

Environmental and task uncertainty, and the importance of controllers' activities

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Abstract

This article examines the relationships between environmental and task uncertainty, and the importance of controllers' activities. Survey data from 412 Dutch organizations operating in a wide variety of sectors are used to explore these relationships, focusing explicitly on their entire controllership function. The results show much variation in terms of the importance of controllers' activities, both within and across organizations. Factor analysis identifies seven dimensions of controllers' activities importance, of which budgeting/reporting activities are the most important. Environmental and task uncertainty are differently related to these dimensions of controllers' activities importance.

Relevance to practice

This study aims to provide insight into the activities performed by the controllership function of a sample of Dutch organizations, and how the importance of these activities relates to environmental and task uncertainty. More knowledge about these issues may possibly help managers in the process of designing and managing the controllership function within their organization.

Keywords

Controllers' activities, environmental uncertainty, task uncertainty

1. Introduction

A large and growing body of research examines the roles and activities of controllers, and how these aspects relate to the context in which controllers operate.¹ Research suggests that in many organizations, in particular in more recent decades, the roles of controllers have evolved from 'bean counters' to 'business partners', and that accordingly their activities have either shifted or expanded (Goretzki and Strauss 2018). However, no consensus on this issue has been reached yet (Rieg 2018), which is partly because the literature is rather abstract (and as a result, ambiguous) about the bundle of activities associated with the business partner role (Goretzki et al. 2018). Further, research has mainly focused on individual controllers as the unit of analysis, whereas in practice the roles within the

controllership function (i.e., the collection of individuals that perform controllers' activities in their organization) are usually divided between different individuals (Nielsen et al. 2024)². Moreover, in practice controllers often perform multiple (in particular at middle management levels, potentially conflicting) roles (Maas and Matějka 2009). It may therefore be better to focus research on controllers' activities instead of their roles (Mahlendorf 2014), and when doing so, on the entire controllership function instead of individual controllers (cf. Nielsen et al. 2024).

Scholars have used various theories (in particular, role theory and contingency theory) to suggest many factors that may be related to the roles and activities of controllers (Byrne and Pierce 2007; Rieg 2018). For example, at the

individual level of analysis, the influence of different types of skills (such as conceptual and interpersonal skills) on the influence and effectiveness of controllers has recently been studied (e.g., Ten Rouwelaar et al. 2021), whereas at different levels of analysis, the influence of developments such as digitalization and data analytics receives much research attention (e.g., Nielsen 2018). Contingency theory, on which this article builds, argues that in order to be effective, the roles and activities of controllers should be aligned with the context in which they operate. Uncertainty is a central concept in this theory, and is in practice for many organizations now higher than ever. With regard to this concept, contingency theory suggests that different types of uncertainty will lead to different information needs, and as a consequence to more or less importance of certain controllers' activities. However, empirical evidence on how environmental and task uncertainty are related to controllers' activities is still limited.

The purpose of this article is therefore to examine the relationships between environmental and task uncertainty, and the importance of controllers' activities. Survey data from 412 Dutch organizations operating in a wide variety of sectors are used to explore these relationships, focusing explicitly on their entire controllership function.

This study contributes to the literature in at least two ways. First, it adds to our knowledge about the activities performed by the controllership function of organizations. Although much research has been conducted, we still know relatively little about these activities, given that (a) studies have typically focused on a rather limited range of controllers' activities and/or have aggregated

controllers' activities in a limited number of roles, and (b) studies have typically focused on the activities performed by individual controllers as opposed to the entire controllership function. This study aims to extend these studies by focusing on a relatively wide range of controllers' activities and on their importance for the entire controllership function. Second, this study supplements prior studies about the determinants of the importance of controllers' activities, by regressing (seven dimensions of) controllers' activities importance on variables that reflect environmental and task uncertainty, which are at the heart of contingency theory.

The remainder of this article is structured as follows. Section 2 briefly reviews related literature. Section 3 describes the research method. Section 4 presents and discusses the results. Finally, Section 5 summarizes and concludes.

