.3989	X
Mean values	0.57	0.33	0.22	0.38

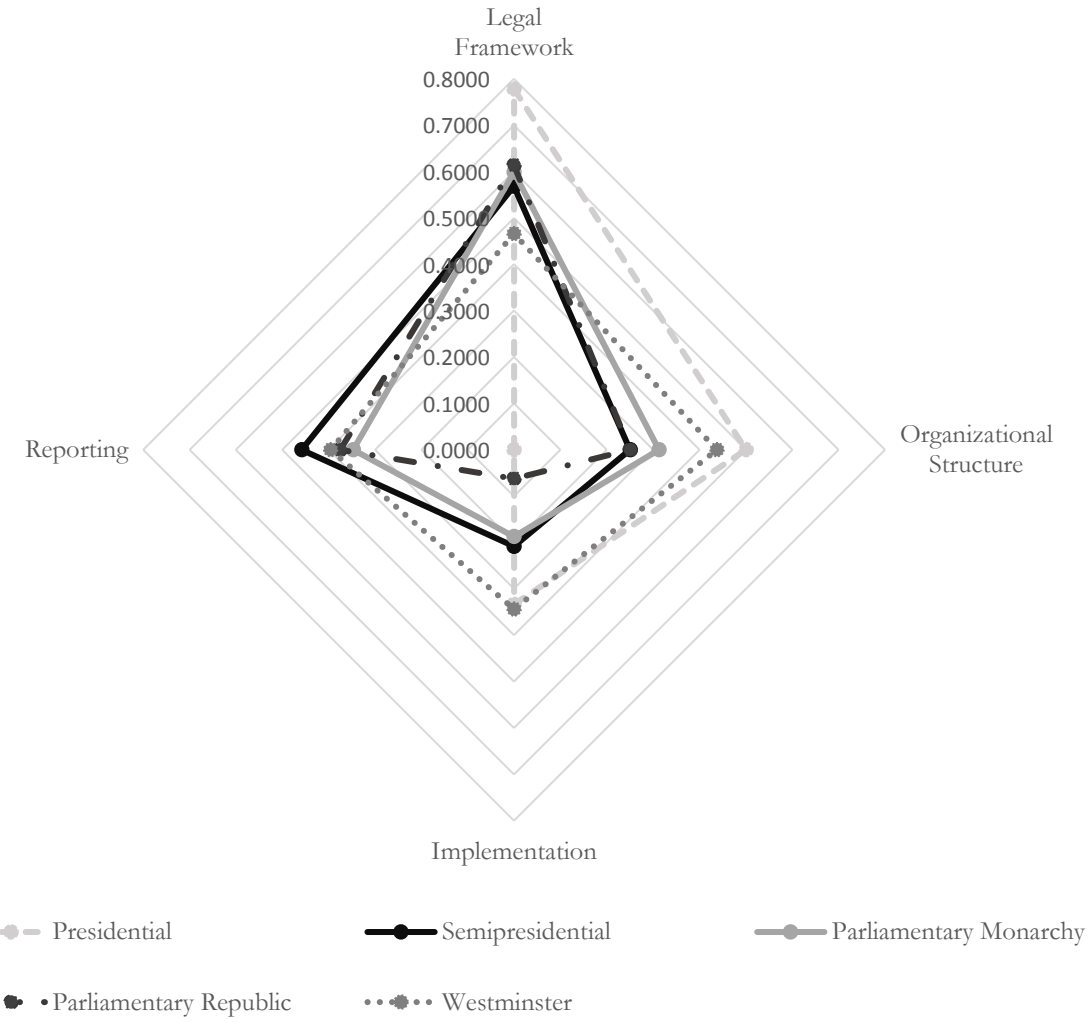
Sources: Own calculation.

[20] We are aware that the identification of correlations and especially trade-offs raises the problem of substitutability (e.g. Winzen 2012: 661-662; Wehner 2006: 774). Nevertheless, we argue that the empirical observable trade-offs do not indicate substitutability as they do not exclude each other. Even though we find a negative correlation between legal framework and reporting, a combination of both is not only theoretically possible but also empirically observable (e.g. France, Italy or Portugal). Therefore, our dimensions do not substitute for each other by measuring the same aspect from different perspectives but show different possibilities of gaining control which can exist simultaneously.

