Principals and agents or principals and stewards?

Performance management of agencies in Norwegian state administration

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PhD Thesis

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February 2020

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*Series of dissertations submitted to the
Faculty of Social Sciences, University of Oslo
No. 805*

ISSN 1564-3991

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Cover: Hanne Baadsgaard Utigard.
Print production: Reprosentralen, University of Oslo.

Acknowledgments

I have not embarked on this project alone; rather, it has involved significant support and backing from several colleagues, friends, and family members. To begin, I would like to thank the Ministry of Finance and the Agency for Public and Financial Management for financing this Ph.D. project. I am especially grateful for the support from and cooperation of Geir Åge Andreassen, Knut Klepsvik, and Astri Tverstøl.

I also wish to express my deepest gratitude to my supervisors: Jostein Askim and Tobias Bach. I am forever grateful for your valuable professional and moral support and comments. Your doors have always been open whenever I have had questions or wanted to discuss anything related to my research. You have patiently offered valuable feedback on all stages of my research, and your razor-sharp comments and attention to detail have been both challenging and motivating. I feel that you never settled for “good enough” but rather pushed me toward the best of my abilities. I owe you both a great debt of gratitude and sincerely hope that this project’s completion will not signal the end of our interesting discussions and friendship.

My thanks also go to Thomas Schillemans for including me in the academic community and for providing valuable comments on my work during my stay at the Utrecht School of Governance during the spring of 2017. To Jonas Kjærvik, thank you for being my partner in crime in coding letters of appropriation and for your excellent cooperation on our co-authored paper (with Jostein Askim).

I would like to thank my colleagues, from whom I have received comments, support, and insightful feedback on this project. In particular, I would like to highlight the contributions of Øivind Bratberg, Zoltán Fazekas, Stine Hesstvedt, Jon Hovi, Bjørn Høyland, Åge Johnsen, Jens Jungblut, Jan Erling Klausen, Helge Renå, Sandra van Thiel, and Jarle Trondal. I am also grateful for comments and feedback from participants at the European Group of Public Administration conferences, the national political science conferences [Nasjonal fagkonferanse i statsvitenskap] and research seminars.

Much appreciated assistance also came from all my excellent fellow Ph.D. candidates in the department. I will highlight the contribution from Vilde Hernes, Erlend Langørgen, Torbjørg Jevnaker, Øyvind Stiansen, and Martin Søyland, but also Andreas, Atle, Haakon, Hans Rasmus, Ida, Kjersti, Leif, Martin, Nina, Peter, Sebastian, Sigurd, Solveig, and Tarald receive a special thank. I would like to thank you all for the discussions and comradery, moral support, seminars, our annual trips together, and the many coffee breaks. I would also like to thank the Ph.D. candidates at the Utrecht School of Governance for including me both academically and socially during my stay.

The Department of Political Science at the Faculty of Social Science has allowed me to benefit greatly from their excellent working conditions, academic and administrative support, seminars, and both academic and non-academic lunch discussions. For that, I am extremely grateful. I would also like to thank Sofie Skodvin for her research assistance and work with Article 4 in this thesis.

I would like to thank my parents for their valuable support and our inspiring discussions on my research topic.

Finally, I would like to thank Lise Wilhelmsen for her unconditional love, patience, and support.

Karl Hagen Bjurstrøm
Blindern, Oslo, Norway
February 2020

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Part 1: Introduction

1.0. Introduction

1.1. Background

Modern public administration exists in “an era of performance management” (Moynihan, 2008). Moynihan (2008, p. 26) goes on to describe performance management as a doctrine. Doctrines “[...] are theoretical explanations of cause and effect, often presented as factual and widely acceptable” (p. 26). Although there are many definitions of performance management, they all share some common features. Performance management is a style of management that relies on strategic planning and performance information. It gives managers autonomy and discretion in exchange for accountability in relation to outputs and outcomes.

Since the 1980s and 1990s, there has been an increasing focus on performance in the public sector, and the emergence of performance management has been an important driver of administrative reform (Pollitt, 2006; Talbot, 1999). Although performance management predates New Public Management (NPM), its use is often associated with NPM. Many countries have established semi-autonomous government agencies, and agency governance by performance management has been regarded as a way to ensure efficiency and accountability (Overman et al., 2015; Pollitt et al., 2004; Talbot, 1999; Verhoest et al., 2012). In the heyday of NPM, the use of performance management in the management of public organizations witnessed increased popularity at all levels of government.

If there is a single theme that characterizes the public sector in the 1990s, it is the demand for performance. A mantra has emerged in this decade, heard at all levels of government, that calls for documentation of performance and explicit outcomes of government action.

(Radin, 2000, p. 168)

NPM was inspired by new institutional economics and focused on user choice, transparency, incentive structures, and the business-type managerialism that highlighted professional management and discretionary power (Hood, 1991). By introducing a stronger distinction between policymakers and government agencies, and thus distancing policymaking from policy implementation, policymakers could focus more on arm's length control (Osborne, 2006). NPM was supposed to be more efficient by “letting the manager manage” (Kettl, 1997, p. 449; Moynihan & Pandey, 2006). While the more traditional bureaucratic systems had focused on input-oriented control and a low degree of bureaucratic autonomy, performance management represented a high focus on bureaucratic autonomy in exchange for a higher focus on results-based accountability (Moynihan & Pandey, 2006). However, achieving agency autonomy and accountability simultaneity has proven difficult in practice. March and Olsen (1995, p. 152) argue that accountability and autonomy are commensurate and that there can be no power without autonomy and no autonomy without accountability (see also Olsen, 2015, p. 427). In terms of

bureaucratic governance, the difficulty lies in how to balance political control and bureaucratic autonomy (Christensen & Lægreid, 2007a).

Performance management does not exist in a vacuum. It is one of several instruments (others include legal and fiscal control instruments) in the governance of agencies (Askim, 2015; Bach et al., 2017; Pollitt et al., 2004; Roness et al., 2008). It is also not a case of “either you have it, or you don’t.” It represents an ideal form of agency governance as much as it is a specific recipe for the steering of public organizations. Performance management is adapted to administrative cultures and contexts; consequently, it is practiced differently within and across countries (Christensen & Lægreid, 2007b; Kristiansen, 2015, 2016; Pollitt, 2006; Van Dooren & Van de Walle, 2008).

1.2. Research questions

Research has shown that there is variation in both the use of performance management and how it is integrated with other types of steering (Askim, 2015; Binderkrantz & Christensen, 2009a; Pollitt, 2006; Pollitt et al., 2004; Roness et al., 2008). Different ministry–agency steering practices exist within the label of “performance management.” This thesis examines how performance management is practiced and the consequences of different steering practices on the ministerial control of agencies and interagency coordination. First, the thesis analyzes the role of organizational characteristics in varying ministry–agency steering practices. Second, it examines how steering practices affect ministerial control of agencies and interagency coordination. Ministerial control of agencies is a rather broad term, as ministries rely on several instruments, in addition to performance management, such as legal and fiscal instruments, in the steering of agencies. In agency steering, ministries use several different instruments such as legal and fiscal instruments, as well as performance management. In this thesis, impact of performance management, or the relevance of performance management, in the ministerial steering is understood as bureaucrats’ perceived relevance of performance management in their work. If bureaucrats employed in government agencies perceive that performance management has a greater or smaller impact on their work, performance management will have a greater or smaller impact in the ministerial steering of government agencies. The overarching research questions are as follows:

How do ministry–agency steering practices vary, and to what extent do organizational characteristics explain varying ministry–agency steering practices?

How do different performance management practices affect ministerial control of agencies and interagency coordination?

Figure 1.1: How the articles relate to the overarching research questions

The central research questions are answered through four articles examining the performance management of government agencies in the Norwegian state administration. Figure 1.1 shows how the different articles address the research questions in this thesis. Article 1 (*Quasi-contractual ministerial steering of state agencies: Its intensity, modes, and how agency characteristics matter*¹) focuses exclusively on the first overarching research question. It develops a typology of ministry–agency steering practices by bridging dominant discussions on the use of contracts within central government. One discussion addresses the shift from input to output steering, and the other relates to overall steering intensity. The article first asks how many steering relationships have a clear profile, how many do not, and which of the four ideal types of steering are more and less common in practice. It then goes on to analyze how organizational characteristics explain ministry–agency steering practices.

Article 2 (*Principal–agent or principal–steward: How ministry–agency relations condition the impact of performance management in the steering of government agencies*²) relates to the second overarching research question. It asks what factors condition the impact of performance management in the ministerial steering of government agencies. This impact is here understood as bureaucrats’ perceptions of the relevance of performance management in their work. The article probes the impact of performance management in the steering of agencies as conditioned by the interaction between steering practices and the type of relationship between ministries and agencies. Relationship type is defined as whether the relationship resembles a principal–agent or principal–steward relation.

Article 3 (*How interagency coordination is affected by agency policy autonomy*³) also relates to the second overarching research question. The article enquires about the ways in which variances in interagency coordination are affected by the agency’s policy autonomy. It investigates how different

¹ Published as Askim, J., Bjurstrøm, K. H., & Kjærvik, J. (2019). Quasi-contractual ministerial steering of state agencies: Its intensity, modes, and how agency characteristics matter. *International Public Management Journal*, 22(3), 470–498.

² Conditionally accepted for publication *Public Performance & Management Review*.

³ Published as Bjurstrøm, K. H. (2019). How interagency coordination is affected by agency policy autonomy, *Public Management Review*. <http://doi.org/10.1080/14719037.2019.1679236>

ministry–agency steering practices leave agencies with varying degrees of autonomy, which may affect the extent to which they coordinate horizontally with other agencies.

Article 4 (*Computer-assisted text analysis: Application on quasi-contractual ministry–agency relations*.⁴) investigates how computer-assisted content analysis can be used to extract data from policy documents to more effectively categorize ministry–agency steering practices. The article first shows how ministry–agency steering practices can be studied using computer-assisted text analysis. Computer-assisted text analysis is used to show how steering practices vary over time. In this way, Article 4 addresses the first research question.

The overarching research questions are explored through actor-oriented principal–agent theory and the more institutionally oriented stewardship theory. The data were obtained from the manual and computer-assisted coding of letters of appropriation and annual reports from ministries and government agencies, the register data of government agencies from the Norwegian State Administration Database, provided by NSD (the Norwegian Centre for Research Data), the A-text database of the Nordic media monitoring company Retriever, and survey data from the Survey of the State Administration 2016.

1.3. Contributions

Empirically, this thesis contributes to the literature on performance management by identifying different steering practices. It shows how input-oriented steering and output-oriented steering coexist within a performance management system. To understand the complexity of agency governance, both input-oriented and output-oriented steering should be taken into account.

Concerning the effect of performance management practices on the ministerial control of agencies, this thesis shows the relevance of different steering practices regarding the ministerial control of agencies. Scholarly research on performance management has focused, in particular, on how and why public organizations use performance management and performance information (see, e.g., Moynihan & Pandey, 2006, 2010; Verhoest & Wynen, 2018), organizational performance, or the problematic effects of performance management (see, e.g., Bevan & Hood, 2006; Bohte & Meier, 2000; Gerrish, 2016; Van de Walle, 2009). However, there is a dearth of knowledge of how performance management practices influence the impact of performance management in agency steering, i.e., bureaucrats' perceptions of the relevance of performance management in their work. The thesis shows how different ministerial steering practices—such as relational or hard contracting or a top-down or bottom-up approach to performance management—influence bureaucrats' perceptions of the relevance of performance management in their work.

⁴ Received revise and resubmit in *Public Administration* [June 16, 2020].

The thesis illustrates the importance of ministerial steering of agencies for achieving interagency coordination. While much of the literature on interagency coordination has been centered on structural reforms (see, e.g., Christensen et al., 2016; Lægreid et al., 2014), the influence of ministerial steering of agencies has been neglected. This thesis shows that the ability of public organizations to coordinate depends on their level of autonomy, which is affected by ministry–agency steering practices.

This thesis also contributes to our knowledge on ministry–agency steering by theorizing the characteristics of ministry–agency relations. While research on performance management and accountability has been heavily influenced by agency theory (Maggetti & Papadopoulos, 2016; Schillemans & Busuioc, 2015), this thesis takes the stewardship perspective into account. It shows stewardship theory, a supplement to agency theory, as a useful framework for a more complete understanding of ministry–agency relations.

The thesis contributes methodologically to the research on performance management and the governance of agencies. While much research on performance management has relied on survey data (Groeneveld et al., 2015; Lægreid et al., 2006, 2007; Moynihan & Pandey, 2006, 2010; Roness et al., 2008; van Thiel & Yesilkagit, 2011), this thesis demonstrates the value of analyzing public documents and combining data from different sources so as to be free of common source bias. Although using public documents as a source of data is not new (see, e.g., Askim, 2015; Binderkrantz & Christensen, 2012; Binderkrantz & Christensen, 2009b; Binderkrantz, Holm, & Korsager, 2011; Kristiansen, 2017), this thesis shows how the use of computer-assisted text analysis can increase the effectiveness of document analysis. Moreover, it demonstrates how computer-assisted text analysis of public documents can be used relatively easily to create large databases and derive data that would be practically impossible to obtain manually without large-scale funding.

1.4 Structure

This thesis consists of two parts. The first comprises an introduction that first defines key concepts and provides a review of the literature. Thereafter, it outlines the theoretical framework used, before moving on to an account of performance management in Norway, while detailing the data and methods. The first part ends with a summary and reflections of the findings as well as reflections on topics for future research. The second part consists of four articles that together answer the overarching research questions in the thesis.

2.0. Literature review: Performance management and the governance of state agencies

2.1. Topics in performance management research

Performance management has had a tremendous impact on public organizations and has become an important field of study within public administration research. There are three (not mutually exclusive) identifiable strands of performance management research.

2.1.1. The adoption of performance management

One strand of research has been concerned with the spread and adoption of performance management and the shift from input-oriented to output-oriented steering. Important questions include how to manage for performance and why public organizations utilize performance information and performance management (Bouckaert & Halligan, 2008; Hammerschmid et al., 2013; Kroll, 2014, 2015a, 2015b; Moynihan & Pandey, 2006, 2010; Van Dooren & Van de Walle, 2008).

Much research within this strand of literature treats performance management as a recipe for how to manage public organizations, with a focus on “[c]reating desirable organizational characteristics” (Moynihan & Pandey, 2006). Typically, the dependent variable is related to the implementation of performance management, the use of performance information, the formulation of performance targets, and whether a shift has occurred from input-oriented to output-oriented steering. A limitation of this understanding of performance management is that the research has problems explaining the variation in its use.

2.1.2. Explaining variation in the use of performance management

The second strand of research departs from the insights mentioned above and investigates differences in performance management across organizations and countries. This strand addresses, in particular, the relationship between performance management and ‘agencification’ (Pollitt, 2006). Typically, the research within in this strand has examined the relevance of organizational and contextual factors (Bach, 2014; Bouckaert & Halligan, 2008; Kristiansen, 2015, 2016, 2016; Lægreid et al., 2006, 2007; Pollitt, 2006; Pollitt et al., 2004; Verhoest & Wynen, 2018) as well as how the level of trust between ministries and agencies affects the use of performance management (van Thiel & Yesilkagit, 2011).

This area of research has also looked at performance regimes amidst governance complexity (Moynihan et al., 2011). Agency governance is a complex affair, with challenges regarding the balancing of agency autonomy and political control (Christensen & Lægreid, 2007a). Performance management is one of several instruments for achieving accountability and control while delegating autonomy to agencies (Verhoest et al., 2004). It blends with other steering instruments, such as those relating to legal and fiscal control, the use of which may compensate for each other, reinforce each other, or be used rather

indifferently (Askim, 2015; Askim et al., 2015; Bach et al., 2017; Roness et al., 2008). Moreover, research has also found that traditional behavioral steering of inputs continues to coexist with more output-oriented steering (Askim, 2015; Binderkrantz & Christensen, 2009a).

In sum, research has sought to understand and explain the differences and similarities in the use of performance management by addressing structural factors, such as agency tasks, and institutional factors, such as administrative culture. A take-home lesson from this area of performance management research is that the use of performance management is affected by both institutional and structural factors. In the management of government agencies, “one standard does not fit all” (Kruijf & van Thiel, 2018).