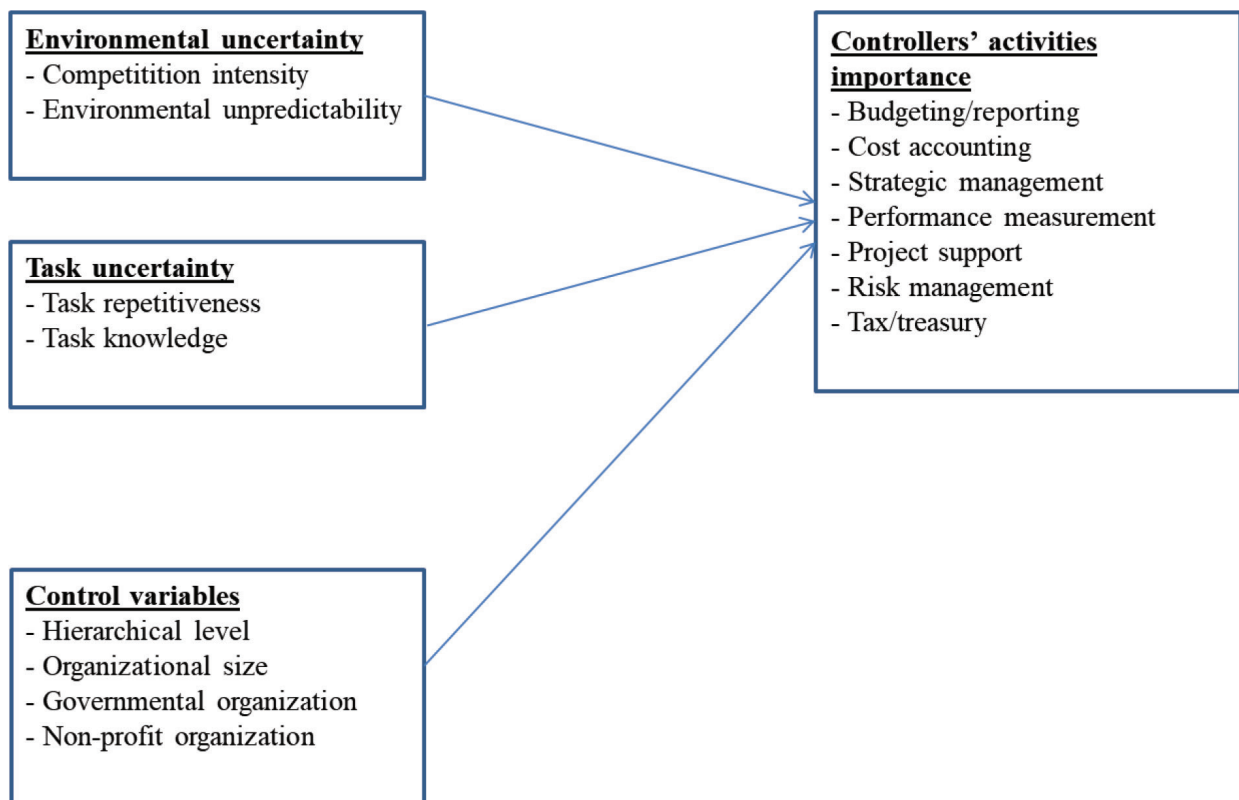
2. Related literature

Figure 1 shows the conceptual research model.

2.1. Controllers' activities

The study of the roles and activities of controllers has a long history. Simon et al. (1954) were some of the first scholars to study this topic, identifying three roles of controllers: scorekeeping, attention directing and problem solving. Since then, other scholars have also tried to capture the diversity of the work of the controller in a taxonomy of controller roles, where combinations (bundles) of

Figure 1. Conceptual research model.



activities are considered to determine the roles. Based on a review of the literature, Fourné et al. (2018, p. 146) suggest that nowadays controllers exercise three different roles:

1. The business partner role, in which a controller “is expected to enhance managerial decision making”.
2. The watchdog role, in which “a controller’s primary responsibility is to monitor managers and to ensure adherence to set performance standards and internal regulations”.
3. The scorekeeper role, in which a controller “takes care of routine reporting duties and the administration of an organization’s internal financial systems”.