Relationship between types of democracy and parliamentary control over debt management

The fiscal and budgetary rules literature claims that parliaments' power varies cross-nationally and across types of democracy (Wehner 2006, Lienert 2005). While in presidential systems (with the U.S. as prime example) parliaments dominate the budget-making process, in the Westminster model there is executive supremacy (e.g. UK, Ireland, New Zealand, Australia). Semi-presidential systems (e.g. Finland, France), representative parliamentary republics (Germany, Italy), and non-Westminster parliamentary monarchies (Denmark, the Netherlands, Norway, Sweden) are somewhere between these two poles (Lienert 2005: 3). Applying this classification to our data shows that among these different types Westminster Democracies reach the highest level of parliamentary control (0.41) and Parliamentary Republic regimes the lowest (0.33), with Presidential (0.40), Semi-presidential (0.37) and Parliamentary Monarchy regimes (0.36) in between.

Figure 2 Types of democracies on dimensional level



Sources: Own calculation.

Analyzing the dimensional mean values for the different types of democracy we witness substantial differences. From Figure 2 it can be discerned that different types of democracy seek different ways to ensure parliamentary control over SDM. While – as to be expected because of the strong role of parliaments in the budget-making process – in the United States with its presidential system parliamentary control is ensured by a high value for *legal framework* (actually the US has the highest value within the whole sample). Westminster democracies do not regulate a transparent and accountable SDM via the respective *legal framework* or at least do so to a much lesser extent but instead ensure parliamentary control by *reporting*. With respect to the dimensions *organizational structure* and *implementation* we observe surprisingly similar approaches in Westminster and Presidential Democracies.

As there are differences in parliamentary control over SDM among types of democracies, it raises the question whether there is a relationship between parliamentary budgetary control, fiscal (and budgetary) transparency and parliaments' oversight over SDM.

Relationship between parliamentary budgetary power, fiscal transparency and parliamentary control over debt management

It seems natural that parliaments' control over SDM as a part of public finance can be related to parliamentary oversight of the budget. We may suspect a positive relationship between parliamentary control of the budget and SDM which leads to the claim that budget regime tradition may explain variations in parliamentary SDM control. Likewise, a negative one is plausible as well: We could hypothesize that if parliamentary power over the budget is high, its power in controlling debt management is moderate and debt management needs no control because, as long as expenditures exhibit a high level of democratic legitimacy, borrowing money to finance these expenditures is not necessary. However, our findings on these relationships are very mixed.

Table 2: Correlations between dimensions and parliamentary budget power

	Wehner (2006)
Index	-0.28
Legal Framework	0.61
Organizational Structure	-0.01
Implementation	-0.19
Reporting	-0.56

Sources: Own calculation. The respective data for parliamentary budget power stems from Wehner (2006: 781).

As Table 2 shows, we find a negative correlation as our results turn Wehner's (2006) index[21] of legislative budgetary institutions on its head: Parliamentary competencies in budgeting do not lead to parliamentary power over debt management. We observe a negative correlation between parliamentary control over budgetary policy and parliamentary control over SDM (-0.28). While France leads in terms of SDM control it is ranked only next to last with respect to budgetary power in Wehner's (2006: 781) index. Also in Sweden, the U.S. and Denmark parliamentary control over budgetary policy is considerably higher (Wehner 2006: 781) than over SDM. This confirms our assumption that it is important to differentiate between fiscal, budgetary and debt policies. However, we also identify a positive relationship between this indicator and *legal framework* (0.61) and a slightly negative relationship with *implementation* (-0.19). This could indicate a trade-off. On the one hand, parliaments which have a lot of control over the budget also set a transparent and accountable *legal framework*. On the other hand, controlling DMOs in their day-to-day business as well as by reporting obligations (-0.56) seem to be perceived as less important, as their scope of action is legally limited.

Table 3: Correlations between dimensions and fiscal transparency

	Fiscal Transparency	Budget Transparency
Index	0.19	0.17
Legal Framework	-0.16	0.06
Organizational Structure	0.40	0.34
Implementation	0.51	0.31
Reporting	-0.41	-0.34

Sources: Data on Fiscal Transparency stems from Alt and Lassen 2006: 1415. Data on Budget Transparency stems from Bastida and Benito 2007: 680. Own calculation.