2.1.3. Effects of performance management

A central question within this strand of literature relates to the intended and desirable effects of performance management, in particular, whether performance management leads to better performance (Binderkrantz et al., 2011; Binderkrantz & Christensen, 2012; Gerrish, 2016; Kroll, 2015c). However, research has also focused on unintended and problematic effects of performance management. This strand of research has shown that public organizations may adapt to existing performance regimes and “game” the system or produce other perverse effects of performance management (see, e.g., Bevan & Hood, 2006; Birdsall, 2018; Hood, 2002; Terman & Yang, 2016). Studies have also discussed whether performance management initiatives may crowd out trust and intrinsic motivation (Bellé, 2015; Frey & Jegen, 2001; Jacobsen & Jensen, 2017).

Research within this third strand has also shown that performance management systems are dynamic and inflate over time (see, e.g., Binderkrantz & Christensen, 2009b; Pollitt et al., 2010). This has been referred to as the logic of escalation (Pollitt, 2013, p. 353) or the law of mushrooming (de Bruijn, 2007). Nevertheless, more mature performance management systems also have the ability to deflate (Kristiansen, 2017).

One pertinent issue within this third strand of research is the trade-off between performance-based accountability and coordination. Scholars have argued that there exists a tension between performance management and coordination (Frederickson, 2007; Moynihan et al., 2011). The implementation of public policies might require coordination between agencies in situations where it is difficult to assign individual credit and blame. However, agencies should be accountable for their performance on core tasks. A strong focus on performance management implies strong vertical control, which might cause tunnel vision and vertical “silos” (Christensen et al., 2016; Hansen et al., 2013; Hood, 1976). The use

of performance management provides public organizations with incentives to fulfil individual organizational goals at the expense of coordination.

This third strand of performance management illustrates that actors (individuals or organizations) adapt to existing performance management systems. Subordinates may “game,” and principals may respond. However, studies of subordinate individuals also show that intrinsic motivation may be crowded out by strict steering. To fully understand the dynamics of performance management, one must understand the motivations and interests of the actors involved.

2.2. Research gaps and how the thesis addresses them

To answer the first research question, this thesis draws on literature from the first and second strands of research: *How do ministry–agency steering practices vary, and to what extent do organizational characteristics explain varying ministry–agency steering practices?* Research on ministry–agency steering practices has been dominated by two discussions. The first concerns a possible shift from input to output steering (Moynihan & Pandey, 2006; Osborne, 2006; Schrijvers, 1993, p. 598), while the second relates to the second strand of literature and sees steering as a one-dimensional variable moving from low to high intensity. Here, the differences between input and output steering are not essential (Askim, 2015; Roness et al., 2008). It is assumed that an equal level of control can be accomplished through compensation for reduced input-oriented steering by increasing the amount of output-oriented steering and vice versa (Rones et al., 2008). This thesis bridges these two discussions in Article 1, which develops a typology of ministry–agency steering practices and analyses how organizational characteristics influence these practices. Additionally, to understand how organizational characteristics affect steering practices, this thesis draws on insights from the second strand of literature, which provides insights on the effects of organizational characteristics, such as tasks and agency size on steering practices (see, e.g., Pollitt, 2006).

The second research question (*How do different performance management practices affect ministerial control of agencies and interagency coordination?*) draws on insights from the second and third research strands. Research on performance management has provided evidence of varying practices (see the second strand of research); however, there has been less attention on the consequences of different steering practices on the governance of agencies more generally. Scholarly research in the first and third strands has focused on how and why public organizations use performance management and performance information (e.g., Kroll, 2015a; Masal & Vogel, 2016; Moynihan & Pandey, 2006; Pollitt, 2006; Verhoest & Wynen, 2018) and whether and how the introduction of performance management leads to better performance (e.g., Pollanen et al., 2017; Van de Walle, 2009). In the third research strand, the focus has also been on the problematic effects of the use of performance management, such as

gaming behavior (e.g., Bevan & Hood, 2006; Birdsall, 2018; Bohte & Meier, 2000). However, there is little empirical knowledge concerning how varying performance management practices affect the steering and control of agencies. This limitation is addressed in Article 2, which examines how steering practices influence the impact of performance management in agency steering, understood as bureaucrats' perceptions of the relevance of performance management in their work.

The link between performance management and coordination has been especially pertinent within the third strand of literature. Research here has regarded the combination of performance management and coordination as somewhat challenging, if not incompatible (Frederickson, 2007; Moynihan et al., 2011). Research on how to achieve coordination has largely focused on organizational boundaries and structural reforms (Christensen et al., 2016; Lægveid et al., 2014) and has overlooked the possible influence of ministry–agency steering and agency policy autonomy, which is addressed in Article 3. It draws on insights from the second research strand in relation to ministry–agency steering and agency policy autonomy. The article sets out to investigate how different forms of ministry–agency steering leave agencies with varying degrees of policy autonomy, which may affect the extent to which they coordinate with other agencies.

This thesis also contributes methodologically to the literature on performance management and agency governance. Scholars have argued for the relevance of computer-assisted methods for analyzing texts in public administration research (Anastasopoulos & Whitford, 2019; Hollibaugh, 2019). However, as far as I know, these methods are yet to be applied in research on performance management and agency governance. Insights from the third strand of literature suggest that performance management systems are dynamic and that the number of performance demands varies over time (Binderkrantz & Christensen, 2009a; Kristiansen, 2017; Pollitt et al., 2010). Article 4 provides an application of computer-assisted text analysis in performance management research. First, it shows how computer-assisted methods can be used to aid and extend human coding of policy documents. Second, it shows how the method enables studies of large amounts of text that would be practically impossible to analyze manually. Thus, Article 4 illustrates the relevance of computer-assisted text analysis by analyzing the development of the number of steering demands in letters of appropriation between ministries and agencies over time, thereby addressing the first research question.

2.2. Theoretical perspectives on ministry–agency relations

2.2.1. *Delegation*

Studies of ministerial steering of government agencies are, in essence, studies of delegation. Ministries delegate tasks and responsibilities to agencies, and they must decide on the use of control structures to ensure that agencies act accountably. The use of performance management in ministry–agency relations

has largely been described, explained, and analyzed through the lens of agency theory, which assumes conflicting interests between ministries and agencies (Maggetti & Papadopoulos, 2016; Schillemans, 2013; Schillemans & Busuioc, 2015). Ministry–agency relations have thus been viewed as principal–agent relations, where performance management serves as an instrument to ensure accountability. However, in order to gain a better understanding of how ministry–agency relations affect the use of performance management and accountability structures more broadly, research needs to move beyond the assumption that ministries and agencies invariably have conflicting interests (Schillemans, 2013).

As a supplement to agency theory, some scholars have advocated for the relevance of less conflict-oriented perspectives in studies of delegation than is the case in agency theory. Majone (2001) argues for the fiduciary principle (where the agent acts in the best interest of the principal), while others have touted the relevance of trust in understanding delegation (Pierre & Peters, 2017; Vosselman, 2016). However, as a result of the dearth of research on how trust-oriented ministry–agency relations affect the use of performance management, insights from the literature on contractual relations are valuable. In many ways, since the introduction of performance management, ministry–agency relations have become quasi-contractual (Binderkrantz & Christensen, 2009b; Greve, 2000).

Empirical research has shown that the level of trust and goal alignment in delegating and steering relations affects control, autonomy, and accountability (Brown et al., 2007; Lamothe & Lamothe, 2012; Woolthuis et al., 2005). In a study of ministry–agency relations in the Netherlands, van Thiel and Yesilkagit (2011) found that the number of performance indicators is negatively correlated with the level of trust. Although the study was inconclusive about whether trust could substitute formal steering, the authors did highlight the importance of striking a balance between trust and control. In a study of how public officials manage relationships with non-profit organizations, Van Slyke (2007) found that trust was at the center of contractual relationships and was the most important criterion in how providers were managed (p. 171). The research mentioned here suggests that trust might be a substitute for formal control.

To understand the balance between agency autonomy and political control in ministry–agency relations, this thesis departs from two contrasting theories on the issue of delegation: agency theory and stewardship theory. Both theories analyze relationships in which a principal (e.g., a ministry) delegates a task to an executive (e.g., a government agency). Agency theory postulates the presence of principal–agent problems, i.e., the interests of ministries and agencies diverge (at least partially) and that goal conflict exists. Conversely, stewardship theory posits that the interests of ministries and agencies (largely) converge and that the relationship is characterized by goal alignment (Davis et al., 1997). Accordingly, principal–agent problems are absent (or at least minimized). The fundamental difference

between agency theory and stewardship theory, therefore, lies in their views on the executive and its interests and behavior.

2.2.2. Agency theory: Conflict-oriented relations

Agency theory is a widely used theoretical framework in studies of delegation and has had a major influence on public administration research. For example, it has been used in studies of government contracting (Marvel & Marvel, 2008; Van Slyke, 2007) and agency governance (Binderkrantz & Christensen, 2009b, 2012; Schillemans, 2013; Verhoest, 2005). The theory originates from economic theory and has influenced major public management reforms, such as performance management (see, e.g., Boston et al., 1996). Its popularity may be explained by its relatively high face validity and its ability to derive relatively specific hypotheses.

Agency theory describes situations in which a principal delegates a task to an agent. It is assumed that the interests of the principal and agent (at least partially) diverge and that there is information asymmetry between the two actors (Eisenhardt, 1989; Jensen & Meckling, 1976; Waterman & Meier, 1998). Principal-agent problems arise when the agent does not act in the best interest of the principal and may cause agency loss. Agency loss is understood as the discrepancy between the principal's wishes and the agent's performance. As information asymmetry is detrimental to the principal, it is difficult for the principal to verify whether the agent is behaving appropriately. When the agent possesses more information than the principal does, the agent may pursue its own interests at the expense of the principal—a problem known as moral hazard (Eisenhardt, 1989). To minimize agency loss, the principal may design control structures, such as a contract with proper instrumental incentives (e.g., rewards and/or sanctions), to cope with the agent's moral hazard (Eisenhardt, 1989; Vosselman, 2016).

Goal conflict is at the core of the agency theory approach in studies of ministry–agency relations. Drawing on insights from public choice theory and institutional theory, it is possible to identify potential sources of goal conflict in ministry–agency relations. Studies of bureaucratic behavior rooted in public choice theory have had a major influence on public administration research, with its assumptions about rational utility-maximizing actors (see, e.g., Downs, 1967; Dunleavy, 1991; Niskanen, 1971). Bureaucrats may have different motives, and not all may be in compliance with the wishes of the ministries. For example, Niskanen (1971) argues that agencies (or, more precisely, the agencies' top management) will act to maximize the discretionary budget. In such cases, there is a significant principal–agent problem between agencies and political principals (Niskanen, 1971, 1991).

The budget-maximizing model has been criticized for its unrealistic assumptions, as the utility of each individual bureaucrat is usually not directly linked to the bureau's budget (Dunleavy, 1991; Moynihan, 2013). There is little personal gain for managers facing increased agency budgets. Dunleavy (1991)

proposes a bureau-shaping model that claims that rational bureaucrats (more precisely higher-level bureaucrats) will seek to optimize the shape of the agency, for example, by focusing on core tasks, with less responsibility for secondary tasks. The bureau-shaping model has many similarities with Wilson's (1989) concept of turf-protection. Like Dunleavy, Wilson criticizes the assumption that bureaucrats seek to maximize budgets. Wilson (1989) argues that agencies are primarily concerned about retaining autonomy over their own turf (pp. 179–195). Turf-protection may, therefore, be regarded as a special case of bureau shaping. Bureau-shaping or turf-protecting agencies may be undesirable among political principals. For example, turf-protection may limit coordination (Busuioc, 2015).

Insights from institutional theory may also explain potential sources of conflict between ministries and agencies. The logic of appropriateness is central to institutional theory (see March, 1994; March & Olsen, 2011). It concerns rule following and a systematic reasoning behind actions. Decision-makers (e.g., bureaucrats who make decisions on behalf of the agency) are thought to ask themselves three questions related to recognition (what is the situation?), identity (who am I/which organization is this), and rules (what do I/this organization do in this situation?) (March, 1994, p. 58).

Different opinions among ministries and agencies concerning what is appropriate agency (or ministerial) behavior may give rise to principal–agent problems. For example, bureaucrats are expected to be loyal to political principals but also professionally independent (Jacobsen, 1960). However, these two perceptions of appropriate behavior might come in conflict, as political decisions may deviate from what is regarded as optimal from a professional point of view. Research on the Norwegian state administration shows that agency-employed bureaucrats are more inclined toward professionalism than political loyalty, while ministry-employed bureaucrats are equally concerned about professional norms and political loyalty (Christensen et al., 2018, pp. 72–74). If agencies put more emphasis on professional norms than on political loyalty, interests between ministries and government agencies might diverge. Moreover, government agencies might become institutionalized organizations and might develop distinctive norms and values (Selznick, 1957). While ministries might regard agencies as an asset for policy implementation, government agencies might view themselves as protectors of certain norms and values. Different perceptions of the role of the agency might increase the likelihood of bureaucratic drift and principal–agent problems.

Agency theory suggests that control structures should be imposed to ensure interest alignment between ministries and agencies. A principal–agent relationship between ministries and agencies is expected to be top-down and control-oriented. Ministries should also exercise caution about the extent of autonomy awarded to agencies so as to avoid the risk of opportunistic behavior from them.

Performance management is an example of control that holds agencies accountable for their performance through performance indicators set by ministries. Ministries may rely on performance information to reduce information asymmetries and detect moral hazard (Moynihan, 2008). Less information asymmetry between ministries and agencies reduces agencies' incentive toward noncompliance with ministerial directives. However, public tasks are often complex, and it may be difficult to measure the results of an agency's work (Moynihan, 2008; Moynihan et al., 2011; Wilson, 1989). In such cases, we would expect ministries to focus more on alternative control mechanisms, such as more behavior-oriented steering, which controls what the agency is doing, rather than what it achieves (Eisenhardt, 1989, p. 62).

2.2.3. Stewardship theory: Trustful relations

The use of agency theory in studies of public administration has not escaped criticism. A common critique is that the underlying assumptions about the agents' behavior cannot be sustained empirically (Maggetti & Papadopoulos, 2016; Pierre & Peters, 2017; Schillemans & Busuioc, 2015) and that agency theory (and rational choice explanations in general) prioritizes clarity and parsimony over realism (Roness, 2009, p. 48). Olsen (2015) argues that agency theory does not capture the institutional surroundings in which public accountability takes place and that more institutionally oriented theories that capture public service values and "[...] administrators who see themselves as 'stewards' of the public good, sharing goals and principals with their political principals" (Olsen, 2015, p. 436, citing Schillemans, 2013) are needed to understand ministry–agency relations.

Similar to agency theory, stewardship theory examines situations in which a principal delegates a task to an executive, known as a steward. The theory does not assume a divergence of interests between the principal and steward. Rather, it assumes that executives are loyal stewards "motivated to act in the best interests of their principals" (Davis et al., 1997, p. 24). In this framework, stewards are less motivated by self-interest and external factors, such as fiscal incentives. They are more motivated by intrinsic values, pro-social goals, and a desire to fulfil the tasks delegated by the principal. The steward simply wants to be a good and loyal executive (Davis et al., 1997; Schillemans, 2013; Van Slyke, 2007). Stewardship theory views the executive as more focused on collective goals rather than on individual goals. It recognizes that executives might have individual motives but that these are subordinated to organizational and pro-social goals. Stewards are not necessarily motivated only by serving the public (see Perry et al., 2010, for more on public service motivation). Nevertheless, a steward will exhibit some degree of pro-social behavior (Schillemans, 2013).

Schillemans (2013) proposes stewardship theory as an alternative to agency theory in studies of ministry–agency relations. Stewardship theory diverges from agency theory in its view on the

motivational factors and interests of the executive and has been used in studies of delegation in corporate governance (Anderson et al., 2007; Angwin et al., 2004) and family firms (Hoffmann et al., 2016; Le Breton-Miller et al., 2011; Stanley & McDowell, 2014). Within the field of public administration, stewardship theory has also been deployed in studies on human service organization contracting (Carman, 2011; Dicke, 2002; Dicke & Ott, 2002; Lambright, 2009; Marvel & Marvel, 2008; Van Puyvelde et al., 2016; Van Slyke, 2007).