Nielsen et al. (2024) focus on the roles potentially performed by employees within the finance function (which is more encompassing than the controllership function) and present an alternative taxonomy that consists of four different roles: collaboration, adhocism, control and compete. They argue that previous research has typically analyzed the extent to which (individual) controllers perform either one role or another, whereas in practice controllers often perform multiple roles. Since the latter will definitely be the case for the entire controllership function of most organizations, different from what is typically done by researchers in this area (e.g., De Loo et al. 2011; Hartmann and Maas 2011), I focus on controllers’ activities instead of aggregating these activities into roles.

2.2. Environmental and task uncertainty, and controllers’ activities

Contingency theory argues that in order to be effective, the roles and activities of controllers should be aligned with the context in which they operate. The concept of uncertainty is at the heart of contingency theory (Otley 2016), and also more in general has been qualified as the most important factor that influences many management accounting activities (Bhimani 2020). There are different sources and types of uncertainty, however. Scholars mostly differentiate between uncertainty that originates from the environment in which an organization operates and uncertainty that originates from the organization’s production process. I focus on two factors (constructs) concerning environmental uncertainty: environmental unpredictability and competitive intensity (which is argued to be closely related to environmental uncertainty and sometimes used to proxy for it³), and two factors (constructs) concerning task uncertainty: task repetitiveness and task knowledge. Task repetitiveness refers to the extent to which the activities and tasks of the operational units of an organization are repetitive, whereas task knowledge refers to the extent to which there is knowledge about how the activities and tasks of the operational units are (supposed to be) done (Withey et al. 1983). With regard to the concept of uncertainty, contingency theory suggests that different types of uncertainty will lead to different information needs. That is, an increase in a certain type of uncertainty may lead to

an increase in the need for certain types of information, and as a result to more importance of certain controllers’ activities. Uncertainty may also complicate performing certain controllers’ activities, however. Hartmann (2000) has therefore pointed at the existence of a trade-off as a result of uncertainty between, on the one hand, the *need* for a certain type of information and, on the other hand, the *feasibility* (or *appropriateness*) of producing and supplying such information. To date, empirical research on how different sources and types of uncertainty are related to the roles and activities of controllers is limited to Hartmann and Maas (2011), who only find some evidence that task uncertainty seems to be positively related to the importance of the business partner role of controllers, but not to the importance of the watchdog role.

3. Research method

3.1. Sample and data collection

The data have been collected using a multi-purpose survey that aimed to focus on controllers from a broad range of sectors.^{4,5} It was supported by, and conducted among, the members and/or students of, several Dutch organizations of controllers.⁶ After extensive pretesting, a procedure that consisted of multiple moments of contact was used to mail a 16-page questionnaire to 5358 members/students of these organizations, of which 5316 could be delivered. A total of 706 targeted respondents (13.3%) returned the questionnaire. However, the available number of cases for the analyses reported in this article is less, due to three major reasons: removal of (182) unsuitable respondents, dealing with missing values (89 cases) and removal of small organizations (23 cases). This provided a final sample of 412 cases, consisting of profit, governmental and non-profit organizations. The average respondent is 42.4 years of age, has been working for his/her employer for 7.2 years, and has 6.6 years of experience in his/her current function. Also, 20% of the respondents is female, and all respondents have a high level of education.

3.2. Measures

Respondents working at the highest hierarchical level, the concern level (i.e., concern division(s) and associated staff division(s)), were explicitly instructed to answer all questions from the perspective of the “organization” as a whole. Respondents working at lower hierarchical levels were explicitly instructed to answer all relevant questions from the perspective of the management of their “organizational unit” (e.g., business unit or independent location).⁷ Also, it was strongly emphasized that all related questions refer to the entire controllership function (i.e., the collection of individuals that perform controllers’ activities in their organization(al unit)), instead of the respondent (controller) as an individual. Constructs were measured using existing scales when available, and

unless stated otherwise, items were measured using a 5-point Likert scale. For all multi-item constructs, which I all consider to be reflective, exploratory factor analysis using principal axis factoring and an oblique rotation is used to identify the underlying dimensions, and construct scores are computed as mean scores based on all items with a loading above 0.30. In addition to multi-item measures, mainly to keep the questionnaire a manageable length, also several single-item measures were used.