How countries shape their budgetary processes is closely linked to fiscal (and budgetary) transparency. As Table 3 illustrates, fiscal and budgetary transparency correlates positively but only weakly with parliamentary control over SDM. This is not surprising as (1) fiscal transparency is not usually measured with respect to parliament but rather to the public and other institutions and (2) there is a difference between fiscal policy and public management which is often overlooked in political science. While fiscal transparency is perceived as a measurement of solid and accountable political work, public debt is not perceived as a high-profile policy and mainly falls below the radar of public opinion. With respect to the dimensions, we observe a positive correlation with the

[21] We decided to take Wehner's (2006) index for our analysis as his is a broader measurement of budgetary institutions than Lienert's (2005) and methodologically further developed.

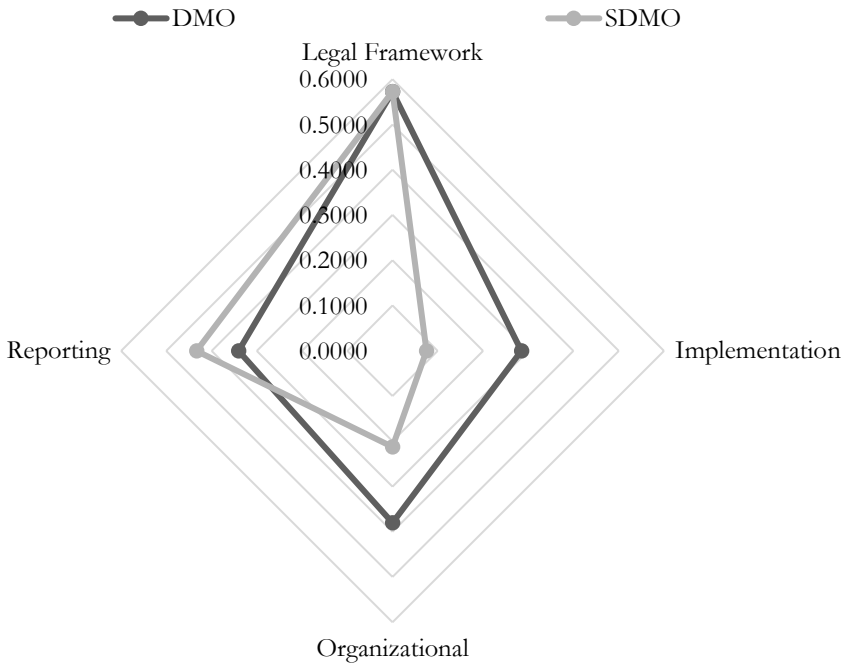
accountability and transparency of *implementation* (0.51 for fiscal transparency and 0.31 for budgetary transparency), while *reporting* is negatively correlated with fiscal (-0.41) and budgetary transparency (-0.34). This could indicate that internal *implementation* diffuses from given fiscal processes towards debt management but governments perceive a difference between reporting fiscal facts to the public and a more internal reporting of SDM to parliament.

In sum, it seems that parliaments which exert a high control over the public budget exercise their judgement over SDM by setting a transparent and accountable *legal framework*. On the other hand, DMOs' reporting of the executed SDM declines with tighter budgetary control and transparency.

Variation across types of DMOs

Our data show that parliaments' power over SDM depends very much on the type of DMO. It is much higher in countries with DMOs inside the MoF or the Treasury (e.g. France, Australia, Belgium, Canada, Japan, New Zealand) than in those with SDMOs (e.g. Ireland, Sweden, Germany). This leads us to the conclusion that the type of DMO wipes out the effect of regime tradition as in Sweden where parliamentary control over the budget is much higher than in New Zealand and Ireland, which both conform to the Westminster model. Furthermore, the decision to found an agency outside the given ministerial structures to deal with financial markets could be interpreted as an intention to seize market opportunities by easing bureaucratic constraints. This is in line with the finding that SDMOs enjoy on average more autonomy than ministerial DMOs (Gross/Hoshmand 2016). Nevertheless, the combination of less control with a higher degree of autonomy bears substantial risks. Currie et al. (2003: 9) highlight this critical issue and recommend even more control over SDMOs. However, our results indicate that, in contrast to this recommendation, SDMOs are subjected to less control, at least by parliaments.