In studies of ministry–agency relations, however, stewardship theory has few applications. Schillemans’ (2013) study of the governance of Dutch agencies found that elements from stewardship theory successfully explained problems experienced by public managers. Further, Schillemans and Bjurstrøm (2019) found that elements from both agency theory and stewardship theory were present in the governance of Dutch agencies. This research indicates that agency and stewardship theories should be combined to gain a better understanding of ministry–agency relations.

Because stewards are expected to be loyal, principal–agent problems are minimal. Translated into ministry–agency relations, if ministries and government agencies share the same goals, and agencies loyally execute the wishes of the ministry, there is little risk of agency loss and moral hazard. Consequently, there is little need for strict control and accountability structures to hold the agency accountable.

The central assumption in stewardship theory is goal congruence, and there are many reasons to believe that this may be present in ministry–agency relations. First, several scholars have argued that the assumptions of agency theory regarding bureaucratic behavior are problematic and that there is little empirical evidence that bureaucrats pursue self-interest. For example, Pierre and Peters (2017) argue that there is little empirical evidence that supports the view of shirking bureaucrats. Public servants are not motivated by self-interest and are more intrinsically motivated (Bellé, 2015; Perry et al., 2010). Intrinsically motivated stewards are more likely to demonstrate pro-organizational behavior and, thus, reduce the potential of goal conflict between ministries and agencies.

Second, cultural norms and values constrain bureaucrats’ self-interest pursuits (Egeberg, 1995). Agency theory does not capture the impact of such norms and values, and that “[...] autonomy does not imply the right to arbitrarily exploit discretion for personal gain” (Olsen, 2015, p. 436). Administrative norms and values may push government agencies toward loyally carrying out the wishes of ministries. In such an institutional context, there is an expectation of goal congruence between ministries and agencies.

A final point in favor of goal congruence rather than goal conflict is that ministry–agency relations consist of repeating interactions between ministries and agencies (Olsen, 2015). The ministry may

observe the agency's results *ex post* and consider them in the next round of negotiations, and ministries may respond to the lack of compliance by increasing control and reducing agency autonomy. This reduces an agency's incentive toward noncompliance with the ministry's interest.

Davis et al. (1997) stress the importance for the principal in considering stewardship motivation when designing hierarchical relations. Given a principal–steward relation between ministries and government agencies, control and accountability structures should take on a different design than that of principal–agent relations. The principal–steward relationship is characterized by trust, dialogue, and information exchange, as the principal is expected to involve the steward in decision-making. Stewards should be given autonomy, as there is only a minimal risk of agency loss and moral hazard. In the absence of goal conflict, trust may evolve between ministries and agencies, and increased trust may reduce the need for strict steering and performance-based accountability arrangements (van Thiel & Yesilkagit, 2011). Trust acts as a mechanism of accountability, as neither the ministry nor the agency is expected to have any interest in breaking the bonds of trust. In such cases, ministry–agency relations resemble a fiduciary relation (Majone, 2001), and steering relations are oriented more toward broader collective goals than to detailed plans of action. Strict hierarchical steering may in fact be counterproductive, as it may crowd-out the stewardship motivation.

2.2.4. Balancing agency theory and stewardship theory in ministry–agency relations

Davis et al. (1997) argue that the impact of control depends on whether an executive acts as an agent or steward. Different agency behaviors require different types of control. When ministries decide on the use of control, they must take into account whether an agency is expected to behave as an agent or steward. In ministry–agency relations resembling the principal–agent type, ministries should impose strict control and oversight, and agencies should only be allowed a low degree of autonomy and leeway, as this might increase the risk of agency drift. For example, one would expect ministries to design a performance management system that gives agencies less autonomy and flexibility. In contrast, in ministry–agency relations leaning towards the principal–steward type, ministries should impose more relaxed control in order to sustain trust. For example, ministries should design a performance management system that gives agencies autonomy and leeway.

Problems may occur if there is a mismatch between the ministry–agency relationship and the control structure involved. If ministries design control structures as in a principal–steward relation and the agency acts as an agent, there will be no system for sufficient control of the agency, likely resulting in agency loss. If ministries impose control mechanisms as if agencies behave like agents (but are in fact more similar to stewards), the result will likely be a frustrated agency, impacted by ministerial betrayal (Davis et al., 1997).

Table 2.2: Prisoner's dilemma

		Ministry's choice	
		Agent	Steward
Agency's choice	Agent	Principal–agent relation	Opportunistic behavior
	Steward	Agency feels betrayed	Principal–steward relation

(source: Davis et al., 1997, p. 39)

A ministry's decision regarding how to govern agencies is arguably similar to a "prisoner's dilemma" (Davis et al., 1997). If ministries design control mechanisms that fit the ministry–agency relationship, the impact of control will be high. In contrast, if ministries design control mechanisms that do not fit the characteristics of the ministry–agency relation, the control will be suboptimal or insufficient and will have a low impact. A dilemma occurs because the ministries may be risk averse and may 'safeguard' themselves by assuming that agencies will behave as agents. If the agency behaves as an agent, there is a mutual fit. However, as long as the cost (in terms of agency loss) of designing a principal–steward relation (when the agency, in fact, behaves as an agent) is greater than that of imposing excess control, it will always be rational for the ministry to design a principal–agent relation.

3.0. The Norwegian experience

3.1. Background

Norway is a unitary parliamentary state. The state administration consists of 16 ministries (including the Prime Minister's Office) and 171 state agencies.⁵ Government agencies in Norway are formally part of the central government as semi-autonomous organizations, though without legal independence (Lægneid et al., 2013). They operate at arm's length of the government (ministries) and are structurally disaggregated from a parent ministry, enjoying various degrees of autonomy when carrying out public tasks and implementing policies (Verhoest et al., 2012, p. 3). All government agencies fall under the remit of a ministry, for which a minister has ministerial responsibility, and are fully responsible for all activities carried out by government agencies in the ministerial portfolio. The principle of ministerial responsibility may be regarded as strong in the Norwegian context. There are approximately 4,600 staff employed in ministries and about 160,000 employed in government agencies (according to the Agency for Public Management and eGovernment).⁶ However, there are large variations in agency size. For example, the Norwegian Biotechnology Advisory Board has only seven full-time equivalents (FTEs), while the Norwegian Labour and Welfare Administration has about 14,000 FTEs.

Government agencies also vary in the type of affiliation to the parent ministry. The type of affiliation, to some extent, reflects the degree of structural and financial autonomy. The Norwegian State Administration Database distinguishes between four main types of formal affiliation⁷: central agencies/directorates (*sentraladministrative organer/direktorater*); other public administrative bodies (*andre ordinære forvaltningsorganer*); agencies with special extended authorities (*forvaltningsorganer med særskilte fullmakter*); and government administrative enterprises (*forvaltningsbedrifter*).

Central agencies/directorates and other ordinary public administrative bodies comprise the main types of agency affiliation. They are used unless special concerns indicate that some other type of affiliation should be used (Statskonsult, 1997). Thus, they constitute a sort of default affiliation. Examples of agencies in this category include The Norwegian Tax Administration (central agency) and the National Insurance Court (another ordinary public administrative body).

⁵ According to the definition by The Norwegian State Administration Database (<https://nsd.no/polsys/en/civilservice/>), managed by the Norwegian Centre for Research Data.

⁶ See 'Statistikk om ansatte i staten' at <https://www.difi.no/rapporter-og-statistikk/nokkeltall-og-statistikk/ansatte-i-staten#6059> for more information.

⁷ Central agencies/directorates and other public administrative bodies are sub-groups of ordinary public administrative bodies and, thus, share the same features. Nevertheless, this thesis will use the categorization of state agencies from the Norwegian State Administration Database. More on different types of formal affiliations can be found in Statskonsult, note 1997:8 (<https://www.difi.no/sites/difino/files/n1997-8.pdf>) [Norwegian only].

Agencies with special extended authorities do not constitute a distinct and coherent type of government agency but, rather, a group of agencies that enjoy increased financial autonomy. Typically, these agencies follow a net operating budgeting principle. However, they may also have other types of extended autonomy. Examples of agencies with special extended authorities include public universities and the Norwegian Meteorological Institute.

Government administrative enterprises are typically used when tasks relate to business-oriented service delivery. Examples include the Norwegian Public Service Pension Fund and the Directorate of Public Construction and Property.

3.2. Government agencies in Norway: A brief historical overview

Norway has a long tradition of policy implementation through government agencies (Grønlie, 2009; Grønlie & Flo, 2009), with several agencies established as early as the 1800s. Examples include Statistics Norway (1876) and the Directorate of Public Roads (1864). In the early 1800s, a legally trained elite group of civil servants dominated the central administration. As a response to growing discontent among professional groups with this “civil servants’ state” in the 1840s–1850s, the government created several independent agencies (Bjurstrøm & Christensen, 2017, p. 155; Christensen, 2003; Lægreid et al., 2012).

The period following World War 2 saw a rapid growth in the public sector and a general increase in the establishment of government agencies. In 1946, a committee for decentralization (*Desentraliseringskomiteen*) was established, with the purpose of evaluating what tasks could be delegated to government agencies. The idea was to establish and delegate technical and routine tasks to government agencies to relieve the workload of ministries (Grønlie, 2009, pp. 73–75; Lægreid et al., 2012, p. 237). According to data from the Norwegian State Administration Database, the number of agencies gradually increased from 1947 to 1980. Figure 3.1 shows the development in the number of government agencies by type of formal affiliation to the parent ministry from 1947 to 2019.

Figure 3.1. The number of Norwegian government agencies by type of formal affiliation to the parent ministry (1947 to 2019). Data from the Norwegian State Administration Database.⁸

The early 1980s marked the end of the state administration’s “expansion era” and the beginning of the new reform era of NPM. As in many other countries in the Western world at the time, there was a general perception that state administration had become too large and inefficient (Grønlie & Flo, 2009, pp. 10–11). This was reflected in the declining trend in the number of agencies from 1980 onwards, caused by restructuring within central government, especially involving mergers, terminations and moving agencies outside the central administration (Lægreid et al., 2012, p. 238).

3.3. Performance management in the governance of agencies in Norway: 1984 onwards

3.3.1. Background

Norway did not experience a rapid and radical adoption of NPM reforms in central government. Rather, the country can be described as a “slow learner” and a “reluctant reformer” (Olsen, 1996).⁹ The same terms can be used to describe the introduction of performance management. Although the first ideas relating to the increased goal-oriented steering of government agencies could be traced back to the 1950s and 1960s, it was not until the second half of the 1980s that performance management was introduced (Grønlie & Flo, 2009, p. 106). It was introduced gradually from the mid-1980s rather than through a single major reform.

⁸ The Norwegian State Administration Database (<https://nsd.no/polsys/en/civilservice/>), managed by the Norwegian Centre for Research Data.

⁹ Recent research shows that this label no longer applies to the reform patterns of recent years (see Greve et al., 2019).

Important early ideas about performance management in Norway were launched in a public advisory commission in 1984 (NOU 1984: 23). The commission's mandate was to evaluate reforms in the budget system for government agencies in an effort to increase the productivity of the state administration. The official report recommended that the governance of government agencies should be more centered on goals. However, the commission recommended that this shift toward more goal-oriented steering should be combined with greater financial and managerial autonomy. Moreover, it was recommended that ministries should communicate expected results in their budget proposals to the government agencies and reduce requests for single-case decisions to be sent from agencies to ministries for approval (NOU 1984: 23, pp. 6-7).

The recommendations from the 1984 public advisory commission were followed up by the parliament. The 1986 budgetary reforms stated that goals should be formulated through the agencies' budgets, while agencies should report on achieved results (Statskonsult 1999). In many ways, the 1986 budget reforms marked the introduction of a performance management system in the governance of agencies in Norway, which gradually developed throughout the 1990s.

In 1989, a public advisory commission led by Tormod Hermansen submitted the Norwegian official report (NOU 1989: 5) *En bedre organisert stat* (A better organized state) to the Ministry of Consumer Affairs and Government Administration. In many ways, this public advisory commission marked a shift in the governance of agencies in Norway with its conclusion that the central government could be better organized (NOU 1989: 5, p.1). The commission concluded, among other things, that when organizing the state administration, the government should more actively utilize various types of formal affiliations. Consequently, in the following years, the state administration experienced increased liberalization and deregulation. As Figure 3.1 shows, the total number of agencies decreased, although the number of agencies with special extended authority increased. Additionally, there was a transformation of some government agencies to state-owned enterprises.

The document, *A Better Organized State*, also recommended that in the governance of agencies, ministries should focus more on broader issues than on detailed steering. Moreover, it recommended that in budgetary propositions, ministries should focus more on the goals, tasks, priorities, and results of agencies. The report also suggested more active steering on goals and a focus on results. These recommendations were followed up by the parliament in 1997 with the introduction of new budgetary rules for the state administration (*økonomiregelverket i staten*). Under these new rules, the budgetary process became more closely linked to performance management. Ministries should now define goals and performance targets for every agency within their delegated budget limitations. As the Ministry of Finance held responsibility for financial regulation in the state administration, it was given a leading role in the design of the performance management system of agencies in Norway (Grønlie & Flo, 2009,

pp. 109-110). This system has been relatively stable since 1997, although there have been minor changes.

3.3.1. Performance management in practice

The performance management system in Norway is linked to the budgetary process and follows a one-year cycle. The state financial regulations state that ministries must define goals and performance targets for their subordinate agencies as part of the annual budgetary process (Ministry of Finance, 2019). This is carried out through a letter of appropriation (*Tildelingsbrev*) from the ministry to each agency. This letter is a publicly available document that specifies an agency's budget, goals, performance targets, reporting demands, and behavioral instructions. In many ways, the letter of appropriation may be regarded as a performance contract, although they are not contracts in a strict sense but serve more as quasi-contractual arrangements. Government agencies report on their achievements in an annual report that is handed over to their parent ministry by the end of the year. As such, the letter of appropriation and the annual report may be regarded as the most central documents in the Norwegian performance management system. It is not the purpose of the letter of appropriation to cover all activities but, rather, to prioritize and communicate the most important goals and activities (Norwegian Agency for Public and Financial Management, 2011, p. 4). Moreover, the letter of appropriation should be adapted to the unique features of each agency (Ministry of Finance, 2019 § 4).

Norway's experience with performance management is based on collaboration and dialogue. Moreover, performance management in Norway is partly based on a bottom-up rather than top-down approach (Christensen et al., 2018, p. 144). Formally, the parent ministry formulates the letter of appropriation, but in practice, agencies are also involved in this formulation (Askim, 2015; Lægreid et al., 2006), although the ministry has the final say. In a 2016 survey of civil servants employed in ministries and government agencies, more than 60% reported that they partly or totally agreed that the design of goals and performance targets were developed in cooperation between ministries and agencies (Christensen et al., 2018, p. 144). Only about half of the employees in government agencies and about 40% in the ministries partially agreed or totally agreed that performance management was primarily a control and management tool for the ministries.

Table 3.1: Civil servants' perceptions of performance management practices on a five-point scale (totally disagree, partly disagree, neither nor, partly agree, totally agree). Percentages recording partial and total agreement with the following statements (Results from Christensen et al., 2018, p. 144):

Would you agree or disagree with the following statements about the performance management system in the central government within your area of responsibility, as expressed in the letters of appropriation and the steering dialogue between ministries and subordinate agencies?	Ministry	Government agency
The design of the goals and the performance indicators are developed in cooperation between ministries and government agencies.	63%	65%
It is primarily a control and management tool for ministries.	42%	51%

The performance management system has not escaped criticism. In 2012, a public inquiry commission evaluating the government's handling of the country's most deadly terror attack on July 22, 2011, highlighted that managers of the Norwegian police believed that the number of performance targets made internal management difficult (NOU 2012: 14, p. 311). In response to these conclusions and criticism, a new government program for improved governance and leadership in the central government (*Program for bedre styring og ledelse*) stated that all ministries should scrutinize the governance of their subordinated agencies and focus on clearer goals and priorities in the letters of appropriation. The Ministry of Finance and the Ministry of Local Government and Modernisation (2014) also encouraged other Norwegian ministries to cut down the number of performance demands, especially input-oriented ones.