3.2.1. Dependent variables

Controllers' activities importance is measured using a list of activities that are widely recognized to be (potentially) performed by employees within the controllership function. This list was developed based on a wide reading of the academic and practitioner literatures about controllers' activities (e.g., De Loo et al. 2011; Maas and Matějka 2009; Russell et al. 1999). Respondents were asked, on a five-point scale ranging from 1 (not important) to 5 (very important), to indicate how important each of 29 activities is for the controllership function of their organization. A factor analysis of all activities to assess dimensionality provides seven well-interpretable dimensions that are respectively labeled *budgeting/reporting importance*, *cost accounting importance*, *strategic management importance*, *performance measurement importance*, *project support importance*, *risk management importance* and *tax/treasury importance*. The reliability of all dimensions, except *project support importance* ($\alpha = 0.52$, which seems due to the fact that only two items load on this dimension), is adequate (the other α 's range between 0.62 and 0.80).

3.2.2. Independent variables

Competition intensity is measured using an instrument that reflects how intensive the competition on the market of their organization is with regard to six factors developed by Hoque et al. (2001). Factor analysis reveals that one dimension explains 71.7% of the variance in the six items

($\alpha = 0.94$). *Environmental unpredictability* is measured using an (adapted) instrument that reflects how predictable the external environment of their organization was during the last three years with regard to five factors developed by Dekker et al. (2013). Factor analysis reveals that one dimension explains 34.4% of the variance in the five items ($\alpha = 0.72$). Task uncertainty is measured using an eight-item instrument that reflects the nature of the work processes in the operational units of the organization, in particular task repetitiveness and knowledge (Withey et al. 1983). Factor analysis reveals that two dimensions, labelled *task repetitiveness* ($\alpha = 0.84$) and *task knowledge* ($\alpha = 0.80$), together explain 56.5% of the variance in the eight items.

3.2.3. Control variables

I control for three artifact variables because I expect them to be related to both my dependent and independent variables. *Hierarchical level* denotes whether the respondent is working at the concern level (either in a central or staff function) or at a lower level in the organization. As shown in Table 1, 47% of the respondents is working at the concern level and 53% at lower levels. *Organizational size* is measured by the natural logarithm of the number of employees working for the organization (in full-time equivalents). Finally, sector denotes whether the respondent is working in a profit, governmental or non-profit organization. Two indicator variables are used to represent this variable (*governmental organization* and *non-profit organization*). Of the respondents, 59% is working in a profit organization, 22% in a governmental organization, and 19% in a non-profit organization.

4. Results

4.1. Descriptive statistics and correlations

Table 1 presents the descriptive statistics and Pearson correlations.

Table 1. Descriptive statistics and Pearson correlations.

	Mean	SD	Actual range	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Budgeting/reporting importance	4.19	0.81	1.00–5.00	-													
2. Cost accounting importance	3.71	1.03	1.00–5.00	0.67	-												
3. Strategic management importance	3.63	0.83	1.00–5.00	0.26	0.41	-											
4. Performance measurement importance	3.42	0.93	1.00–5.00	0.27	0.27	0.28	-										
5. Project support importance	3.14	1.18	1.00–5.00	0.22	0.23	0.16	0.14	-									
6. Risk management importance	3.06	0.96	1.00–5.00	0.01	0.03	0.15	0.48	0.09	-								
7. Tax/treasury importance	2.26	1.11	1.00–5.00	0.28	0.34	0.13	0.28	0.11	0.34	-							
8. Competition intensity	2.79	1.32	1.00–5.00	0.18	0.25	0.34	0.11	-0.17	-0.24	0.12	-						
9. Environmental unpredictability	2.89	0.82	1.00–5.00	-0.15	-0.17	-0.26	-0.09	0.05	0.04	-0.14	-0.40	-					
10. Task repetitiveness	3.53	0.84	1.00–5.00	0.09	0.11	0.01	0.15	-0.11	-0.00	0.07	0.13	-0.18	-				
11. Task knowledge	3.60	0.70	1.00–5.00	0.19	0.17	0.06	0.12	-0.03	-0.01	0.05	0.14	-0.25	0.60	-			
12. Hierarchical level	0.47	-	-	-0.09	-0.09	-0.05	0.01	-0.12	0.17	0.11	-0.13	0.03	-0.02	-0.05	-		
13. Organizational size	7.71	2.13	3.22–12.90	0.02	0.03	0.10	-0.01	0.02	-0.13	-0.19	0.14	-0.07	0.12	0.17	-0.33	-	
14. Governmental organization	0.22	-	-	-0.23	-0.24	-0.30	-0.15	0.05	0.22	-0.17	-0.66	0.38	-0.04	-0.08	0.08	-0.04	-
15. Non-profit organization	0.19	-	-	0.08	0.03	0.01	0.13	0.11	0.16	-0.05	-0.13	0.00	-0.06	-0.04	0.21	-0.12	-0.26