Figure 3 DMO Location on Dimensional Level



Sources: Own calculation.

Beyond these overall differences, we witness substantial differences between DMOs and SDMOs in the composition of parliamentary control (Figure 3). Both organizational types have similar *legal frameworks* but differences in the other dimensions. While SDMOs are on average less transparent and accountable vis-à-vis the parliament in the *implementation* and *organizational structure* dimensions, they have to fulfill higher *reporting* standards. Differences in *organizational structure* are to be expected, as outsourcing the SDM to an agency outside the MoF is a different mode of governance which demands less accountability than incorporating the department within the MoF. On the *implementation* dimension there are substantial differences observable as parliaments' control over SDMOs daily activities is considerably lower than for DMOs. A possible explanation could be that countries with SDMOs are more willing to take market risks in order to lower their debt servicing cost and thereby grant their specialized agencies more room to maneuver in financial markets without bureaucratic constraints. On the other hand, SDMOs have on average more reporting obligations. This could indicate that reporting is perceived as a counterweight against a lack of control by the organizational structures and in the daily operations. It is also noteworthy that stricter reporting requirements also serve the interests of government bond investors.

Central Bank Independence

In many of the countries analyzed SDM had been carried out by the central bank. Therefore, it is reasonable to assume that the previous institutional setting of the respective central bank could have influenced the follow-up organization. We tested this relationship with different indices for central bank independence (Grilli et al. 1991, Cukierman et al. 1992, Fry et al. 2000) which are all slightly (-0.33, -0.52, -0.27) negatively correlated with parliaments' control over SDM. Our results indicate that in countries with high 1980s levels of central bank independence (and, hence, lower democratic accountability vis-à-vis elected politicians) (central bank indicators by Grilli et al. 1991, Cukierman et al. 1992), nowadays public debt management by DMOs exhibits a low level of parliamentary control as well. This suggests a sort of path dependency in the level of democratic control over debt management despite the transformation towards financialized debt management in recent decades. However, it is important to note that the ongoing low level of parliamentary control over SDM after this shift towards greater reliance on financial markets in state finance should give us reason for great concern: As already mentioned, until the 1980s interest rates on state bonds were "determined by the state and not subjected to the law of supply and demand" (Lemoine 2016: 6), non-marketable debt instruments dominated and debt monetisation (inflation) was used for deficit financing; but nowadays marketable debt predominates, financing techniques of the state are market-determined and public debt is to a much lesser extent "collected and and managed through administrative and political regulations" (Lemoine 2016: 3).

Financialization of SDM and of the economy

These concerns have also motivated us to take the aspect of financialization of SDM and the economy into account. For measuring the financialization in SDM, we use two indices. The first index, created by Fastenrath et al. (2017), measures the timing of the adoption of financialized SDM activities, the second indicator is the share of marketable debt (MD) to total central government debt which measures the degree of financialization of SDM.

Table 4 reveals that being an early adopter of SDM financialization is negatively correlated with parliamentary control on the *reporting* dimension (-0.39). One could argue that early adopters did not perceive the respective market risks as dangerous and therefore renounced a higher degree of control by reporting which ensures transparency and accountability, while late adopters adjusted their respective settings. On the other hand, a positive correlation of early adopting and transparent and accountable *implementation* (0.31) does not support this interpretation. Overall our index is nearly independent (0.04) from the point of adoption. In order to analyze this aspect, data over time would be necessary.

Table 4: Correlations between dimensions and the financialization of SDM (adoption and MD)

	Timing of the adoption	MD share to total central government debt
Index	0.04	-0.22
Legal Framework	-0.01	-0.46
Organizational Structure	0.23	-0.32
Implementation	0.31	-0.02
Reporting	-0.39	0.24

Sources: Own calculation. Data on adoption steams from Fastenrath et al (2017: XV (supplementary file)). Marketable debt based on OECD Central Government Debt Database for the year 2010.