In many ways, the increased focus on performance management practices in the aftermath of July 22, 2011, has marked a change in the use of performance management in Norway. Following the government program for improved leadership and governance in central administration, there has been an increased focus on the role of trust in performance management. This program states that the use of detailed steering on activities and processes is problematic, as it can be perceived as a sign of distrust (Ministry of Local Government and Modernisation, 2014, pp. 4, 7, 10). Performance management, trust, and control were also the topics of the Norwegian Agency for Public and Financial Management's annual conference on steering in the state administration in 2018.¹⁰

3.3. The case of Norway in the study of ministry–agency steering practices

The implementation of performance management is often associated with increased agencification during NPM reforms in the 1980s. Performance management was supposed to compensate for the lack of political control over agencies following structural disaggregation (Kruijf & van Thiel, 2018;

¹⁰ See <https://dfo.no/kurs/styringskonferansen/styringskonferansen-2018> for information on the Norwegian Agency for Public and Financial Management's annual conference, 2018.

Overman et al., 2015). Structural disaggregation between ministries and agencies gives rise to delegation problems that can potentially be solved through performance management. However, as mentioned earlier, implementing policies through government agencies was not a new phenomenon in Norway. Still, Norway gradually implemented performance management as a new system for controlling government agencies, even though different systems (such as fiscal and legal systems) for controlling agencies had already been established.

Norway is a rather interesting case in the study of the role of performance management in agency governance. Despite its long tradition of government agencies and high levels of mutual trust and collaboration (Lægreid et al., 2007, p. 388), Norway has implemented a system that is often associated with distrust and control. It is often associated with distrustful relations between principals and agents, as it was designed to overcome goal conflict and rests on the assumption of diverging interests. Despite examples of its drawbacks, performance management continues to stand rock solid as the driving force behind agency steering (Ministry of Finance, 2019: §4); however, it is “calibrated” to fit the Norwegian administrative culture.

Given the Norwegian administrative culture, with its high degree of trust and collaboration, Norway may be regarded as a case where agency theory is expected to have low explanatory power and where stewardship theory is expected to have high explanatory power in studies of ministry–agency relations.

4.0. Research design

This thesis uses different data sets and quantitative methods to answer the overarching research questions. The thesis is centered on three key dependent variables: i) steering practices; ii) the impact of performance management in the steering of agencies; and iii) interagency coordination. The data on these three variables are obtained from three different sources.

The data on the ministry–agency steering practices are obtained from a content analysis of letters of appropriation between ministries and agencies. This data set consists of 142 manually coded letters of appropriation and contains letters of appropriation for 72 agencies in 2012 and 2015 (two agencies were terminated during the period, leaving the number of letters of appropriation from 2015 at 70). Both the letters of appropriation and their attachments were coded, but the targets and activities shared among all the agencies were not.¹¹ Supplementary letters of appropriation were not coded. The agencies were sampled to represent an analytically relevant variety among the universe of about 174 agencies (parent ministry, formal affiliation, main tasks, and organizational size). The number of performance demands (explicitly stated goals and steering parameters) was coded and counted. The number of behavioral demands, more or less direct instructions, was also counted. The documents were evenly distributed between the author and a second coder. One coder coded his share of the documents, and the other performed a quality check of the coding and vice versa. There were only a few disagreements, which were solved by discussion or consulting a third coder.

Relying on data from the letters of appropriation means that only the steering demands explicitly stated in these documents are taken into account. Thus, only formal steering is measured. Given that letters of appropriation are instrumental, and not merely symbolic artefacts, they are valid expressions of actual steering practices, more so than survey data, for example, which offer perceptions of steering practices, sometimes laced with views on how steering should be implemented. Moreover, the financial regulations state that all steering demands are to be handed, in writing, from ministries to agencies.

All four articles in this thesis use data from the content analysis of the letters of appropriation to measure varying steering practices. In Article 2, however, additional data from the 2016 survey of the state administration (described in greater detail below) are used to measure steering practices.

Data on the impact of performance management in the steering of agencies were gathered from the 2016 survey of the state administration, a large-scale survey of bureaucrats employed in ministries and central agencies/directorates. In this survey, bureaucrats were asked, among many questions, about the impact

¹¹ These are so-called *fellesføringer*, which are targets and activities that apply to all agencies, for example, in 2012, one of these targets was connected to the re-use of public data.

of, or the importance of, performance management in agency steering and ministerial practices of performance management. The impact of performance management in steering the steering of agencies is operationalized using a question asking respondents to assess the importance of three aspects of performance management in their field of work. Since 1976, surveys of the state administration have been carried out in Norway every 10 years, but only the 2016 survey contained information about ministerial practices of performance management (see Christensen et al., 2018, for more information on the survey).

Data on interagency coordination were obtained from a quantitative text analysis of annual reports handed over to the ministries by the government agencies. The annual report is one of the most important documents in the steering dialogue between agencies and ministries, and it should provide an account of the connection between resources and outcomes (Norwegian Agency for Public and Financial Management, 2018). References to names and abbreviations of other government agencies were counted in the annual reports using computer-assisted text analysis to establish a measure of interagency coordination.

The first research question of this thesis (*How do ministry–agency steering practices vary, and to what extent do organizational characteristics explain varying ministry–agency steering practices?*) is addressed in Article 1, in which the dependent variable is ministry–agency steering practice. The data obtained from the coded letters of appropriation were used to categorize different ministry–agency steering practices. These data were combined with data from the Norwegian state administration database. This database contains government agency register data, such as the year in which the agencies were established, the number of employees, etc. Multinomial regression was used to analyze the effects of different organizational characteristics, such as agency age and size.

Article 4 addresses the first research question by illustrating how quantitative text analysis and machine learning can be used to replicate human coding of policy documents. This article shows how new and more sophisticated methods of text analysis can be used to obtain data that give new insights on ministry–agency steering practices. The data obtained from the coding of the letters of appropriation are used to train an algorithm to replicate human coding. This algorithm is then applied to a large sample of 1,285 letters of appropriation from 2010 to 2019. These data are combined with data from the Norwegian state administration database to show the variation in steering practices over time.

The second research question (*How do different performance management practices affect ministerial control of agencies and interagency coordination?*) is addressed in Articles 2 and 3. In these articles, ministry–agency steering practices serves as the explanatory variable, and the impact of performance

management in the steering of agencies (Article 2) and interagency coordination (Article 3) are the dependent variables.

Article 2 combines data on the steering practices obtained from the coding of the letters of appropriation with the survey data. The dependent variable—impact of performance management in the steering of agencies—is gathered from the 2016 survey of the state administration. The explanatory variable—steering practices—is operationalized in two ways, using two different data sets. One operationalization uses data from the letters of appropriation, and the other uses data from the survey. The data used in Article 2 are hierarchical in nature, as the bureaucrats were nested in agencies, and are analyzed with multilevel regression.

Table 4.1: Similarities and differences in research design between the articles

	Article 1	Article 2	Article 3	Article 4
Dependent variable	Ministry–agency steering practices	Impact of performance management in the steering of agencies	Interagency coordination	Ministry–agency steering practices
Explanatory variable	Organizational characteristics	Ministry–agency steering practices	Ministry–agency steering practices	a)
Data	Content analysis of letters of appropriation Register data from the state administration database A-text database of the Nordic media monitoring company Retriever	Content analysis of letters of appropriation 2016 survey of the state administration Register data from the state administration database	Content analysis of letters of appropriation Content analysis of annual reports Register data from the state administration database A-text database of the Nordic media monitoring company Retriever	Content analysis of letters of appropriation Register data from the state administration database
Methods	Multinomial regression	Multilevel regression	OLS-regression	Computer-assisted text analysis and machine learning

a) Article 4 is descriptive in nature. Its aim is to show how computer-assisted text analysis can be applied in studies of ministry–agency steering practices. The purpose is not to *explain* ministry–agency steering practices per se. Thus, there are no explanatory variables in the study.

Article 3 addresses the second overarching research question by studying how steering practices affect interagency coordination. The data on steering practices are obtained from letters of appropriation, and the control variables are gathered from the Norwegian state administration database. The data are analyzed with OLS regression.

5.0. Philosophy of science: Potential threats to inferences

As an extension of the discussion on research design, this section discusses some of the potential challenges to inferences drawn from this thesis.

5.1. Common source bias

Quantitative research on performance management, and government agency steering more generally, has commonly relied on survey data (see, e.g., Bach et al., 2017; Groeneveld et al., 2015; Læg Reid et al., 2007; Moynihan & Pandey, 2006; Overman et al., 2015; van Thiel & Yesilkagit, 2011). While the survey method for collecting data has many advantages, such as a large sample size and relatively low cost, survey data are also especially sensitive to common source bias, i.e., situations in which the estimated effect of one variable on another is biased due to “systematic variance shared among the variables” (Jakobsen & Jensen, 2015, p. 3). Concerns related to common source bias occur when both the dependent and independent variables are collected from the same source, which is common for studies based on survey data (Jakobsen & Jensen, 2015; Podsakoff & Organ, 1986). For example, if the respondents in a survey systematically over- or underestimate the use of performance management and systematically over- or underestimate organizational performance, the estimated effect of performance management on organizational performance would be equally over- or underestimated.

However, this thesis relies mostly on document-based studies. Studying performance management practices and agency governance by quantitatively analyzing steering documents is not common but has received increased attention in recent years (Askim, 2015; Binderkrantz et al., 2011; Binderkrantz & Christensen, 2009a, 2009b, 2012; Kristiansen, 2017). Studies of documents may also generate common source bias if both the dependent and independent variables are collected from the same document. However, this is not an issue in the current thesis, which uses data from different sources to measure the dependent and explanatory variables in all four articles. Concern for common source bias is, therefore, not an issue, except in Article 2 with regard to the effect of steering practices (measured in the survey) and the impact of performance management in the steering of agencies. As data on the dependent and independent variables are from the same source, common source bias could be a potential issue. However, it is not possible to determine the extent to which common source bias affects the results related to the variables measured in the survey (other data sources are also used).

5.2. Omitted variable bias

As in most studies, there is a risk that omitted variables may influence estimated effects (Clarke, 2009; King et al., 1994, p. 168). To limit omitted-variable bias, the thesis controls for potential confounders, discussed in each article. However, there is one specific case of possible omitted-variable bias that merits special attention, i.e., informal steering. Although letters of appropriation are a valid expression of actual

steering practices, one cannot exclude the possibility of informal steering. For example, ministries might vary in how they communicate expectations regarding how certain tasks should be carried out or how agencies should prioritize between tasks, without this resulting in written steering demands. Furthermore, as ministry–agency relations consist of repeated interactions, ministries and agencies can anticipate and react to each other’s behavior. Moreover, the threat of stronger steering in the future may discipline agencies. Only a few steering demands are written in the letter of appropriation, and both the agency and the ministry know that if the agency does not comply with the interests of the ministry, the ministry will limit the agency’s future autonomy. From the coding of the letter of appropriation, the ministry–agency relation may resemble that of a stewardship; however, it is, in fact, more similar to a principal–agent relation. The articles in this thesis operate under the assumption that steering practices measured in the letters of appropriation reflect the underlying ministry–agency relationship. If informal steering replaces limited formal steering, then informal steering may be a possible source of omitted-variable bias.

Overcoming this potential omitted-variable bias would require, for example, in-depth interviews with key actors in ministries and agencies. Interviews, however, are time-consuming, and it would be practically impossible to conduct a large-N study of ministerial steering of agencies in Norway using this method. Thus, the risk of omitted-variable bias is a consequence of the research design. Deciding upon a large N-study limits the number of variables that could be taken into account.

However, for omitted informal steering to result in bias, it must not only affect the explanatory variable (steering relations); it must also affect the outcome variable (King et al., 1994, p. 169). Only in Articles 2 and 3 is the omission of informal steering a potential problem, and the effects will only be biased if informal steering affects the impact of performance management in the steering of agencies, or interagency coordination. Steering practices are used as the dependent variable in Articles 1 and 4, and informal steering is not regarded to have an effect on the explanatory variables (organizational characteristics). It is, therefore, unlikely that omission of informal steering causes an omitted-variable steering in Articles 1 and 4.

5.3. Multiple interactions and endogeneity

A third potential threat to causal inference is the fact that ministry–agency relations constitute multiple interactions. Ministries and agencies may act and react to each other’s behavior, which may raise concerns of endogeneity caused by reverse causality or simultaneity. Endogeneity occurs when the values on the explanatory variables are at least partly affected by the values on the independent variable (King et al., 1994, p. 94). This is of particular concern in Articles 2 and 3, where ministry–agency steering practices are the explanatory variable, and the impact of

performance management in the steering of agencies (Article 2) and interagency coordination (Article 3) are the dependent variables. If ministries adapt steering practices based on the impact of performance management in the steering or the level of interagency coordination, this can result in reverse causality, potentially influencing the estimated effects.

Concerns over endogeneity are always an issue in studies of ministry–agency relation, and there is no easy way to avoid the problem. Longitudinal data may be necessary for stronger causal claims, but they provide no guarantee against estimated effects being influenced by endogeneity. However, even though endogeneity might influence the results, it does not mean that it is not possible to reveal valuable insights, and study the mechanisms, on how ministry–agency steering affects the impact of performance management in the steering of agencies and interagency coordination.

6.0. Research ethics

The Ministry of Finance and the Norwegian Agency for Public and Financial Management provided funding for this Ph.D. project. The Ministry of Local Government and Modernisation contributed toward financing the collection of data from the letters of appropriation. This raises potential concerns as to whether the research can be regarded as independent. However, the University of Oslo has ownership of the results; the funders do not. The funders did not take part in the formulation of the research questions, the research design, the data collection, or the interpretation and presentation of the results (including publishing). Moreover, there has been full openness regarding the fact that this Ph.D. project was externally financed.

Furthermore, throughout the research, there has been every effort to comply with the Guidelines for Research Ethics in the Social Sciences, Humanities, Law, and Theology, including in relation to good citation practices and publication of data (NESH, 2016). The data set, which was obtained by manually coding letters of appropriation, is made publicly available. It contains the coded data, codebook, and examples of the coding of the letters of appropriation (see Askim, Bjurstrøm, & Kjærvik, 2018). The full coding of each letter of appropriation is available upon request.

7.0. The articles: Results and implications

7.1. Article 1: Quasi-contractual ministerial steering of state agencies: Its intensity, modes, and how agency characteristics matter

The first article examines ministry–agency steering practices, aiming to bridge two dominant strands of discussion on the use of contracts within the central government, the first of which is concerned with input-oriented and output-oriented control. Scholars have claimed that the introduction of performance contracts (as part of the introduction of performance management) marks a shift from input to output control (e.g., Osborne, 2006, p. 383; Schrijvers, 1993, p. 598). However, empirical research shows that the two types of control coexist within the contractual system (Binderkrantz & Christensen, 2009a). The second discussion sees steering as a one-dimensional concept, ranging from low to high intensity. Within this discussion, the difference between input and output control is not essential; rather, it is assumed that the same level of steering intensity can be achieved by compensating for a reduction in input control with an increase in output control or vice versa (Askim, 2015; Roness et al., 2008).

Article 1 bridges these discussions by developing a typology of steering practices that incorporates the application of both input-oriented and output-oriented steering and steering intensity (see figure 7.1). *Performance steering* characterizes steering practices whereby the ministry steers an agency primarily on the basis of outputs and outcomes. *Behavioral steering* describes a steering practice in which the ministry primarily steers on inputs and processes. *Double-whammy steering* are steering practices whereby ministries place high emphasis on both input-oriented and output-oriented steering. *Relational steering* is the opposite of double-whammy steering and describes a steering practice whereby ministries place low emphasis on both inputs and outputs. The typology also includes a fifth category, i.e., steering practices without a clear profile.