Notes: $N = 412$; correlations that are significant at a 10% significance level or lower (two-tailed) are reported in bold.

Of the seven controllers' activities, on average, budgeting/reporting activities are considered to be the most important, followed by cost accounting and strategic management activities, whereas project support, risk management and tax/treasury activities are the least important. Paired *t*-tests show that the differences among all pairs of importance scores are significant, except for those between *cost accounting importance* and *strategic management importance*, and *project support importance* and *risk management importance*. Overall, this indicates that particular controllers' activities are clearly more important than others. The lower average importance scores for some activities are probably not only because these activities are less relevant for certain types of organizations, but also because in certain organizations these activities are done by employees from other (specialized) functional areas, such as a separate treasury department.

The correlations show that many controllers' activities, in terms of importance, are (positively) interrelated and differently related to the independent and control variables. Of the independent variables, *competition intensity* is negatively correlated with *environmental unpredictability*, and positively with *task repetitiveness* and *task knowledge*. At the same time, *environmental unpredictability* is negatively correlated with *task repetitiveness* and *task knowledge*, and *task repetitiveness* is positively correlated with *task knowledge*. Taken together, these associations not only indicate that environmental and task uncertainty generally go together, but also that when organizations operate in a more competitive environment, they perceive their environment and the work

processes in their operational units as *less* uncertain. A possible explanation for these latter associations is that more intensive market competition may limit the possibilities of market participants (in particular, competitors) to take unpredictable actions. Overall, the correlations do not cause concerns with multicollinearity.⁸

4.2. Regression analysis results

Table 2 presents the OLS regression analysis results for the controllers' activities importance models.

As shown in Table 2, for the seven controllers' activities importance dimensions, all models are significant. *Budgeting/reporting importance* is positively related to *task knowledge*. This demonstrates that budgeting/reporting activities are more important for the controllership function when there is more knowledge about how the activities and tasks of the operational units are (supposed to be) done, which typically eases budget setting and making budget and financial reports. Also, this dimension is negatively related to *hierarchical level* and *governmental organization*, showing that budgeting/reporting activities are more important at lower (as opposed to higher) hierarchical levels, and in profit (as opposed to governmental) organizations.

Cost accounting importance is positively related to *competition intensity* and *task knowledge*. This indicates that cost accounting activities are more important when organizations face more intensive competition, likely because in highly competitive markets there is a greater need for accurate cost information (cf. Drury and Tayles 2005; Al-Omiri and Drury 2007) and organizations are

Table 2. OLS regression analysis results for the controllers' activities importance models.