Another way of assessing the financialization of SDM is directly connected to the states' openness towards financial markets' practices. The most obvious ratio to look at is the share of marketable debt to total central government debt which can serve as a proxy for the degree of financialization of SDM (Fastenrath et al. 2017: 279). On the one hand, it could be expected that countries with a high share of marketable debt are sensitive to market risks and consequently ensure a strong parliamentary control over SDM to cope with this. On the other hand, we may also hypothesize that countries with a more financialized SDM may also exhibit lower levels of parliamentary control over SDM as market logic dominates and private finance has already significantly penetrated public finance. Alternatively debt managers seize on the lack of control to widen their financial market activities not only with respect to the use of different financial instruments but also in quantitative matters by increasing the share of marketable debt in relation to their total debt portfolio. Indeed, we find that parliaments' control over SDM is slightly negatively correlated with the share of marketable debt on central government debt (-0.22).

While the weakness of the correlation does not allow for definite conclusions on the matter, our results at least appear to lend support to the latter interpretation. This impression is reinforced by the fact that of those countries included in our analysis, nearly all use derivatives to optimize their debt portfolios. However, only in four countries specific and comprehensive reports about the use of derivatives, as recommended for example by the OECD (2014), are available. As Fastenrath et al. (2017) show, SDM is highly financialized by increasing reliance on financial markets and the adoption of financial market techniques, especially by the intense use of derivatives. Our data show that this development is confronted by only a low degree of parliamentary capacity to control SDM: Our *legal framework* dimension, as well as the DMOs' organizational structure, also indicates that the more states are financialized the less their parliaments are able to control DMOs' daily business and their organizational structure.

Table 5: Correlations between dimensions and the financialization of the economy

	FIRE (1995)	FIRE (2013)
Index	0.35	0.41
Legal Framework	-0.44	-0.12
Organizational Structure	0.46	0.57
Implementation	0.23	0.22
Reporting	0.15	-0.03

Sources: Data on FIRE sector to GDP ratio stems from OECD (2017) Value added by activity database, based on the year 1995 due to data availability for all countries. Please note that the correlation for 1995 is based on data for 15 countries.

Besides the direct relationship between the state and financial markets the importance of the finance, insurance and real estate sectors (FIRE) for the whole economy, hence, the financialization of the economy (for this indicator see Krippner 2005), could influence the respective settings. Table 5 shows that countries with a higher share of value added by the FIRE sector in 1995 tended to have less parliamentary control over SDM by setting a transparent and accountable *legal framework* (-0.44), however with financialization data of 2013 this negative correlation almost vanishes (-0.12). Does this indicate that in early financialized economies parliamentary control over SDM is weaker? Of interest also is the positive correlation with the *implementation* as well as the *organizational structure* dimension with only small differences for 1995 and 2013 (0.23 (0.22) and 0.46 (0.57)). In sum our index is positively correlated with the share of the FIRE sector on GDP in 1995 (0.35) and 2013 (0.41). A possible explanation could be that countries which rely heavily on their finance and insurance sector seek to attract investors in government bonds who prefer a transparent environment. If this interpretation is correct, in a financialized political economy accountability of SDM may benefit both taxpayers and investors.

Overall, our findings indicate that the financialization of SDM and of the economy challenges the quality and quantity of democratic control of government debt policies.

4.5 Conclusion

In this article, we elaborated a four-dimensional index to measure parliamentary control over SDM and applied it to 17 OECD countries for which we compiled an original data set. Overall, the level of parliamentary control is relatively low with only slight variation across countries. In our subset of countries we identify different ways of parliamentary oversight of SDM and trade-offs between our four dimensions, not only overall but also across types of democracies, levels of parliamentary budgetary power and fiscal transparency as well as types of DMOs. Westminster democracies reach

the highest level of parliamentary control, mainly by ensuring a transparent and accountable reporting of SDM to their parliaments. We also find that the legal framework of parliamentary control over SDM correlates strongly positively with parliamentary budgetary authority, which indicates a connection between parliamentary budgetary power and the legal aspects of parliamentary SDM control. Furthermore, we identify several relationships between our index, respectively our dimensions, and the quality of fiscal and budget transparency. For example, countries with weaker fiscal and budget transparency have a more transparent reporting system on debt management while DMOs' daily business is only weakly controlled. Thus, non-transparent budgetary policy diffuses to the implementation of SDM but not to the reporting requirements. Investigating the DMOs themselves we find that a higher degree of DMO autonomy (which is in countries where debt management activities are bundled in SMDOs) is associated with less parliamentary control over SDM. This contradicts several SDM recommendations which highlight the importance of control with respect to autonomous DMOs (e.g. Piga 2001; Currie et al. 2003).