Figure 7.1: Four modes of steering in ministry–agency relationships (see Article 1)

Having established the typology, the article analyzes how variation in agency size, age, political salience, and tasks affect steering practices. Overall, the findings show that all variants of steering are observed in conjunction with practically all agency characteristics. Thus, the relevance of organizational factors for the type of steering practice seems rather low. However, the lack of statistically significant effects may be caused by the limited number of units (142) in the analysis.

The article also finds that relational and double-whammy steering are more common than performance and behavioral steering are. Many students of hierarchical relations tend to overlook practices corresponding with relational and double-whammy steering (Eisenhardt, 1989; Moynihan & Pandey, 2006). However, this article shows the empirical relevance of treating steering as a one-dimensional concept ranging from low steering intensity (relational steering) to high steering intensity (double-whammy steering).

7.2. Article 2: Principal–agent or principal–steward: How ministry–agency relations condition the impact of performance management in the steering of government agencies

The second article investigates conditions influencing the impact of performance management in the ministerial steering of government agencies. The hypotheses are derived from agency and stewardship theory. Agency theory would assume that government agencies would act opportunistically, leading to low trust between the government agency and its parent ministry. On the contrary, stewardship theory would assume that government agencies would act in a more trustworthy manner.

The point of departure is the argument by Davis et al. (1997), who have stated that when a principal imposes control structures, these structures must take into account whether the executive behaves as an agent or a steward. The main argument is that steering practices should be adapted to the type of relationship between ministries and agencies (as outlined in paragraph 2.2.4.). The impact of performance management in the steering of government agencies is expected to depend on the interaction between performance management practices and the type of relationship between ministries and government agencies. In relations that resemble principal–agent relations, ministries should rely on strong control through high steering intensity in the letter of appropriation and a top-down approach (where the ministry alone dictates the steering demands) to achieve high-impact performance management in the steering of agencies. In contrast, in relations that resemble principal–steward relations, ministries should rely less on strict control through low steering intensity in the letter of appropriation and employ a bottom-up approach (where the ministry and agency conjointly develop steering demands) to ensure high-impact performance management in the steering.

Performance management practices are operationalized as (i) steering intensity in the letters of appropriation and (ii) whether the ministry takes a top-down or bottom-up approach to performance management. The effects of performance management practices are analyzed conditionally on whether the relationship between ministries and government agencies tends toward a principal–agent type or a principal–steward type, operationalized as the level of perceived mutual trust between ministries and agencies.

The article combines data from coded letters of appropriation and the 2016 state administration survey. The results show that a bottom-up approach increases the impact of performance management in principal–steward relations but not in principal–agent relations. Thus, when bureaucrats perceive a low level of trust, performance management has a higher impact in agency steering if the ministries practice top-down performance management. In contrast, when the level of trust is high, the impact of performance management in agency steering is higher if the ministries practice bottom-up performance management. In the letters of appropriation, steering intensity has no effect on the impact of performance management, irrespective of the relationship characteristics.

These findings suggest that ministerial steering practices should be adapted to the type of relationship between ministries and agencies. Furthermore, both agency and stewardship theory are useful in understanding what conditions the impact of performance management in the ministerial steering of agencies.

7.3. Article 3: How interagency coordination is affected by agency policy autonomy

The third article analyses how ministry–agency steering practices affect interagency coordination. It starts from the proposition that interagency coordination and strict accountability structures are incompatible because a focus on accountability encourages “silos,” while coordination requires agencies to move beyond organizational borders (Denhardt & Aristigueta, 2008; Frederickson, 2007; Hansen et al., 2013, p. 33; Wegrich, 2015, p. 945). Research on coordination has largely focused on organizational boundaries and structural reforms (Christensen et al., 2016; Lægreid et al., 2014) and has overlooked the possible impact of ministry–agency steering. Research on ministry–agency steering, such as Article 1, has provided new insights regarding varying degrees of agency policy autonomy among government agencies (Binderkrantz & Christensen, 2009a, 2009b). However, knowledge of how different levels of agency autonomy affect coordination amongst government agencies is limited. This article aims to help fill this gap.

The article uses agency and stewardship theory to discuss why agencies might regard coordination as either desirable or undesirable. From the perspective of agency theory, government agencies are assumed to act as self-serving agents (Eisenhardt, 1989; Jensen & Meckling, 1976), in which case they

might view coordination as undesirable. Coordination with other agencies might, for example, be viewed as a threat to an agency's turf (Wilson, 1989, p. 192). In contrast, from the perspective of stewardship theory, it is assumed that government agencies do not act on the basis of self-interest but, rather, on behalf of their political principals (Davis et al., 1997). Ministries are often assumed to regard coordination as positive or desirable. Thus, agencies acting as stewards will regard coordination with other agencies as more important than pursuing self-interests, such as individual agency goals or turf protection.

Empirically, this article analyses data obtained from coded letters of appropriation between ministries and agencies and annual reports sent from agencies to ministries. Agency policy autonomy is operationalized as the number of steering demands in the letters of appropriation. Agencies with high policy autonomy have fewer steering demands in the letters of appropriation than those with low policy autonomy do. Interagency coordination is measured as the number of references to other agencies in an agency's annual report.

The findings support the expectation derived from agency theory. Agencies with higher policy autonomy coordinate less with other agencies than agencies with lower policy autonomy do. This relationship holds after controlling for agency size, political salience, tasks, and financial autonomy.

7.4. Article 4: Computer-assisted text analysis: Application on ministry–agency performance contracts

All the articles in this thesis use data from the manual coding of letters of appropriation. The coding of such documents is a rather resource-demanding task, which limits the number of letters of appropriation that can be coded within a reasonable amount of time. For example, the inferences in Article 1 concerning the effect of agency characteristics on steering practices are, to some extent, limited by the number of agencies in the study. For example, longer time series (and, ideally, more agencies) would also enable an examination of the importance of ministry characteristics (and not only agency characteristics) for the ministry–agency steering practices. With only 16 ministries (in 2015, 18 in 2012) and a limited number of agencies per ministry in the data set, for example, it is not possible to estimate the effects of ministry characteristics.

However, computer-assisted text analysis has become more accessible and more easily implemented in statistical software and has become increasingly popular as a method for analyzing large quantities of text. Recent developments in computer capacity have made it possible for researchers to use computers to quantify and systematically analyze large amounts of text without large-scale funding (Grimmer & Stewart, 2013, p. 268). Computer-assisted text analysis has been successful in studies of organizational

reputation (Anastasopoulos & Whitford, 2019), agency priorities (Hollibaugh, 2019), innovativeness in public organizations (Pandey et al., 2017), and in understanding delegation in the EU (Anastasopoulos & Bertelli, 2019). Computer-assisted methods have also been successfully deployed in studies of party positions (Laver et al., 2003; Slapin & Proksch, 2008) and in analyzing open-ended survey questions (Roberts et al., 2014).

Article 4 investigates how computer-assisted text analysis could improve the efficiency of analyses of policy documents. The article uses the data obtained from 142 manually coded letters of appropriation to train an algorithm to replicate human coding of letters of appropriation, which could be used to effectively increase sample sizes and allow for time series in studies of ministerial agency steering.

The results show that this machine-learning algorithm manages to replicate human coding of input-oriented steering demands quite well. However, the algorithm does not manage to replicate human coding of output-oriented steering demands.¹²

To illustrate the value of computer-assisted text analysis, the algorithm is used to predict the number of input-oriented steering demands in 1,285 letters of appropriation from 2010 to 2019. The results show a general reduction in input-oriented steering demands from 2010 to 2015 and a slight increase from 2015 to 2016, before it stabilized.

7.5. Main findings

This thesis asks the questions *How do ministry–agency steering practices vary, and to what extent do organizational characteristics explain varying ministry–agency steering practices? How do different performance management practices affect ministerial control of agencies and interagency coordination?* The first research question has been answered by developing a typology of steering practices, and the effect of different organizational characteristics on steering practices has been analyzed and discussed. The first research question has also been answered by using computer-assisted text analysis to predict ministry–agency steering practices from 2010–2019 and to study how these practices vary over time. The second research question has been analyzed by using steering practices as an independent variable and analyzing its effect on 1) ministerial control of agencies and 2) interagency coordination. The main findings in the thesis may be summarized in six points.

¹² In Article 4, input-oriented steering demands are called behavioral steering demands, and output-oriented steering demands are called performance steering demands.

7.5.1. Moving beyond the input vs. output dichotomy

First, moving beyond the input versus output view on steering is relevant. Article 1 demonstrates the empirical relevance of relational and double-whammy steering. Understanding ministry–agency steering practices as a one-dimensional concept ranging from low intensity to high intensity, where input-oriented and output-oriented steering are used interchangeably, should not be overlooked. Furthermore, Article 1 and Article 4 show that input-oriented steering continues alongside output-oriented steering.

7.5.2. The role of organizational characteristics

Second, organizational characteristics only partially explain the varying degrees of steering intensity. There seems to be more variation in ministry–agency steering practices than in agency tasks, as factors such as size would suggest. Thus, it may be assumed that steering practices are largely influenced by factors that are unobserved here—for example, by situational contingency and endogenous factors, such as political programs and personal preferences and the interpersonal relationships among those involved in steering.

7.5.3. The relevance of stewardship theory

Third, the fact that organizational characteristics only partially explain steering practices indicates that there must be other factors explaining varying ministry–agency steering practices. Articles 2 and 3 discuss how varying steering practices might result from the underlying relationship between ministries and agencies. Olsen (2015) calls for more institutionally oriented theories, such as stewardship theory, in studies of hierarchical relations, and Majone (2001, p. 117) argues that students of hierarchical relations, and agency theorists in particular, should take the fiduciary principle into account in improving the understanding of governance. This thesis answers these calls for new perspectives by demonstrating the relevance of stewardship theory in studies of ministry–agency relationships. Stewardship theory provides alternative hypotheses and explanations to observed phenomena in studies of the role of performance management in the steering of government agencies. Elements from stewardship theory, such as trust and collaboration, are not unexplored within research on ministry–agency steering (van Thiel & Yesilkagit, 2011), but stewardship theory provides a coherent theoretical framework that stands out as a supplement to agency theory.

7.5.4. The relevance of steering practices

Fourth, steering practices matter. While much performance management research has been preoccupied with answering how to improve organizational performance or accountability (see, e.g., Amirkhanyan, 2011; Gerrish, 2016; Kroll, 2015c), the findings in this thesis show that steering practices also matter in

relation to the impact of performance management in the steering of government agencies and to the extent to which agencies coordinate with each other. Moreover, the results illustrate the importance of ministries' taking into account whether their subordinated agencies are inclined to behave as agents or stewards.

Article 2 shows how performance management practices affect the impact of performance management in the steering of agencies. The effect of a top-down or bottom-up approach on the impact of performance management (understood as bureaucrats' perceptions of the relevance of performance management in their work) is significantly affected by the degree to which bureaucrats perceive the relationship between their agency and its parent ministry as tending toward a principal–agent relation or a principal–steward relation.

Article 3 shows that steering practices affect coordination among government agencies. Previous research on coordination has largely highlighted the role of organizational boundaries as an obstacle to coordination (Christensen et al., 2016; Lægreid et al., 2014). However, changing organizational structures to improve coordination might be difficult and costly and might result in side effects, such as reduced specialization and efficiency. Structural reforms might not always be desirable or possible. As Article 3 shows, if ministries are more conscious about the extent to which agencies are willing to engage in interagency coordination, steering intensity could be adapted accordingly. Agencies that are subjected to higher steering intensity coordinate more with other agencies than government agencies that are subjected to less steering intensity do. This finding indicates that high steering intensity might be necessary to achieve interagency coordination.

7.5.5. Principal–agent or principal–steward relations?

Fifth, the thesis aims to say something about the relevance of agency and stewardship theory. The presence of relational and double-whammy steering, as well as the large variations in the predicted steering practices, suggest that some ministry–agency relations tend more toward a principal–steward relation and others more towards a principal–agent relation. At a minimum, this is a plausible explanation for the varying steering practices.

Article 2 shows that, in general, bureaucrats in government agencies perceive the level of mutual trust between ministries and agencies as rather high. High levels of mutual trust suggest that ministry–agency relations in Norway tend toward principal–steward relations. However, Article 3 presents evidence supporting a hypothesis derived from agency theory, thereby suggesting that agencies behave as agents. Thus, the findings in this thesis are mixed in this respect.

7.5.6. The utility of computer-assisted text analysis

Finally, this thesis shows how data obtained from public documents may render new insights into ministry–agency steering practices. However, obtaining this data is demanding in terms of resources, and computer-assisted text analysis can be employed to overcome this limitation. Article 3 uses a simple form of computer-assisted text analysis by counting the frequency of words and phrases in a text and using this word count as a proxy for interagency coordination. Article 4 shows that more sophisticated approaches to computer-assisted text analysis can be used to replicate human coding. This thesis illustrates the potential of computer-assisted text analysis to become a more commonly used method within public administration research.

8.0. Suggestions for future research

8.1. Trust or control: None or both?

This thesis discusses the relationship between trust and formal control in ministry–agency relations as a one-dimensional concept, in the sense that steering relations can be described on a continuum from high trust and little formal control to low trust and a high degree of formal control, which has been the dominant view in the literature (see, e.g., Amirkhanyan et al., 2010; van Thiel & Yesilkagit, 2011). Some ministries rely heavily on strict formal control in accordance with agency theory, while others rely more on trust as the mechanism for accountability in accordance with stewardship theory. Trust and formal control are regarded as interchangeable, where trust can act as an alternative to formal control and vice versa. However, understanding the relationship between ministries and agencies as a one-dimensional concept ranging from high trust and little control to low trust and much control might be a simplification of ministry–agency relationships, given the complexity of modern governance. Steering relations might not be limited to either control oriented or trust. There might be cases of steering relations with i) both little trust and a low degree of formal control or ii) both high trust and a high degree of formal control.

Low-trust ministry–agency relations with a low degree of formal control may occur when strict formal control is undesirable, for instance, agencies handling ombudsman tasks or appeals. Another example may be that strict control is regarded as inappropriate. Such an instance could be the aftermath of July 22, 2011, when a public inquiry commission (NOU 2012: 14) criticized the way in which performance management was practiced. Ministries were asked to slim down their letters of appropriation (the Ministry of Finance and the Ministry of Local Government and Modernisation, 2014). However, it may take time to build trust. Thus, the level of trust may have been low at the same time, as formal control was reduced. A third possible explanation is that some agencies are simply “forgotten” or are not deemed sufficiently important for ministries to prioritize spending requisite resources to control them.

Ministry–agency relations with high trust and strong control might occur, for example, in contexts with minority governments. The parliament might instruct ministries to pass on certain tasks and might pay special attention to the performance of certain politically salient agencies. Increased parliamentary control among ministries and agencies might result in increasing control in ministry–agency relations, even with a high level of trust between the ministry and an agency. Another example could be cases of multiple principal ministries. Each ministry may exercise strict control to ensure that an agency prioritizes their tasks above those delegated by other ministries.

Such “fuzzy” steering relations might be difficult to explain through the lens of agency or stewardship theory. A suggestion for future research is to study the relationship between trust and control as a two-

dimensional concept and to map the empirical relevance of relationships with high trust and strong control or low trust and a low degree of formal control.

8.2. Computer-assisted text analysis

This thesis has illustrated the benefits of content analysis and computer-assisted text analysis. These methods have the potential to overcome problems such as common-source bias and those related to perceptual measures that may arise from more traditional methods, such as survey data (Andersen et al., 2016, p. 859; Jakobsen & Jensen, 2015). Computer-assisted text analysis also has the potential to obtain large amounts of data (as shown in Article 4) with relatively little effort (Anastasopoulos & Whitford, 2019; Hollibaugh, 2019). Future research would benefit by embracing the possibilities of computer-assisted text analysis. Studies may, for example, be designed in a way that ensures high-quality training data that may be extended using computer-assisted text analysis and machine learning.