	Budgeting / reporting importance	Cost accounting importance	Strategic management importance	Performance measurement importance	Project support importance	Risk management importance	Tax / treasury importance
Environmental uncertainty							
- Competition intensity	0.03 (0.04)	0.12** (0.06)	0.15*** (0.04)	0.04 (0.05)	-0.19*** (0.06)	-0.05 (0.05)	-0.03 (0.06)
- Environmental unpredictability	-0.04 (0.05)	-0.04 (0.07)	-0.14*** (0.05)	-0.01 (0.06)	-0.02 (0.08)	-0.10 (0.06)	-0.10 (0.07)
Task uncertainty							
- Task repetitiveness	-0.04 (0.06)	-0.00 (0.07)	-0.07 (0.06)	0.15** (0.07)	-0.16* (0.08)	0.01 (0.07)	0.07 (0.08)
- Task knowledge	0.22*** (0.07)	0.21** (0.09)	0.02 (0.07)	0.04 (0.08)	0.09 (0.10)	0.02 (0.08)	0.03 (0.10)
Control variables							
- Hierarchical level	-0.14* (0.08)	-0.15 (0.11)	0.01 (0.08)	-0.02 (0.10)	-0.37*** (0.12)	0.17* (0.10)	0.21* (0.11)
- Organizational size	-0.02 (0.02)	-0.02 (0.02)	0.02 (0.02)	-0.01 (0.02)	0.01 (0.03)	-0.03 (0.02)	-0.10*** (0.03)
- Governmental organization	-0.30** (0.14)	-0.26 (0.18)	-0.16 (0.14)	-0.14 (0.17)	-0.14 (0.21)	0.57*** (0.17)	-0.59*** (0.19)
- Non-profit organization	0.14 (0.11)	0.10 (0.15)	0.04 (0.11)	0.30** (0.13)	0.29* (0.17)	0.46*** (0.13)	-0.42*** (0.16)
Intercept	3.57*** (0.30)	2.78*** (0.38)	2.81*** (0.29)	2.67*** (0.35)	3.93*** (0.44)	2.71*** (0.35)	2.58*** (0.41)
<i>F</i> -statistic	5.30***	5.62***	8.64***	3.03***	3.90***	6.83***	5.90***
Adjusted <i>R</i> ²	7.72%	8.25%	12.95%	3.81%	5.34%	10.18%	8.71%

Notes: *N* = 412. Cell statistics are the coefficient estimates and standard errors (in parentheses). ***, **, * indicates significance at the 0.01, 0.05 and 0.10 levels (two-tailed), respectively.

typically forced into intensive cost control and/or reduction efforts, and when there is more knowledge about how the activities and tasks of the operational units are (supposed to be) done, probably because this increases the possibilities of producing and supplying cost accounting information that meets these needs.

Strategic management importance is positively related to *competition intensity*, and negatively to *environmental unpredictability*. This suggests that strategic management activities are more important for the controllership function when organizations face more intensive competition and a less unpredictable environment. The (opposite) findings for *competition intensity* and *environmental unpredictability* support the existence of a trade-off between, on the one hand, the *need* for strategic management information and, on the other hand, the *feasibility* (or *appropriateness*) of producing and supplying such information by the controllership function (cf. Hartmann 2000). The fact that this trade-off is not significant for cost accounting activities may be because there is no obvious alternative for cost accounting information, whereas there commonly are such alternative sources for strategic management information (i.e., information produced by other functional areas, such as the marketing function).

Performance measurement importance is positively related to *task repetitiveness*. This indicates that performance measurement activities are more important when the activities and tasks of the operational units are more repetitive, which typically eases measuring the performance of these units. Furthermore, this dimension is positively related to *non-profit organization*, showing that performance measurement activities are more important in non-profit (as opposed to profit) organizations.

Project support importance is negatively related to *competition intensity* and *task repetitiveness*. This reveals that project support activities are less important when organizations face more intensive competition and when the activities and tasks of the operational units are more repetitive, suggesting that in these circumstances there is less need for such activities (and maybe even for projects as such). Also, this dimension is negatively related to *hierarchical level* and positively to *non-profit organization*, showing that project support activities are more important at lower (as opposed to higher) hierarchical levels, and in non-profit (as opposed to profit) organizations.

Risk management importance is not significantly related to any of the independent variables. However, this dimension is positively related to *hierarchical level*, *governmental organization* and *non-profit organization*, showing that these kinds of activities are more important at higher (as opposed to lower) hierarchical levels and in both governmental and non-profit (as opposed to profit) organizations.

Finally, *tax/treasury importance* is also not significantly related to any of the independent variables, but is significantly related to all control variables: positively to *hierarchical level*, and negatively to *organizational size*, *governmental organization* and *non-profit organization*. These results are little surprising since these kinds of activities

(such as making reports for tax legislation) are generally highly centralized and carried out for the organization as a whole, in particular in larger organizations where they are typically performed by dedicated personnel outside of the controllership function. The lower importance of these activities in governmental and non-profit (as opposed to profit) organizations is probably due to the fact that tax/treasury activities are less relevant for such organizations.