Of interest for further studies on financialization is the fact that our analysis also shows parliamentary control over SDM is negatively associated with the 1980s' central bank independence. In many of the countries we analyzed, SDM was previously carried out by the respective central bank which could have indicated some kind of path dependence. We also find that early adopters of SDM financialization prescribe more lenient reporting requirements on SDM than late adopters. Furthermore, the higher the share of marketable debt to central government debt (thus the higher the degree of financialization in SDM), the weaker the overall parliamentary control over the management of public debt and, in particular, the less transparent and accountable is the legal framework of control over SDM and the DMOs' organizational structure. It is interesting to note that in the early financialized economies parliaments have less *legal* control over debt management and DMOs' room to maneuver is less controlled by parliaments. However, the financialization of the economy is positively related to the overall parliamentary control of SDM as well as the control over DMOs' daily business (*implementation*) and their *organizational structure*. Thus, all in all, governments seek to attract bond investors by providing a transparent and accountable context for their debt management activities.

How do these results contribute to the literature of budget policy, delegation and financialization?

First, our findings indicate that future studies should further investigate the low level of political control over debt management as well as the co-variation between the ways different countries achieve this control and types of democracy, parliaments' budgetary power and fiscal transparency. Related to these issues, more theoretical work is required to fix the appropriate level of

parliamentary SDM scrutiny, and more empirical studies should be dedicated to analyzing the reasons for the cross-national variations we exposed.

Secondly, our study confirms that in the analysis of parliamentary control over public finance it is important to differentiate between fiscal, budgetary and debt policies, and with regard to debt policy, between the level and type of debt. It does not seem to be reasonable to argue that as long as parliaments control the budget and public expenditures, there is no necessity to control the debt management as well. It is not only that SDM is different from budgetary and fiscal policies; rather in the wake of the financialization of SDM professional debt managers use complex new financial instruments such as derivatives which bear the risk of financially very harmful losses; taxpayers have already paid the bill for the use of this financial instrument not only in Australia and Belgium but in numerous Italian, German, Austrian and US American local municipalities as well (Fastenrath et al. 2017). That indebted states adopt these techniques of hedging (but as well speculating with) financial markets risks makes public budgets to a negation of taxpayers' will.

Thirdly, our results of a generally low level of parliamentary SDM control indicates that even though delegation theory points to the need for control when delegating to specialized executive bodies (Blom-Hansen 2013; Christensen and Laegreid 2007), this does not yet seem to be the case for SDM. Our analyses confirm the findings of delegation literature on trade-off effects between expertise and control

A fourth implication of this study is that future studies should scrutinize whether and how the different processes of financialization in advanced capitalist democracies are interconnected and what this means for the democratic control over the debt state: Is the financialization of the state and its debt management a consequence of the financialization of the companies and private households? On the other hand, the positive correlation between the financialization of the economy and the parliamentary control over SDM also signals to us that the transparency and accountability of SDM vis-à-vis parliaments benefits both the investors in government bonds and taxpayers as well.