9.0. References

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Part 2: Articles

Article 1: Quasi-contractual ministerial steering of state agencies: Its intensity, modes, and how agency characteristics matter

ABSTRACT

This article demonstrates the value of conceptualizing four ideal types when studying ministries' contract steering of state agencies—relational, double-whammy, performance, and behavioral steering—each defined by its combination of input- and output-oriented steering. In the system under study—Norway—about half of all agencies are subjected to steering with a clear profile; the other half are not. The two profiles often dismissed or overlooked in existing research—relational and double-whammy steering—are most common. Thus, introducing a contract regime has not meant a clear shift from input to output control, as posited by some. Most agency characteristics under study—size, age, political salience, and tasks—have significant effects on the likelihood that an agency is subjected to one type of steering or another. Still, the analysis suggests that agency-level characteristics constrain ministerial choice about which steering to practice only to a limited extent.

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Publication status: Published in *International Public Management Journal*, 2019, 22(3), 470-498.

Article 2: Principal-agent or principal-steward: How ministry-agency relations condition the impact of performance management in the steering of government agencies.

ABSTRACT

Using agency and stewardship theory, this article investigates conditions that affect the impact of performance management in the ministerial steering of government agencies. Agency theory would assume government agencies to act opportunistically, leading to low trust between the government agency and its parent ministry. On the contrary, stewardship theory would assume government agencies to act in a trustworthy fashion. The main argument is that the impact of performance management in the steering of government agencies is dependent on performance management practices and the type of relationship between ministries and government agencies. The effect of performance contract design and a top-down versus a bottom-up approach to performance management on the impact of performance management is analyzed conditional as to whether the relationship between ministries and government agencies tends towards a principal-agent type or a principal-steward type. Data were obtained from a survey of bureaucrats employed in government agencies in Norway, and from the systematic analysis of official policy documents. The results show that a bottom-up approach increases the impact of performance management in principal-steward relations, but not in principal-agent relations. Performance contract design has no effect on the impact of performance management, irrespective of relationship characteristics.

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Publication status: Conditionally accepted for publication in *Public Performance & Management Review*

Introduction

In the aftermath of New Public Management, performance management as an instrument to ensure control and accountability has been one of the most widespread reforms in the public sector (Greve, 2008, pp. 3–4; Moynihan & Pandey, 2010, p. 849; Overman, Van Genugten, & Van Thiel, 2015; Verhoest & Wynen, 2018). Scholarly research has in particular focused on how and why public organizations use performance management and performance information (e.g., Kroll, 2015; Masal & Vogel, 2016; Moynihan & Pandey, 2006, 2010; Pollit, 2006; Verhoest & Wynen, 2018), whether and how the introduction of performance management leads to better performance (e.g., Pollanen, Abdel-Maksoud, Elbanna, & Mahama, 2017; Van de Walle, 2009), or the problematic effects of the use of performance management, such as gaming behavior (e.g., Bevan & Hood, 2006; Birdsall, 2018; Bohte & Meier, 2000; Moynihan, 2009). However, there is scarce knowledge about the conditions that affect the impact of performance management in the steering of public organizations. Impact of performance management in the steering of agencies is in this study understood as bureaucrats' perceived relevance of performance management in their work. Understanding such conditions is important because a stronger impact of performance management might lead to more efficient control, which again might improve organizational performance. Moreover, if performance management has a lesser impact than intended, it might leave room for bureaucratic drift. This article aims to improve the understanding of how the impact of performance management is affected by different performance management practices and ministry-agency relations.

Specifically, this article asks: *What conditions the impact of performance management in the ministerial steering of government agencies?* The main argument is that the impact of performance management is affected by its practices and if these practices fit the type of relationship between ministries and government agencies. More precisely, this article discusses agency theory and stewardship theory and investigates how different practices of performance management affect the impact of performance management, and how the effects of different practices of performance management are dependent on the degree of mutual trust between a government agency and its parent ministry.

Agency theory postulates that executives (e.g., a government agency) may act opportunistically and self-centeredly, which might undermine the preferences of political principals (e.g., a ministry). In such cases, political principals could use performance management to monitor and control the executive. Complete performance contracts and top-down control are expected to increase the impact of performance management when holding opportunistic executives accountable. However, several authors have discussed how trust and collaboration between political principals and executives might act as alternative accountability mechanisms (Pierre & Peters, 2017; Van Slyke, 2007; Van Thiel & Yesilkagit, 2011). Agency theory often fails to describe trustful relationships and scholars have argued that the impact of trust and cooperation might be understood through the concept of stewardship theory (Davis, Schoorman, & Donaldson, 1997; Schillemans, 2013; Schillemans & Bjurstrøm, 2019; Snippert, Witteveen, Boes, & Voordijk, 2015; Van Slyke, 2007). Stewardship theory suggests that when goal congruence is present, trust might evolve and relational contracts and bottom-up involvement might have a greater effect on the impact of performance management than complete contracts and top-down control.

This article studies the ministerial steering of government agencies in Norway. Data were obtained from a large-scale survey of bureaucrats employed in government agencies, document studies of annual letters of appropriation (performance contracts) from ministries to government agencies, and register data. The combination of data from different sources provides a unique data set involving about 700 bureaucrats from 30 government agencies. The results show that bureaucrats perceive that performance management has a substantial impact in the steering of government agencies. Furthermore, a bottom-up approach to performance management has a stronger effect on the impact of performance management in cases where the level of mutual trust between a government agency and the parent ministry is high. In cases where the level of trust is low, there is no such effect. Interestingly, performance contract specification has no effect on the impact of performance management, regardless of the level of trust.

This article proceeds as follows. First, it presents contrasting approaches to how political principals can exercise control and performance management, derived from agency theory and

stewardship theory. Second, the data and methods are described. Third, the results are presented, followed by the discussion in the fourth section. The article ends with the conclusion.

Controlling government agencies

When ministries delegate tasks and responsibilities to government agencies, a central problem is how to ensure that government agencies act accountably. Ministries have to impose a certain amount of control. Performance management arrangements are a type of control instrument that have been introduced to ensure that government agencies act according to the wishes of their parent ministries. However, the impact of performance management might depend on the context of where it is exercised. The impact of performance management in the ministerial steering of government agencies is dependent on the type of relationship between a government agency and its parent ministry. To understand how relationship characteristics might alter the effects of performance management practices on the impact of performance management, this study uses agency theory and stewardship theory.

Research on accountability in the public sector has been heavily influenced by agency theory (Schillemans & Busuioc, 2015). Agency theory is a framework designed to study problems that might arise when a principal (e.g., a ministry) delegates a task to an executive, known as the agent (e.g., a government agency) (Eisenhardt, 1989; Jensen & Meckling, 1976; Waterman & Meier, 1998). The theory assumes that actors are opportunistic, self-centered, and rational utility maximizers. The two main concerns in agency theory are: 1) that the interests of the principal and the agent diverge, and 2) how the principal can control what the agent is doing (Eisenhardt, 1989, p. 58). While the principal has the formal authority, the agent usually possesses an information advantage regarding the costs of performing the delegated task (Maggetti & Papadopoulos, 2018, pp. 172–173). Agency theory assumes that agents might exploit this information asymmetry to shirk or drift from their obligations. When principals delegate decision-making to agents, shirking agents might cause implemented policies to deviate from the principals' intentions and this creates problems regarding accountability (Maggetti & Papadopoulos, 2018; Schillemans & Busuioc, 2015). Agency theory argues that by regulating hierarchical relationships and delegation through ex ante and ex post control, principals might avoid (or

at least limit) problems related to accountability and drift (Eisenhardt, 1989; Jensen & Meckling, 1976; Pollack, 1997, pp. 108–109; Schillemans & Busuioc, 2015; Vosselman, 2016).

Despite the hegemony of agency theory, it has been criticized for its inability to fully explain bureaucratic behavior (Pierre & Peters, 2017; Schillemans & Busuioc, 2015). Scholars have argued that mutual trust between principals and executives might act as an alternative or a complementary form of control (Amirkhanyan, Kim, & Lambright, 2010; Brown, Potoski, & Van Slyke, 2007; Deakin, Lane, & Wilkinson, 1994; Lamothe & Lamothe, 2012; Majone, 2001; Van Slyke, 2007; Van Thiel & Yesilkagit, 2011). Davis et al. (1997) even argue that the assumption about executives acting as agents in many cases is questionable. The authors suggest the concept of stewardship theory as an alternative to agency theory in studies of delegation. Stewardship theory assumes goal congruence and that the relationship between principals and executives is based on trust rather than on strong hierarchical control (Davis et al., 1997, p. 37).

Schillemans (2013) proposes stewardship theory as an alternative theoretical framework in studies on accountability in ministry-agency relations. In contrast to agency theory, stewardship theory assumes that executives are “...motivated to act in the best interest of their principals” (Davis et al., 1997, p. 24). Executives will act as stewards, put pro-organizational goals above self-interest, and to a larger extent, be intrinsically motivated (Davis et al., 1997; Schillemans, 2013; Van Slyke, 2007). When principals delegate tasks to stewards that put organizational goals above self-interest, problems related to agency loss and bureaucratic drift will be minimal. The relationship between principals and stewards would be fiduciary (Majone, 2001) where principals regard the steward as trustworthy.

Agency theory assumes government agencies to act as opportunistic agents, while stewardship theory assumes government agencies to act as trustworthy stewards. The principal-agent relation will have low goal congruence and hence runs the risk of becoming a low-trust relationship. The principal-steward relation, on the other hand, has high goal congruence and is likely to be a high-trust relation. These contrasting views on government agency behavior imply that control might be exercised in different ways. Davis et al. (1997) argue that the impact of control depends on whether an executive is acting as an agent or a steward. Different government agency behavior requires different types of control. When principals decide on how to exercise control, they must take into account what kind of

relationship they have with the executive to increase the impact of the control. If the relationship resembles more of the principal-agent type, principals should impose strict control over the executive to ensure that it has a high impact. If the relationship resembles more of the principal-steward type, principals should impose a more relaxed control to ensure a high impact. The principal's decision regarding how to exercise control over the executive might be described as a "prisoner's dilemma" (Davis et al., 1997). If principals impose control mechanisms that fit the characteristics of the relationship, the impact of control will be high (see Table 1). In contrast, if principals impose control mechanisms that do not fit the characteristics of the relationship, the control will be suboptimal or insufficient and have a low impact. Further, it is important to note that a principal-agent relation and a principal-steward relation are not dichotomies. They are ideal types of relationships on different ends of a continuum ranging from a relationship with a low degree of goal congruence and mutual trust, the principal-agent relation, to a relationship with a high degree of goal congruence and mutual trust, the principal-steward relation.

Table 1: The prisoner's dilemma where ministries have to take the type of relationship into account when deciding upon control structures (based on Davis et al., 1997, p. 39).

		Ministry's use of control	
		Strict	Relaxed
Relationship characteristics	Principal-agent	Match (control has a high impact)	Mismatch (fox in the henhouse)
	Principal-steward	Mismatch (crowding-out stewardship motivation)	Match (control has a high impact)

The relationship between a ministry and a government agency might be assumed to tend towards a principal-agent type or a principal-steward type. An assumption that could be either right or wrong. If ministries assume that their relationship to a government agency tends towards a principal-agent type, ministries should impose tight control to limit information asymmetry and government agency autonomy. Government agencies are expected to shirk and drift from their responsibilities, and the relationship will have a low degree of trust. If the relationship actually resembles a principal-agent

relationship, there is a match between the control practices and the type of relation and the impact of ministerial control would be high. However, if the relationship actually resembles a principal-steward relation, there is a mismatch between control practices and relationship characteristics, and the impact of ministerial control might be low. Government agencies might feel “betrayed,” and their stewardship motivation might be “crowded out”. This might lead to gaming and other types of unwanted adaptations to the control mechanisms (Davis et al., 1997, pp. 39-40).

In contrast, ministries might assume that their relationship with a government agency tends towards a principal-steward type, characterized by goal congruence and mutual trust. If so, ministries are expected to apply more relaxed control, granting government agencies more autonomy. Trust and collaboration are the operating mechanisms for achieving accountability. If the relationship actually resembles a principal-steward relation, there is a mutual fit between control practices and relationship characteristics, and the impact of control is expected to be high. On the contrary, if the relationship resembles a principal-agent relation, the situation is similar to a “fox in the henhouse” (Davis et al., 1997, p. 40). Because of insufficient control, the impact of ministerial control might be low, and government agencies have the possibility to act opportunistically and possibly game the system.

In essence, the difference between a principal–agent relationship and a principal–steward relationship lies in the degree of goal congruence. The former is characterized by low goal congruence, which might lead to low trust. The latter is characterized by high goal congruence, which might lead to high trust. When ministries exercise control to hold government agencies accountable, the impact of control depends on the level of trust between ministries and government agencies. The principal must take the relationship to the executive into account and not design control practices that are decoupled from the characteristics of that relationship.

Two types of control: contractual control and process control

Contracts

Performance contracts constitute an essential part of practicing performance management. These are quasi-contractual arrangements set up to handle asymmetric information as they serve as instruments for setting goals, targets, and rewards linked to performance (Greve, 2000, p. 154). Using

performance contracts in the ministerial steering of government agencies is a way for ministries to exercise control.

The literature on contracting distinguishes between the *complete* and the *relational* contract (Amirkhanyan, 2011; Amirkhanyan et al., 2010; Brown et al., 2007; Greve, 2008, p. 37). When ministries specify performance contracts, the contracts might be highly specified or less specified (Brown et al., 2007, p. 610). Contract specifications might therefore be regarded as a continuum of contract completeness, moving from *soft* or *relational* contracting with few steering demands to *hard* or *complete* contracting in which all (or as many as possible) contingencies are covered and highly specified (Amirkhanyan, 2011; Greve, 2000; Majone, 2001). These two opposite sides of this continuum of contract specifications show variations in ministerial control over government agencies.

The principal–agent framework has been prominent in the discussion on hard contracting (Greve, 2000, p. 155). Hard contracting implies strong ministerial control, which is regarded as having a strong impact given a principal-agent relation with low goal congruence and low mutual trust. By specifying all demands in advance, more complete contracts might reduce a government agency's asymmetric information advantage and might reduce goal ambiguity and opportunistic behavior (Baker & Krawiec, 2006, Chun & Rainey, 2005; Verhoest, 2005). With clear objectives and targets set by the ministry, government agencies can be held accountable for their performance and that their actions are in accordance with the ministry's preferences. A performance contract is an effective tool for control but only if it leaves no room for shirking or drift. Agency theory assumes that in a principal-agent relation, performance management would have a greater impact in the steering of government agencies if ministries rely on complete contracting.

H1. If the relationship between the ministry and a government agency tends towards a principal-agent type, performance management has a stronger impact in the ministerial steering of government agencies if ministries rely on complete contracting.

However, if ministries assume that their relationship to a government agency resembles more of a principal-steward type, ministries might rely on relational contracting and subject government

agencies to less strict control. A principal–steward relationship is characterized by goal congruence and trust. Pierre and Peters (2017) refer to trust as “the relative absence of performance control or measurement” (p. 163). Trust might act as a mode of control and accountability and serve as an alternative to a performance-based control system (Van Dooren, Bouckaert, & Halligan, 2015, p. 213). As the trust between ministries and government agencies increases, ministries are expected to “slim down” performance contracts toward the relational type. Rather than specifying all terms in advance, a relational contract is more open. Relational contracts are incomplete in the sense that they “do not determine all terms of the agreement in advance of the execution” (Amirkhanyan et al., 2010, p. 192). Ministries and government agencies might not agree on “detailed plans of action, but on general principles” (Majone, 2001, p. 116).

Based on stewardship theory, detailed performance control might have less impact in the steering. In fact, it might even be counterproductive. In a principal-steward relation, government agencies might distance themselves from the organizational goals, and their stewardship motivation might be “crowded out” if they are subjected to strong and detailed control (Davis et al., 1997; Frey & Jegen, 2001), reducing the impact of performance management. Stewards need substantial responsibility and autonomy (Van Slyke, 2007, p. 167). Performance management might have a stronger impact in ministerial steering of government agencies when government agencies are subjected to relational contracting (when compared to complete contracting), given a principal-steward relation.

H2. If the relationship between the ministry and a government agency tends towards a principal-steward type, performance management has a stronger impact in the ministerial steering of government agencies if ministries rely on relational contracting.