5. Discussion and conclusions

This article uses survey data from 412 Dutch organizations to examine the relationships between environmental and task uncertainty, and the importance of controllers' activities. It builds on contingency theory and focuses explicitly on the entire controllership function. The results show much variation in terms of the importance of controllers' activities, both within and across organizations. Factor analysis identifies seven dimensions of controllers' activities importance: *budgeting/reporting importance*, *cost accounting importance*, *strategic management importance*, *performance measurement importance*, *project support importance*, *risk management importance* and *tax/treasury importance*. Of these dimensions, on average, budgeting/reporting activities are considered to be the most important. Regression analysis shows that environmental and task uncertainty are differently related to these dimensions of controllers' activities importance.

Some results merit further discussion. First, to identify the underlying dimensions of controllers' activities importance, a list of activities that are potentially performed by employees within the controllership function was used. This list was developed based on a wide reading of the academic and practitioner literatures about controllers' activities. It is important to emphasize that this list is not exhaustive. This may have affected the identified dimensions of controllers' activities importance, as well as their relationships with the focal independent variables. Future research may want to include other and/or additional activities, also given recent developments such as digitalization and data analytics, which definitely have an impact on *how* controllers' activities are being performed, and which *may* also affect their importance.

Second, the regression analysis shows interesting relationships between environmental and task uncertainty, and the importance of controllers' activities. Overall, consistent with contingency theory, these results support the idea that different types of uncertainty lead to different information needs, and as a result to more or less importance of certain controllers' activities. It has been argued that uncertainty may also complicate performing certain controllers' activities. Particularly interesting are therefore the opposite findings for the relationships between competition intensity and environmental unpredictability and strategic management importance which support the existence of a trade-off between, on the one hand, the *need* for strategic management information and, on the

other hand, the *feasibility* (or *appropriateness*) of producing and supplying such information by the controllership function (cf. Hartmann 2000). But also the results for the other variables are interesting, including those for the control variables, which reveal many important significant but also non-significant relationships, such as (for example) that strategic management and cost accounting activities seem to be equally important for the controllership function in profit, governmental and non-profit organizations. This is the first study that explores many of these relationships, however. Therefore, further research on these relationships is needed.

This study is subject to several limitations. In addition to the usual limitations of cross-sectional survey-research (such as potential issues with causality, omitted variables and measurement error, to name a few), there is the issue of generalizability. Although the sample size is substantial and it represents a wide variety of sectors, the sample may be biased with respect to unknown variables, which would limit the generalizability of the results. Despite these potential limitations, this study contributes to our knowledge about controllers' activities and may possibly help managers in the process of designing and managing the controllership function within their organization.

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Notes

1. In much of the literature, the terms 'controller' and 'management accountant' are typically used interchangeably, even though international research shows that not in every country these terms have the same meaning (cf. Goretzki and Strauss 2018). In the Dutch context, both terms have a similar meaning. I will only use the term 'controller', because this is more commonly used in The Netherlands.
2. Actually, Nielsen et al. (2024) focus on the (more encompassing) finance function, but the argument remains the same.
3. However, Otley (2016) notes that there are also studies that show contrary results for these two factors.
4. A more extensive description of the research methods that were used for this study – including the survey questions and descriptive statistics, and the results of the exploratory factor analyses – is available upon request.
5. It should be noted that this dataset has also been used for several other (unrelated) publications, including Budding et al. (2019).
6. Specifically, members of the Institute of Management Accountants (IMA) Chapter Amsterdam (494), current and former students of the Certified Management Accountant (CMA) program at the Vrije Universiteit Amsterdam, who are not a member of the IMA Chapter Amsterdam (289), members of the 'Vereniging van Registercontrollers' (VRC) (3890), current students of the Register Controller (RC) education at the Vrije Universiteit Amsterdam (217), members of the 'Europees Instituut voor Certified Public Controllers' (EICPC) (346), and alumni students of the Certified Public Controllers (CPC) education at the Vrije Universiteit Amsterdam (122).
7. Where I, for brevity, from this point onwards refer to an "organization", it can thus also be an organizational unit. In the empirical analyses, I control for the hierarchical level of the respondents.
8. Accordingly, the average (maximum) variance inflation factor (VIF) of the regression models is 1.60 (2.34).

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