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4.7 Appendix

Table A: Codebook

No	Item Framework	Description	Item Source	Code
1	Debt Limit	Is there a legal debt limit?	IMF/WB 2003: 53; INTOSAI 2007: Table 1.a	0: No 0.5: yes but violable 1: Yes
2	Annual borrowing authorization (by act)	Do legislative acts fix an annual borrowing limit?	IMF/WB 2003: 53	0: No; 1: Yes
3	Clause regarding purpose of borrowing (by act)	Are there legal clauses regarding the purpose of borrowing? Does the act fix the purpose for which money is borrowed?	IMF/WB 2003: 53	0: No 1: Yes
4	Legislation or governmental ordinance to delegate DM	Is the DMO established by a parliamentary act or by a decree of MoF?	IMF/WB 2003: 18	0: ministerial decree/order 0.5: order and act 1: act
5	Legal restrictions on derivative transactions	Are there any restrictions about the amount, quality, and conditions on derivative transactions which DMOs undertake?	Piga 2001: 79	0: no 1: yes
6	Contingent liabilities	Who decides about contingent liabilities?	IMF/WB 2003: 226	0:DMO 0.5: MoF/Treasury 1: Parliament
7	Use of credit exposure limits & collateral agreements	Use of credit exposure limits & collateral agreements to reduce counter party risk by DMO?	IMF/WB 2003: 86 IMF 2014: 41	0: no 1: yes
8	Accruals accounting	Is accrual accounting introduced at central government level?	Schick 2002: 30	0: no 1: yes
9	Parliamentary budget offices	There is an office (not a parliamentary committee!) which provides detailed information, staff with financial market expertise to improve MPs expertise on debt management.	Schick 2002: 31	0: no 1: yes

No	Item	Description	Item Source	Code
10	Parliamentary Select Committee, Public Account Committees	Does the Parliamentary Committee "undertake a detailed examination" of the debt management?	INTOSAI, WPG "Working Group of Public Debt"	0: no 1: yes
11	Debt Management Auditing	Does the General Auditor/Audit Office report to parliament about debt management?	WB 2015: 25 Schick 2002: 30 IMF 2014: 49	0: no 1: yes
	Organizational Structure			
12	DMO location	Is the DMO part of or separated from the MoF?	Currie et al. 2003	0: separated 1: MoF/DoF/Treasury/Gov
13	CEO appointment	Who appoints the DMO's CEO?	Gilardi 2002: 881 Cukierman et al. 1992: 358 Grilli et al. 1991: 368	0: MoF/DoF/Treasury/Gov 0.5: MoF and Parliament 1: Parliament
14	DMO responsibility	To whom is the DMO responsible?	IMF/WB 2003: 218	0: MoF/DoF/Treasury/Gov 0.5: MoF and Parliament 1: Parliament
15	Debt management strategy approval	Who approves the debt management strategy?	IMF/WB 2003 Melecky 2012	0: no approval 0.5: MoF/Treasury 1: Parliament
16	External Board	Is there an external board attached to the DMO?	Gilardi 2002: 881 Cukierman et al. 1992: 358 Grilli et al. 1991: 368	0: no 0.5: mixed (with internal members of DMO, MoF, for instance) 1: yes
17	Role of External DMO Board	Which functions does the external board fulfill?	Wheeler 2004: 57	0: only consultative; no external board. 0.5: Supervision and/or assessment of performance 1: Decision making power (makes strategic decisions, e.g. SWE)

No	Item	Description	Item Source	Code
18	External Board Appointment	Who appoints the external board members?	Wheeler 2004: 64 IMF 2014: 66	0: MoF, DoF, Treasury, Gov; no external board. 1: Parliament
19	Code of Conduct	Is there a PDM specific code of conduct for DMO employees?	WB 2015: 58 INTOSAI 2007: Table 1a IMF 2014: 9	0: no 1: yes
	Implementation			
20	Operational approval of borrowing	Who approves security or loan issuing in the daily business?	IMF 2014: 32	0: no approval 0.5: MoF/DoF/Treasury/Gov 1: parliament
21	Operational decisions on derivatives	Who decides about the use of derivatives in the daily business?	Piga 2001 IMF/WB 2003: 84	0: DMO 0.5: MoF/DoF/Treasury/Gov 1: Parliamentary approval required
22	Operational decisions on buybacks	Who decides on buybacks in the daily business?	IMF/WB 2003: 84	0: DMO 0.5: MoF/DoF/Treasury/Gov 1: Parliamentary approval required
23	Tactical trading	Does the DMO admit using beat-the-market strategies or is it well known for entering speculative positions?	IMF 2014: 35 IMF/WB 2003: 161 Piga 2001	0:yes 1: no 1: yes