Process

Performance management is more than just performance contracting. It is also a process where goals and targets are defined, tasks are monitored, and performance information is evaluated (Van Dooren et al., 2015, pp. 62–85). Monitoring and involvement constitute a type of control that ministries

might practice differently. Ministries might view the performance management process as a top-down or a bottom-up process. The two types of processes resemble different types of control.

Given a relationship tending towards a principal-agent type, ministries are expected to take a top-down approach to performance management processes. This approach implies strong ministerial control. The ministry alone develops goals and performance targets, and performance management is more about control than learning and autonomy. Sufficient oversight is needed to avoid shirking. Government agency discretion is a control problem that should be limited (Thomann, van Engen, & Tummers, 2018).

H3. If the relationship between the ministry and a government agency tends towards a principal-agent type, performance management has a greater impact in the steering of government agencies if it is exercised top-down.

Alternatively, in a relationship tending more towards a principal-stewardship type, ministries might take a bottom-up approach rather than a top-down strategy. Rather than relying on a formal hierarchy where performance management is dictated from the top, a bottom-up approach suggests looser ministerial control, where government agencies are allowed more leeway and autonomy. Goals and performance targets are, to a greater degree, jointly developed, and performance information is used for learning rather than control. The ministry–agency relationship is more of a trust- or a collaboration-oriented type, where government agencies are more involved in the performance management process. Stewardship theory suggests low institutional power distances that are maintained through a personal style of power, rather than through a hierarchy (Davis et al., 1997). Low power distances, a personal style of management, collaboration, and dialogue between the principal and the executive “will prevent stewards distancing themselves from their principals and foster bonds of loyalty and respect that decrease the need for control and oversight” (Schillemans, 2013, p. 545). When government agencies are involved in the performance management process, it might create a deeper commitment to the performance management system (Bouckaert, 1993, pp. 37–38). By jointly developing goals and performance targets, ministries might prevent government agencies from distancing themselves from

the organizational goals. Performance management is expected to have a stronger impact in the steering of government agencies if ministries take a bottom-up approach.

H4. If the relationship between the ministry and a government agency tends towards a principal-steward type, performance management has a greater impact in the steering of government agencies if it is exercised bottom-up.

Data and methods

Dependent variable: impact of performance management

To measure the impact of performance management in the steering of government agencies, this study relies on bureaucrats' perceptions of the impact of performance management on their work. According to the Thomas theorem, people make decisions based on their perceptions of reality, regardless of whether their perceptions are right or wrong (Thomas, 1928). It is reasonable to assume that bureaucrats act on their perceptions of the impact of performance management, rather than on the basis of some objective measure. As government agencies consist of individual bureaucrats, the overall impact of performance management in the ministerial steering is likely to depend on the bureaucrats' perceptions of the control structures, or more precisely, their perceived relevance of the performance management system. If bureaucrats employed in government agencies perceive that performance management has a greater or smaller impact on their work, performance management will have a greater or smaller impact in the ministerial steering of government agencies.

Data on bureaucrats' perceptions of performance management were gathered from a large-scale survey of the state administration (Norwegian Centre for Research Data [NSD], 2016), comprising two parts: 1) responses of bureaucrats employed in ministries, and 2) responses of bureaucrats employed in government agencies. Only data about the bureaucrats employed in government agencies were used in this study. The bureaucrats at the lowest hierarchical level or who had been employed for less than one year were excluded from the sample. The survey has been carried out in Norway every 10 years since 1976. The bureaucrats' perceptions of the impact of performance management were operationalized using three questions from the survey. The respondents were asked to answer the following questions

[presented here in the author's English translation] on a five-point scale (1=not important, 5=very important):

Numerous reforms and measures have been proposed as part of the government's pursuit of administrative modernization and renewal. How important are the following reforms/initiatives for your field of work?

- 1) *Specification of goals*
- 2) *Letter of appropriation*
- 3) *Evaluation, measuring results*

Explanatory variable: performance contract design

The state's financial regulations stipulate that the ministries must define goals and performance targets for the government agencies (Ministry of Finance, 2015). Goals and performance targets must be communicated to the government agencies through a letter of appropriation (*tildelingsbrev*) as part of the annual budgetary process. This letter can be regarded as a performance contract between ministries and government agencies. The letters of appropriation also contain activity demands that government agencies must carry out.

The degree of contract completeness was operationalized as the number of steering demands in the performance contracts. To map the number of performance demands, the total number of both goals and performance targets were coded, as well as direct instructions from the ministries. These direct instructions were "what-to-do" demands, such as "the government agency *shall* or *must* do x or y." To ensure validity and reliability, two researchers coded the performance contracts. Discussing the differences or consulting a third researcher resolved their disagreements. The data were initially established by Askim (2015) and Askim, Bjurstrøm, and Kjærvik (2018, 2019).

The database contains data extracted from policy documents of 70 government agencies with different levels of affiliation to the ministries in 2015. Of these 70 government agencies, 30 government agencies were covered in the survey of the state administration. All the government agencies in the

sample are central government agencies directly subordinated to a ministry and may be regarded as Type 1 agencies according to the classification by Van Thiel (2012). As the survey was conducted in 2016, this study used the data obtained from the policy documents in 2015. Thus, the independent variable was lagged by one year.

Explanatory variable: top-down versus bottom-up approach to performance management

The survey respondents were asked five questions on a five-point scale (see the questions in Appendix A.1) related to their perceptions on how the performance management system in the central government are expressed in the letters of appropriation and the steering dialogue between the ministries and government agencies. A factor analysis was performed to identify any dimensions that might capture a top-down or a bottom-up approach to performance management. The factor analysis indicated that three of the items could be combined into an index (although with a low Cronbach's alpha of 0.65). The questions that constituted the index measured: 1) to what degree the goals and the performance targets are formulated in cooperation between ministries and government agencies, 2) to what degree the performance management allows flexibility and autonomy to government agencies, and 3) to what extent the performance management promotes learning and improvement. The index consists of the mean scores on the three items, ranging from 1 (top-down approach) to 5 (bottom-up approach).

One of the items (whether performance management is primarily a tool for control by the ministry) did not have a sufficient factor loading on the top-down versus bottom-up index and was therefore excluded. However, the question to a large extent addresses a top-down versus a bottom-up approach. Robustness tests were performed to determine whether the results would change if this item was included, but the tests revealed that results were not affected.

Mediating variable: type of relationship between ministries and government agencies

It is difficult to precisely measure to what extent the relationship between ministries and agencies tends toward a principal-agent relationship or a principal-steward relationship. In essence, the differences between the two types of relations are to what degree the executives are acting opportunistically or as loyal servants. It is basically a matter of whether or not government agencies can

be trusted. If government agencies behave opportunistically, ministries are less likely to trust them, whereas if government agencies act as loyal servants, ministries are more likely to trust them. The level of trust may be viewed as a proxy for what kind of relationship there is between a ministry and a government agency. A lower degree of mutual trust is more likely to appear in a relation resembling a principal-agent type, and a higher degree of mutual trust is more likely to appear in a relationship resembling a principal-steward type.

In the survey, bureaucrats were asked to rank their perceived level of trust between their government agency and the parent ministry on a five-point scale. If the bureaucrats perceive the level of mutual trust to be low, the relationship between the ministry and the government agency is more likely to be closer to a principal-agent type. On the contrary, if the bureaucrats perceive the level of mutual trust to be high, the relationship between the ministry and the agency is more likely to be closer to a principal-steward type.

Ideally, the survey should also include the ministries' perceptions of trust between ministries and bureaucrats in a specific agency. However, these data are not available, which is a limitation. With data from only one side of the table, the respondents' perceived level of mutual trust between the ministry and the government agency might not necessarily reflect just the level of trust per se, but it might also reflect how the respondents feel or believe that the ministry treats them. This is however still an important part of mutual trust as bureaucrats that perceive they are trusted are more likely to believe that the level of mutual trust is high and vice versa.

Control variables

To avoid any spurious or biased effects, control variables were added at both the government agency and respondent levels. As a control variable at the government agency level, *government agency size* might be viewed as a proxy for several organizational characteristics, such as organizational complexity, the number of tasks, and budget size. Earlier research indicates that the size of a government agency might affect the formal control, accountability mechanisms (Askim, 2015; Lægreid, Roness, & Rubecksen, 2006; Pollitt, 2006), and performance contracts (Askim et al., 2019). Government agency size was operationalized as the number of full-time equivalents (FTEs) one year before the contract term

(see Appendices A.2 and A.3 for the descriptive statistics). The data were obtained from state administration database of the Norwegian Centre for Research Data (2016).

At the individual respondent level, two control variables were added. From a structural instrumental perspective on organizations, formal structures would be expected to affect organizational outcomes and characteristics (Egeberg, 2012). Therefore, the first control variable was the respondent's *hierarchical position* (see the frequency table in Appendix A.4). Organizations might be regarded as rational systems, where the top management in the government agencies would transfer the ministries' preferences downward in the organization. Thus, the bureaucrats with positions higher in the hierarchy would be expected to find performance management to have a higher impact compared with bureaucrats at lower levels. Four hierarchical levels were identified in the survey and used in this study.

The second control variable at the respondent level comprised the characteristics of the *tasks* that bureaucrats should handle. Different tasks might affect the bureaucrats' perceptions of the impact of performance management in various ways. For example, bureaucrats handling more mission-related tasks (tasks related to a government agency's core mission), such as single-case decision-making and supervision, might be more affected by performance demands compared with bureaucrats handling less mission-related tasks (such as coordination tasks, or in-house tasks). The respondents were asked to categorize the majority of their work into one out of ten types of tasks, which, in this study, have been classified into four categories: mission-related tasks (e.g., single-case decision-making, supervision, control, and auditing), coordination and budgeting, reporting on results, and other/in-house tasks (such as human resource management). Frequencies are reported in Appendix A.5).

Data structure

The data used in this study has a hierarchical structure, with bureaucrats nested within government agencies. Regressions were estimated with multilevel modeling, which is suitable for these kinds of data as the effects of the variables at each level were estimated separately (Hox, 2010). The effects of the government-agency-level variables and of the variables at the individual-respondent level are estimated based on the number of government agencies ($n=30$) and the number of respondents ($n\sim 700$), respectively.

In recent years, there has been a growing concern regarding common source bias (Kelman, 2015). Common source bias refers to situations where the estimated effect of one variable on another is biased due to “systematic variance shared among the variables” (Jakobsen & Jensen, 2015, p. 3). Concerns related to common source bias are especially related to analyses based on perceptual measurements from survey data where both the dependent and the independent variables are collected from the same survey (Jakobsen & Jensen, 2015; Podsakoff & Organ, 1986).

In this analysis, data on the dependent variable is self-reported, but the explanatory variable contract design is not; the risk of common source bias is therefore absent. Two of the variables on the individual level, tasks and position in hierarchy, are self-reported and collected from the same survey as the dependent variable. The questions measuring position in hierarchy and tasks are forthright questions, not demanding any evaluation from the respondent. The probability of biased effects of these variables on the respondents’ perception of the impact of performance management is therefore regarded as low. The effect of the perceived type of relationship between ministry and government agency (mutual trust) and the perception of performance management processes (top-down vs. bottom-up) on the perceived impact of performance management should be interpreted with caution, as these effects might be influenced by common source bias.

Results

Descriptive statistics

Figure 1 presents a histogram of the bureaucrats’ perceptions of the impact of performance management. The histogram indicates that performance management is regarded as having quite a strong impact in the ministerial steering of government agencies. On a scale from 1 to 5, the average is 3.6, and the median is 3.7 (1 = low impact, 5 = high impact). The intraclass correlation in the impact of performance management is 3%, which means that the government agency where a bureaucrat is employed accounts for 3% of the variation in bureaucrats’ perceptions of the impact of performance management in the steering of government agencies.

Figure 1. Histogram of bureaucrats' perceptions of the impact of performance management (1 = low, 5 = high).

Figure 2 shows the degree of contract completeness and whether performance management is practiced top-down (1) or bottom-up (5). The average number of steering demands is 58 (with a median of 50), but there is quite a lot of variation. The histogram on the left shows that the steering intensity in the performance contracts is highly skewed toward the left. The histogram on the right illustrates that the bureaucrats perceive performance management as slightly more bottom-up than top-down. On a 5-point scale, the average is 3.2, and the median is 3.

Figure 2. Histogram of contract completeness, measured as the number of steering demands in the performance contracts (left) and histogram of bureaucrats' perceptions of performance management approach (1 = top-down, 5 = bottom-up) (right).

Figure 3 shows the bureaucrats' perceptions of what type of relationship there is between their government agency and the parent ministry. The bureaucrats perceive the level of mutual trust

between their government agency and the parent ministry as quite high; both the average and the median have a score of 4 on a scale from 1 (low mutual trust) to 5 (high mutual trust). The histogram indicates that to a large degree, bureaucrats perceive that the relationship between their government agency and the parent ministry tends more towards a principal-steward relation rather than a principal-agent relation.

Figure 3. Histogram of relationship characteristics, degree of mutual trust (1 = low, 5 = high).

Regressions

Table 2 displays the results of seven multilevel regressions. Because of the skewed distribution of contract completeness and government agency size, both variables are log transformed. There is good reason to believe that the relationships between contract completeness and government agency size and between contract completeness and the impact of performance management is nonlinear. The log transformation might account for this nonlinearity. The coefficients from the log-transformed variables should be interpreted as one unit of change on the log scale of the predictor returns b_k change in the dependent variable (impact of performance management), while holding all other covariates constant. Stated differently, a 1% change in the predictor implies a $b_k * \log(1.01)$ increase in the dependent variable.

Model 1 (Table 2) shows the bivariate relationship between performance contract completeness and the impact of performance management. The effect is close to zero and is not significant, so the model does not support the expectation that the contract design affects the impact of performance management in the ministerial steering of government agencies. Model 2 shows the effect of a top-down versus a bottom-up approach to performance management on the impact of performance management. This model shows that to increase the impact of performance management, a bottom-up approach is more preferable than a top-down approach

Models 3 and 4 show the effect of performance contract design on the impact of performance management and the effect of a top-down versus a bottom-up approach to performance management on the impact of performance management, conditional on whether the ministry-agency relation resembles more of a principal-agent type or a principal-steward type (the level of mutual trust). The type of relationship between the ministry and government agencies does not significantly influence the effect of contract design (which is still insignificant). However, the effect of a top-down or a bottom-up approach to performance management on the impact of performance management is heavily influenced by whether bureaucrats perceive the relationship between the ministry and their government agency to be more of a principal-agent type or more of a principal-steward type. A bottom-up approach decreases the impact of performance management when bureaucrats perceive the relationship to be a principal-agent type, but increases the impact of performance management if the relationship is perceived to be more of principal-steward type.

Table 2: Results of Multilevel Regression Analysis

Regression results							
	<i>Dependent variable</i>						
	Impact of performance management						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Contract completeness (log)	0.07 (0.07)		0.20 (0.24)			-0.04 (0.26)	0.01 (0.07)
Top-down versus bottom-up		0.18*** (0.05)		-0.50** (0.23)		0.13** (0.05)	-0.50** (0.23)
Hierarchy (Level 2 = 1)					-0.19 (0.19)	-0.28 (0.21)	-0.25 (0.21)
Hierarchy (Level 3 = 1)					0.18 (0.12)	0.12 (0.13)	0.11 (0.13)
Hierarchy (Level 4 = 1)					0.36** (0.16)	0.25 (0.16)	0.22 (0.15)
Task (other/in-house = 1)					-0.14 (0.12)	-0.15 (0.12)	-0.15 (0.12)
Task (Mission-related tasks = 1)					-0.17* (0.10)	-0.19* (0.10)	-0.19* (0.10)
Task (reporting results = 1)					0.39 (0.24)	0.44* (0.26)	0.46* (0.26)
Relationship characteristics (mutual trust)			0.28 (0.24)	-0.42** (0.17)	0.11*** (0.04)	0.03 (0.26)	-0.42** (0.17)
Contract completeness (log)* Relationship characteristics (mutual trust)			-0.03 (0.06)			0.01 (0.06)	
Top-down versus bottom-up* Relationship characteristics (mutual trust)				0.16*** (0.05)			0.16*** (0.05)
Agency size (log)					0.06* (0.03)	0.05 (0.03)	0.04 (0.03)
Constant	3.26*** (0.29)	3.04*** (0.16)	2.20** (0.99)	4.79*** (0.70)	2.81*** (0.30)	2.93*** (1.09)	4.69*** (0.76)
Observations	710	567	677	555	669	549	549
Log likelihood	-954.00	-741.87	-903.93	-722.26	-888.89	-719.70	-715.73

Notes: *p < 0.1, **p < 0.05, ***p < 0.01

Reference categories: Hierarchy = level 1, advisors/senior advisors. Tasks = coordination and budgeting. Standard error in parentheses.