No	Item Reporting	Description	Item Source	Code
24	Report on derivatives	Is any derivative related information on (1) counterparts, (2) gains and losses, (3) maturities, (4) risks and ratings published in the DMO reports?	IMF 2014: 14 OECD 2002: 12 WB 2015: 44	0: Not specific (0 or 1 sub-item covered); 0,5: Partially specific (2 or 3 sub-items covered); 1: fully specific (4 sub-items covered).
25	Report on Debt Management Strategy	Is the debt management strategy reported?	WB 2015: 17 IMF 2014: 18-19	0: no 1: yes
26	Classified Report on Debt Management Strategy	Is the report classified? (1) by currency denomination of the debt, (2) maturity profile, (3) fixed vs. variable interest rates, (4) whether debt is callable, (5) strategic benchmarks, (6) risk management and/or strategies	WB 2015: 17 OECD 2002: 12 IMF 2014: 18-19	0: Not specific (0 or 1 sub-item covered); 0,5: Partially specific (2 to 4 sub-items covered); 1: fully specific (5 or 6 sub-items covered).
27	Reporting towards Parliament	Who reports to parliament about DMO activities?	Gilardi 2002: 882 IMF 2014: 19	0: MoF/DoF/Treasury/Gov 1: Chief executive DMO
28	Report on medium term strategy	Is the parliament informed about the DMO's medium-term strategy?	IMF/WB 2003: 168 Interview with former IMF senior researcher	0: no (not existent, not available) 0.5: Information available and accessible for parliament 1: approval by parliament
29	Report on financial risks	Does the budget documentation report risks associated with entitlements?	IMF 2014: 18-20 Interview with former IMF senior researcher OECD 2014: 109	0: no (not existent, not available) 0.5: Information available and accessible for parliament 1: approval by parliament

Table B Overview Country Ranking

	Analysis	Framework	Org. Structure	Implemen.	Reporting	PCI	Location	Democracy
1	France	0.59 (7)	0.50 (1)	0.25 (6)	0.50 (3)	0.46	MDMO	Semipresidential
2	Australia	0.45 (14)	0.50 (1)	0.25 (6)	0.58 (1)	0.45	MDMO	Westminister
3	Belgium	0.64 (6)	0.31 (9)	0.38 (2)	0.42 (7)	0.44	MDMO	Parl. Monarchy
4	Canada	0.45 (14)	0.38 (6)	0.38 (2)	0.50 (3)	0.43	MDMO	Westminister
5	Japan	0.68 (2)	0.50 (1)	0.25 (6)	0.25 (12)	0.42	MDMO	Parl. Monarchy
6	USA	0.78 (1)	0.50 (1)	0.33 (4)	0.00 (17)	0.40	MDMO	Presidential
7	New Zealand	0.50 (11)	0.50 (1)	0.50 (1)	0.08 (16)	0.40	MDMO	Westminister
8	United Kingdom	0.45 (14)	0.38 (6)	0.25 (6)	0.42 (7)	0.37	MDMO	Westminister
9	Italy	0.68 (2)	0.31 (9)	0.00 (14)	0.50 (3)	0.37	MDMO	Parl. Republic
10	Sweden	0.68 (2)	0.38 (6)	0.00 (14)	0.42 (7)	0.37	SDMO	Parl. Monarchy
11	Ireland	0.50 (11)	0.13 (17)	0.25 (6)	0.58 (1)	0.36	SDMO	Semipresidential
12	Netherlands	0.55 (9)	0.19 (12)	0.25 (6)	0.42 (7)	0.35	MDMO	Parl. Monarchy
13	Portugal	0.68 (2)	0.19 (12)	0.00 (14)	0.50 (3)	0.34	SDMO	Semipresidential
14	Spain	0.59 (7)	0.31 (9)	0.25 (6)	0.17 (15)	0.33	MDMO	Parl. Monarchy
15	Finland	0.50 (11)	0.19 (12)	0.33 (4)	0.25 (12)	0.32	MDMO	Semipresidential
16	Germany	0.55 (9)	0.19 (12)	0.13 (13)	0.25 (12)	0.28	SDMO	Parl. Republic
17	Denmark	0.45 (14)	0.19 (12)	0.00 (14)	0.42 (7)	0.26	SDMO	Parl. Monarchy
	mean	0.57	0.33	0.22	0.38	0.37		
	(s.d.)	(0.10)	(0.13)	(0.15)	(0.17)	(0.05)		