Model 5 shows the effects of the control variables. The regression show that higher-ranking bureaucrats find performance management to have a significantly greater impact in the ministerial steering of government agencies than lower-ranking bureaucrats do. The model also includes the type

of relationship between ministries and government agencies (the level of mutual trust). Increased mutual trust seems to enforce the impact of performance management. This might seem counterintuitive, but as Model 4 shows, the effect of how ministries exercise their control is heavily influenced by relationship type.

Models 6 and 7 are the full models that estimate the effects at both the government agency level and the individual respondent level. Model 6 confirms that there is no effect of contract design on the impact of performance management in the steering of government agencies. No evidence in the data supports the claim that contract design matters for the impact of performance management, regardless of whether the contract is relational or complete. The effect of performance contract design is neither conditional on bureaucrats' perceptions of the relationship between their government agency and the ministry.

The significant differences among bureaucrats at different hierarchical levels in Model 5 are no longer present in Models 6 and 7. It seems that the differences in perceptions of performance management impact between the highest- and the lowest-level bureaucrats are caused by differences in perceptions about whether the ministry takes a top-down versus a bottom-up approach to performance management.

Figure 4. The effect of an increased bottom-up approach, conditional on the level of mutual trust.

To ease the interpretation of the interaction between relationship characteristics and a top-down versus a bottom-up approach to performance management in Model 7, Figure 4 shows the effect of an

increased bottom-up approach for different levels of mutual trust, which implies moving from a principal-agent relation towards a principal-steward relation. The figure shows that a bottom-up approach increases the impact of performance management in the steering of government agencies only if bureaucrats perceive the level of trust between ministries and agencies to be high (indicating a principal-steward relation). In cases where mutual trust is perceived as low, which indicate a ministry-agency relation tending towards a principal-agent type, the result seems to be the opposite. In low-trust relations, a top-down approach leads to higher impact of performance management than a bottom-up approach does, although there is too much uncertainty for the effect to be significant. The large confidence intervals around the effect might be caused by the fact that only a few respondents perceive the level of trust as minimal.

Figure 5. The effect of increased mutual trust, conditional on the top-down versus the bottom-up approach to performance management

Figure 5 shows the effect of increased mutual trust, a more principal-steward oriented relationship, conditional on whether performance management is practiced as top-down or bottom-up. The effect of mutual trust is significantly positive if performance management is practiced as bottom-up and significantly negative if performance management is practiced as top-down. Increased mutual trust increases the impact of performance management in combination with bottom-up involvement, but decreases the impact of performance management in combination with top-down control. If ministries

practice top-down control in a relationship that bureaucrats perceive is a principal-steward type, the result is reduced impact of performance management. However, if ministries instead take a bottom-up approach, the result is increased impact of performance management in the ministerial steering of government agencies.

Discussion

This study shows that, overall, performance management has a substantial impact in the ministerial steering of government agencies. However, the analysis indicates that how ministries design performance contracts has no effect on bureaucrats' perceptions of the impact of performance management. Whether ministries rely on relational or complete contracting does not matter. The effect of contract design on the impact of performance management is also unaffected by whether the relationship between ministries and government agencies tends towards a principal-agent type or a principal-steward type. Hypotheses 1 and 2 related to performance contract design are not confirmed.

The results supports Davis et al. (1997) description of the principal's choice of control as a "prisoner's dilemma". When ministries decide between exercising a top-down or a bottom-up approach to performance management, the results show that ministries should take into account whether the relationship to a government agency has more in common with a principal-agent type or a principal-steward type. A top-down approach, compared to a bottom-up approach, leads to a higher impact of performance management only in relationships that tend towards a principal-agent type. If bureaucrats perceive that mutual trust is absent, a bottom-up approach might in fact be counterproductive. This fits the recommendations from agency theory, that in a principal-agent relationship, principals must impose a sufficient amount of control to prevent shirking and drift (Jensen & Meckling, 1976). A bottom-up approach in a principal-agent relation might resemble a "fox in the henhouse" (Davis et al., 1997, p. 39), where the exercise of control is decoupled from the type of relationship. Hypotheses 3 and 4 related to the performance management process are corroborated.

In contrast, when high mutual trust is present, increased top-down control reduces the impact of performance management. Bureaucrats that perceive the level of mutual trust as high, which indicates

that they perceive the relationship between their government agency and the ministry to be a principal-steward type, also perceive that top-down control leads to performance management having less impact in the steering. This supports the claim that stewardship motivation might be crowded out if principals impose strict control in a principal-steward relation. In other words, increased bottom-up involvement increases the impact of performance management in the steering of government agencies only when bureaucrats believe that mutual trust is high, which implies a principal-steward relation. This finding is best explained by stewardship theory. There is mutual fit between the principals' choice of control and the characteristics of the relationship. In principal-steward relations, stewardship theory recommends a low power distance between principal and stewards, which prevent stewards from distancing themselves from the principal (Schillemans, 2013, p. 545). Two important aspects of a low power distance are involvement and collaboration, where goal alignment and mutual trust are outcomes (Van Slyke, 2007). A low power distance fits a bottom-up approach, where ministries and government agencies might jointly develop and use performance information.

This study shows that when bureaucrats perceive they are in a relation resembling a principal-steward type (with high mutual trust), they also perceive that a bottom-up approach to performance management has a greater impact on their work, than bureaucrats perceiving they are in a principal-agency relation do. These findings imply that ministries should take a bottom-up approach when steering a government agency where a large proportion of the bureaucrats regard the mutual trust to be high. This will ensure a mutual fit between control structures and the type of relationship between the ministry and a government agency and will increase the impact of performance management. A higher impact of performance management might lead to more effective control. In the end, more effective control might improve organizational performance.

A limitation in this study is the use of cross-sectional data as longitudinal data were not available. Future research should focus on obtaining longitudinal data, which allow for stronger claims about inferences between control practices and the ministry-agency relationship and the impact of performance management in the steering of government agencies.

The data show that performance contract design does not affect the impact of performance management in the steering of government agencies, regardless of the relationship characteristics. Why

does contractual design not matter? First, a possible explanation could be the research method. The dependent variable in this study is based on closed questions (which is commonly used in surveys). Closed questions might be more reliable than open questions, but they face some concerns related to validity. For example, it is difficult to know if the respondents report on the impact of performance management for their own specific daily tasks or for their field of tasks in general. However, as this study is concerned with the impact of performance management in the steering of government agencies and not individual bureaucrats, the distinction is not too problematic. Both interpretations of the question will still provide valuable information on the impact of performance management in the steering of government agencies. If the respondents believe that performance management has a high impact on their work, clearly performance management has a high impact in the steering of the agency in which the respondent is employed. On the contrary, if the respondents believe that performance management has a high impact on their field of tasks more broadly, then again, performance management clearly has a high impact.

Second, in a bureaucratic hierarchy, tasks are delegated vertically to prevent each individual bureaucrat from an information overload caused by limited resources and bounded rationality. The total amount of steering demands in a performance contract does not necessarily affect bureaucrats' individual perceptions of the impact of performance management, because bureaucrats downward in the hierarchy are only exposed to the goals and the targets related to their range of work. A large increase in the number of steering demands imposed on a government agency does not necessarily imply that a bureaucrat in that government agency would face an equally large increase in steering demands. However, performance management might have a stronger impact on the top management that sets priorities and allocates organizational resources. Goals, targets, and instructions in the performance contracts are primarily aimed at the top management, and the top management would have to transfer these objectives downward in the organization. It might be the case that the bureaucrats in the survey do not evaluate the impact of the performance contracts received from the ministry when they evaluate the impact of performance management, but instead evaluate the internal performance management system.

Third, this study only covers the performance contracts for 30 government agencies, which all have the same formal affiliation to the ministries. More variations among the government agencies in this study, for example, by adding agencies with a higher degree of formal autonomy, might be necessary to reveal any effect of contract design on the impact of performance management in the ministerial steering of government agencies. However, these data are not available. Moreover, it would have been beneficial to have a higher number of respondents from each government agency, thus allowing for more within-government agency variations.

Fourth, research has shown that government agencies do not necessarily consider control as something negative. In fact, they appear to be appreciative of getting some attention (Van Thiel & Yesilkagit 2011). If bureaucrats view the number of steering demands in performance contracts as an expression of the ministry's interest in the government agency, it is easy to understand why the design of performance contracts might not matter for performance management impact.

The intraclass correlation in the bureaucrats' views on the impact of performance management is rather low. The government agency level only accounts for 3% of the variation in bureaucrats' perceptions of the impact of performance management. When Models 6 and 7 are estimated with ordinary least squares regression, the explained variance is only 4% and 5.5%, respectively. It is quite surprising that performance contract design, the ministries' approach to performance management, trust, tasks, hierarchical positions, and government agency size are unable to explain more variance in the impact of performance management in the ministerial steering of government agencies. This might raise the concern that omitted variables exist that might have provided an increase in explained variance. The low intraclass correlation indicates that bureaucrats' perceptions of the impact of performance management only to a relatively low degree are explained by which government agency they are employed in. Of the total variance in bureaucrats' perceptions of the impact of performance management, 97% is at the individual level. It is unlikely that adding variables at the agency level to the model would substantially increase explained variance. However, there might be variables at the respondent level that might further increase the explained variance. Nevertheless, the purpose of this study is not to maximize the explained variance, but to test the effects of a ministry's choice of control structures when interacted with the type of relationship between the ministry and a government agency.

Agency theory and stewardship theory receive mixed support in the sense that none of the theories alone can explain the findings. Both theories describe what kind of control that might have the strongest impact under a single different condition, whether subordinates are opportunistic or loyal, which might lead to a low-trust relation or a high-trust relation. Agency theory is beneficial to understand the use of control in the first type of relation while stewardship theory is useful in the latter type. The research on ministry–agency relationships (Schillemans, 2013; Schillemans & Bjurstrøm, 2019), government contracting with third-sector organizations (Dicke, 2002; Lambricht, 2008; Marvel & Marvel, 2008; Van Slyke, 2007), and corporate governance (Anderson, Melanson, & Maly, 2007; Roberts, McNulty, & Stiles, 2005) indicates that agency theory and stewardship theory should be combined. Rather than confirming the superiority of one over the other, the findings have been mixed. To fully capture the dynamics in the ministerial steering of government agencies the two theories should be used complementary. This study's results fit this pattern.

A final analytical point is that the level of trust and collaboration between ministries and agencies in the Norwegian bureaucracy is in general perceived to be quite high among bureaucrats. The high levels of trust and collaboration might be explained by the fact that Norway has a long tradition for delegating tasks and responsibilities from ministries to government agencies (see Lægreid, Roness & Rubecksen (2012) for more a thorough description of ministry-agency relations in Norway). The high level of mutual trust is reflected in the data that was used in this study. When only a small minority of the respondents perceiving the level of mutual trust to be low, it increases the uncertainty around the effects of different types of performance management practices and contract specifications in a low-trust relationship. This study provides valuable insights regarding the impact of performance management in contexts where the general level of trust is quite high. However, if this study is replicated in other countries where less trust is present, the results might be different.

Conclusion

This article has examined what conditions affect the impact of performance management in the ministerial steering of government agencies. Specifically, the article has studied the effects of performance contract design and a top-down or a bottom-up approach to performance management on

the impact of performance management, conditional to the type of relationship between ministries and government agencies, measured as the level of mutual trust.

How a principal exercises control should take into account what kind of relationship there is between the principal and the executive to increase the impact of the imposed control. If control structures are decoupled from the type of relationship then control structures will be suboptimal and have a lesser impact in the steering. When ministries delegate power and decision-making autonomy to government agencies, ministries might encounter problems related to agency loss and agency drift, which might be caused by information asymmetry. Agency theory suggests strict hierarchical control with complete contracts and a top-down control. In contrast, stewardship theory highlights how mutual trust between ministries and government agencies might act as an alternative to formal control. The theory suggests that ministries should rely on relational contracting and bottom-up involvement.

In conclusion, what conditions the impact of performance management? Overall, performance management has substantial impact in the steering of government agencies. However, this article shows no effect of performance contract design on the impact of performance management, regardless of relationship characteristics. Whether a government agency is subjected to performance contracts with a high or low degree of completeness does not affect how bureaucrats employed in the government agency perceive the impact of performance management. Whether ministries rely on a top-down or a bottom-up approach to performance management, however, affects the impact of performance management. If ministries are to improve the impact of performance management, they should take the level of mutual trust into account. If the degree of trust is low, ministries should apply a top-down approach, as suggested by agency theory. If the level of trust is high, ministries should employ a bottom-up approach, as recommended by stewardship theory. There is not a “one size fits all” approach to performance management.

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Appendices

A.1. Questions in the top-down versus the bottom-up index [the author's translation].

Would you agree or disagree with the following statements about the performance management system in the central government within your area of responsibility, as expressed in the letters of appropriation and the steering dialogue between ministries and subordinate agencies?		
Statement	Factor loading	Included in index
The design of the goals and the performance indicators are developed in cooperation between ministries and government agencies.	0.67	Yes
It is primarily a control and management tool for ministries.	-0.04	No
It offers great flexibility and autonomy for subordinate agencies.	0.78	Yes
It promotes learning and improvement in public administration.	0.82	Yes
It is not suitable to handle problems and tasks that cross ministerial areas or state and municipal levels.	0.26	No

A.2. Descriptive statistics of agency size

	Mean	SD	Median	1st Q	3rd Q	Min	Max	N
Agency size	1,914	3,701	404	150	1,242	66	14,634	30

A.3. Histogram of agency size

A.4. Frequency table of hierarchical positions [the author's translation].

Hierarchy Level 1 (Advisor/senior advisor)	Hierarchy Level 2 (Special advisor/senior advisor +)	Hierarchy Level 3 (Assistant director/head of section)	Hierarchy Level 4 (Director general)
1,231	57	123	67

A.5. Frequency table of tasks [the author's translation].

Coordination and budgeting	Other/in-house	Mission-related tasks	Reporting results
204	235	832	29

Article 3: How interagency coordination is affected by agency policy autonomy

ABSTRACT

This article analyses how variances in inter-agency coordination are affected by agencies' policy autonomy. Performance management has increased the focus on agency autonomy, but knowledge of how different levels of agency autonomy affect coordination amongst government agencies is limited. Theoretically, this article uses agency and stewardship theory to discuss why agencies might regard coordination as either desirable or undesirable. Empirically, this article analyses performance contracts between and annual reports of ministries and government agencies. Findings support the expectation derived from agency theory. Agencies with high autonomy coordinate less with other agencies than agencies with low autonomy do.

Karl Hagen Bjurstrøm (single-authored)

Publication status: Published in *Public Management Review*, 2019.

Article 4: Computer-assisted text analysis: Application on quasi-contractual ministry– agency relations

ABSTRACT

This article investigates the value of computer-assisted text analysis to public administration research, illustrating how machine learning can be used to replicate human text coding. The study applies machine learning to replicate behavioral and performance steering demands for 140 human coded letters of appropriation. The behavioral steering demands required a low degree of human interpretation in the coding, while the performance steering demands required a high degree of human interpretation. Thus, the behavioral steering demands constitute a likely case in which computer-assisted text analysis may successfully replicate human coding, with performance steering demands representing a conservative test. The model was then applied to predict development in the steering practices of 1,285 letters of appropriation from 2010–2019. The results show that machine-learning algorithms were only able to successfully predict behavioral steering demands. This result implies that researchers should carefully consider the need for human interpretation in coding texts that undergo computer-assisted text analysis.

Karl Hagen Bjurstrøm (single-authored)

Publication status: Received revise and resubmit in *Public Administration* [June 16, 2020].